IT Management in Local Government: The DISIMIT Project

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Digital Service Integration through effective Management of IT in Danish municipalities

http://www.disimit.dk

**IT Management in Local Government:**

**The DISIMIT Project**

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Introduction

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# E-Government in Denmark

The most common expression in Danish for e-government is ‘digital forvaltning’ which can be translated as electronic administration. Digital (electronic) administration occurs when digital technologies are systematically used to improve the efficiency of government organisations. However IT is widespread in the public sector and can serve a variety of purposes ([Rose 2007](#_ENREF_3)), for example:

* E-Administration – the use of computer and networking technologies to support, develop and rationalise the internal process of government institutions.
* E-Service – the use of computer and networking technologies to support and improve the delivery of government service to the public.
* E-Participation – the use of computer and networking technologies to support and develop the political process.

Possibly the most common way of understanding e-government is as a series of stages in a maturity model. According to Layne and Lee ([2001](#_ENREF_2)), e-government progresses through:

* a catalogue stage – with an online presence, a catalogue of services and downloadable forms; to
* a transaction stage – services and forms online supported by databases; to
* vertical integration – local systems linked to higher level system within functional areas; ending with
* horizontal integration – systems integrated across functional areas in a one-stop service for citizens.

The Danish national digitalization strategies have been ambitious (United Nation 2008). Denmark currently ranks amongst the leading nations in e-government, rated 6th for e-government and 13th for e-participation according to comparative studies carried out for the United Nations ([2010](#_ENREF_4)). Digital front-end services and digital procurement are not e-government inventions. Touch-tone services and e-mail communication with government existed long before current developments, along with Electronic Data Interchange Systems where companies exchanged order and payment information with the public sector. However the foundation for digital administration in Denmark was laid during the late 1960s and 1970s with the deployment of the CPR (Citizens) and BBR (Building and Housing) registers. The e-government wave in Danish government, though inspired by progress in the US, was comprehensive compared to similar initiatives in other countries, and document and record management systems developed by companies such as Scan Jour during the 1980s were considered world innovations. In recent years, e-government initiatives in Denmark have been increasingly driven centrally through national strategies and a series of eDays (milestone targets for compulsory adoption of IT), resulting in investment growth and far-reaching changes in the public IT infrastructure. The focus has been on realizing the potential of IT for transforming the efficiency of Danish central government, regions and its local government (kommuner) (Ejersbo and Greve 2008); a focus which long precedes the current European economic crises. Centrally-driven initiatives include:

* Compulsory electronic invoicing in the public sector
* Adoption of the XML standard
* Development of a standardized way of delivering payments to citizens
* The development of a centralized electronic patient record for the health service
* The inauguration of a digital taskforce
* Development of a universal digital signature
* Uniform case handling systems
* Mobile solutions for care for the elderly in the community

However, local authorities also initiate and manage many e-government projects with the strategies and frameworks devised by central government.

Local authorities are required to interact with a bewildering array of stakeholders, including several ministries (predominantly those concerned with finance), parliamentary commissions (such as national auditing, the technology committee, and the data-monitoring committee), local authority organisations (the association of local authorities and the local authorities’ IT association) and IT suppliers. The supplier market is now deregulated market and competitive tendering is partly enforced, but KMD (Local Authorities Data), the former monopoly supplier, retains control over many central legacy systems.

It follows that the work of municipality managers in regard to e-government is not simple. They must respond to a wide variety of demands, initiatives and strategies, in a complex network of relationships (both internal and external), with equally complex accountabilities. They must remain within frameworks established by law and regulations, whilst responding to the demands of politicians and (less often) citizens. They must maintain and develop large portfolios of systems and services and renew the infrastructure they depend on. They depend on a variety of IT suppliers in an emerging market. They must, together with colleagues with diverse specialisations, drive digitalisation through this landscape of complexity, indifference and occasional resistance or hostility, and remain positive cheerful whilst they do it. This book is a small contribution towards helping them to do this.

# The DISIMIT project

The book presents some of the results of the DISIMIT project. The aim of the project was to contribute to improving the practical IT management of local government in their effort to increase the level of e-Government. This was done by addressing two research questions; which managerial challenges do the CIO and the IT function in local governments experience in their efforts to increase the level of e-Government; and which managerial tools, models and principles may assist them in solving these challenges?

The DISIMIT project had a budget of €2.2 million and ran from January 2009 to July 2012. The project participants consisted of two IT consultancy companies with extensive public sector experience, 14 researchers from different disciplines; Political Science, Business Studies and Information Systems, and 11 Danish local government municipalities. The municipalities selected for the project were amongst the most mature in terms of e-Government.

The DISMIT project has used collaborative practice research (Mathiassen 2002) as the overall research methodology. This methodology focuses on solving organisational problems through intervening with practitioners and practical problems, while at the same time contributing to scientific knowledge (Mathiassen 2002). It enabled us to address problems of practical concern to people in immediate practical situations and to meet the goals of research by joint collaboration within a mutually acceptable ethical framework (Rapoport 1970). A cyclical process of five activities structures the project: diagnosing, action planning, action taking, evaluating, and specifying learning (Susman and Evered 1978). This cyclical process produced results continuously and iteratively and did not meant that the phases were fully separated or that they were followed in chronological sequence. To guide the overall planning and management the project has been structured in various activities as illustrated in figure 1 (time moves from left to right).

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Diagnosing | Longitudinal theme tracks

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Joint Seminars |  | JointSeminars |  | JointSeminars |  | JointSeminars |
| Theme track 1Action planning | Theme track 1Action taking | Theme track 1Evaluation |
| Theme track 2 Action planning | Theme track 2Action taking | Theme track 2Evaluation |
| Theme track 3Action planning | Theme track 3Action taking | Theme track 3Evaluation |
|  |  |  |

 | Evaluation/specify learning |
| Survey in 98 municipalitiesCase studies in 12 municipalities | Survey in 98 municipalitiesCase studies in 12 municipalities |

Spring 2009

Autumn 2009 – Autumn 2011

Spring 2012

Figure 1. Structure of the research project

Collaboration between participating actors was encouraged through six joint seminars, managing board meetings, and interaction between the involved parties in three longitudinal theme tracks. After initial diagnostic activities, the project chose three main challenges to investigate further in three theme tracks.

In the diagnostic activities, we identified the main IT management challenges. Several theoretical perspectives were applied in order to be able to identify a wide spectrum of challenges. Our theoretical foundation was in the literature on maturity (Layne and Lee 2001, Siau and Long 2005), IT alignment (Chan and Reich 2007, Luftman 2000), and institutionalized organizations (DiMaggio and Powell 1983). Furthermore, we applied various empirical data sources interacting with these theoretical perspectives. A quantitative study in all 98 Danish municipalities was conducted to provide a general picture of the challenges. Moreover, a qualitative study including 3 interviews in each of the 11 participating municipalities where carried out to establish in-depth knowledge about the challenges. The interviews were transcribed, and open-coding techniques from Grounded Theory (Glaser and Strauss 1967) were used to analyse the data. The aim was to condense the data into different themes (Corbin and Strauss 2008). Using these techniques left us with six themes – the principal challenges the local government faced in the effort of increasing the maturity level of e-Government.

The six themes were presented to the eleven participating municipalities, and discussed at a 1-day seminar along with the results from the quantitative survey. Hereafter, the municipalities decided on the three challenges that they would like to address in the longitudinal theme tracks (see figure 1). These three challenges were: *Value creation and benefit realization, Strategic execution and IT portfolio management,* and *Social alignment and communication.* Each municipality was asked to select which of the tracks they wanted to participate in. They were expected to participate in at least one and no more than two.

Within each theme track, research has been conducted in close collaboration with the participating local government and has involved a series of workshops and meetings combined with more formal data collection (e.g., interviews). As a general theme track strategy, we focused on a theoretically managed process and incremental changes. In this spirit we decided to work with 2-3 iterations within each theme track during the project. As an example: in the social alignment and communication track we first focused on the relationship between the IT organization and the senior management board, next we focused on the relationship between the IT organization and middle level managers, and finally on the relationship between the IT organization and front line managers. Selected research contributions from all three theme tracks are reported in the book.

# Contribution of the book

In article 2, Nielsen and Persson consider engaged problem formulation in the context of the DISIMIT project. Engaged scholarship is committed to working together with practitioners, so the chapter focuses on how formulate IT management problems together *with* municipalities – not *for* them. The authors work with problem formulation at four different levels and indicate some of the jointly identified problems that became the subject of later project investigations.

In article 3, Rose and Persson, consider public administration values: the underlying motivation for implementing e-government. The chapter develops three distinct value drivers for e-government: administrative efficiency, service improvement, and citizen engagement. These are complemented by a set of foundational values. They notice a bias towards administrative efficiency, and discuss the implications of this.

The next article, by Pedersen, considers IT project portfolio management in public sector organisations. Municipalities have trouble managing many varied IT projects in a coherent manner. Improvement is driven by the participants’ ability to apply a problem-driven iterative process, to cut corners and reduce complexity, and to define the role of PPM in a way that respects organizational limitations for rationality whilst still providing value to major stakeholders.

In article 4, the theme of managing multiple projects is elaborated further. Pedersen and Nielsen report that classical project portfolio tools build upon orthodox rational ideals about decision-making which are hard to realize in the complex local authority context. Basing their study on experiences in several DISIMIT municipalities, they recommend mechanisms for dealing with uncertainty and conflict during portfolio decision-making.

In article 5 Persson and Nielsen note that business cases are increasingly developed in e-government projects in Danish municipalities; to win approval for projects, to justify existing projects and in connection with managing external stakeholders. They provide an economical method for developing business cases based on well-established approaches. The method also recognizes non-financial and subjective benefits, connects both IT implementation and organisational changes, and identifies owners of future benefits who will take responsibility for seeing that they are achieved.

The relationship between IT and middle management in four of the DISIMIT municipalities is the subject of Müller, Reinwald and Kræmmergaard’s contribution. They distinguish between arms-length and embedded relationships, and between management and leadership, devising four illustrative collaboration archetypes: craftsmanship, partnership, companionship, and entrepreneurship.

Hansen, Kræmmergaard and Mathiassen take strategizing between IT and business leaders as their subject in the final article. They discuss an important role for a facilitator in helping IS and business leaders uncover their underlying assumptions in order to respond adaptively to challenges in rapidly moving digital transformation. The contributions of the facilitator in the different stages of a participatory process are revealed.

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Engaged Problem Formulation of IT Management in Danish Municipalities

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**Abstract.** Municipalities’ effectiveness in managing information technology (IT) is increasingly important in adhering to their responsibilities for providing services to citizens. While the municipalities’ difficulty in managing IT has been well documented, it is more elusive what specific problems are most relevant in contemporary municipal IT management practice. On this basis, we present an engaged scholarship approach to formulate IT management problems together *with* municipalities – not *for* municipalities. We have come to understand such engaged problem formulation as joint researching and defining of a contemporary and complex problem by researchers and those who experience and know the problem. We present the formulated IT management problems and discuss the engaged problem formulation process in relation to engaged scholarship. Furthermore, we discuss how engaged problem formulation may contribute to action research when making sense of ill-structured problems by involving multiple stakeholders.

# Introduction

Information technology (IT) can provide local government with significant opportunities for improving their services and efficiency (Ho 2002, Landsbergen Jr and Wolken Jr 2001, Eyob 2004). Local governments like municipalities are facing numerous problems in their efforts to become more mature in terms of e-government (Al-Sebie and Irani 2005, Layne and Lee 2001, Moon 2002). Significant management problems are evident by the high failure rate for e-government initiatives (Goldfinch 2007).

The political context of public administration and local government involve a large number of stakeholders and multiple tasks and considerations for IT management (Bannister 2002, Grimsley and Meehan 2007); concerns which traditional literature on IT management, e.g., (Luftman and McLean 2004, Weill and Ross 2004), seems to pay little attention to. These contextual characteristics indicate that municipalities’ IT management challenges may be different from those already known from commercial companies (Caudle et al. 1991). On the other hand, in a comparison of the strategic priorities of public and private sector IT managers Ward and Mitchell (2004) found no significant differences.

Engaged scholarship is a recent general method for enhancing the relevance of research for practice (Van de Ven 2007) that is highly relevant for information systems research (Mathiassen and Nielsen 2008). Engaged means “negotiation and collaboration between researchers and practitioners in a learning community; such a community jointly produces knowledge that can both advance the scientific enterprise and enlighten a community of practitioners” (Van de Ven 2007, p. 7). While “scholarship means something more than research, and engagement is the means for scholarship to flourish” (Van de Ven 2007, p. 9).

In this chapter, we seek to contribute by showing how we have conducted an engaged problem formulation activity. We argue our approach to problem formulation is a contribution to engaged scholarship in general and specifically also to action research in information systems. In the process, we also illustrate our investigation of the problems faced by IT management in municipalities through engaged scholarship.

# Research approach

The research project as a whole followed what Mathiassen (2002) has called Collaborative Practice Research. Collaborative practice research offers a research approach that assists us in connecting: (1) the need to understand the current IT management practices, with (2) the need to device artefacts to support IT management, and with (3) the need to improve IT management in the municipalities. It also suggests a structure for the research organization allowing the researchers and the IT managers to collaborate. It is a prudent choice of research methodology as we intended to advance research at the same time, as we wanted to advance the professional practice of IT management in municipalities. We were in accordance with engaged scholarship with its concern for both research contribution and practical usefulness (Van de Ven 2007, p. 2).

Overall, our research methodology is action research (Baskerville and Wood-Harper 1996, Baskerville and Wood-Harper 1998, Davison et al. 2004) as a general framing in which several research activities may be conducted (Mathiassen 2002). A particular concern in action research is how we explain the two cycles: the research cycle and the problem solving cycle (McKay and Marshall 2001) as they are distinctly different in their knowledge interest and yet intrinsically related. To this, we add more precisely the idea of engaged scholarship where a stronger position is taken with “a participative form of research for obtaining the different perspectives of key stakeholders (researchers, users, clients, sponsors, and practitioners) in studying complex problems” (Van de Ven 2007, p. 9).

The involved stakeholders in the municipalities influence how a problem is formulated. From a logical as well as an ethical standpoint the researchers are also just stakeholders and the researchers are rarely in full control of the problem situation (Avison et al. 2001) and let alone how problems are defined. Engaged scholarship is a collaborative form of research emphasizing how to obtain different stakeholders’ perspectives. The research process should thus be conducted in such a way that we can situate and ground our understanding of a problem situation and we can diagnose and infer problem definitions through our interactions with the different stakeholders based on how they experience the problem situation (Van de Ven 2007, p. 9).

On this basis, we take problem formulation to be an empirical process. Consequently, we collect and analyze empirical data as a significant part of the problem formulation process. What we take to be the problem(s) and how we thus formulate the problem(s) emerges from this empirical process. If we had planned this in detail and in advance and if we thus had taken full control, we could not maintain that we performed engaged problem formulation. Our planning was limited to the forming of the research organization and roughly outlining the first activities. Thereafter it was important to listen to the feedback from the involved stakeholders and document it.

# Case and findings

The engaged problem formulation activities were carried out as part of a research project with a formulated goal of investigating digital service integration through effective management of IT in Danish municipalities. The project organisation consisted of 12 Danish municipalities, 2 IT consultancy firms with extensive public sector experience and 12 IS researchers from different research departments.

The IT management problems of local governments were investigated at *four descending problem levels*: national, project, working group, and local as illustrated in figure 1. The research project organization is illustrated in the second column from the left, cf. figure 1. The figure furthermore includes the problem formulation activities carried out in the project in the third column along with the organization of the participating municipalities and consultancy firms in the fourth column. The relationships between organizational instantiations and activities are indicated in figure 1 as association (related to), generalization (a kind of), or aggregation (consisting of).

The problem formulation at the *national level* was conducted through an extensive quantitative survey of the IT managers in the 98 Danish municipalities conducted in May 2009. The problem formulation at the *project level* was conducted through in-depth interviews in 12 selected municipalities during 2009 with IT managers, municipal chief executive officers, and citizen service managers. Based on these problem formulation activities a 1-day joint seminar was held with all the main stakeholders presenting and discussing the overall potential IT management problems. Following the joint seminar, the research project advisory board decided which three problem themes were to be pursued by three *working groups*. Each of the three working groups involves representatives from the 12 municipalities with a particular interest in the working group’s topic along with a representative from each of the two consultancy firms and at least two researchers responsible for the group. We limit this presentation to include details from working group #1 titled “Value creation”.

The IT managers from four municipalities joined working group #1 together with two consultants and four researchers. The participating municipalities represent different perspectives on IT management. Six 1-day workshops have been held by the working group on issues often spanning several meetings: (1) problem definitions, (2) specific cases from the three municipalities, (3) a study of the research literature related to the working group topic, (4) a business case method, and (5) benefits management. At the *local level,* the improvement activities have been addressing what the current practices with business cases and in benefits management are and how they can be improved. The researchers have participated in improvement activities in each of the three municipalities. The first iteration in each municipality have taken a technique for IT business cases and adapted it in small sessions with the IT managers and other involved. The adaptation let to a business case method for Danish municipalities. The second iteration in two of the municipalities have specifically looked into how to perform benefits management and how it could be improved. This has led to a number of principles for benefits management in Danish municipalities.



Figure 1: The organization of engaged problem formulation
(Nielsen and Persson 2010)

In the following each of the 4 problem levels are illustrated and fed into the lower problem levels.

## National level

The initial knowledge interest was to understand the current maturity of IT management in Danish municipalities and the challenges these municipalities were facing when introducing IT to a larger degree in their administration and services. The CIOs in the 98 Danish municipalities were involved as stakeholders through a quantitative survey. The theoretical foundation of the survey was the literature on: maturity (Layne and Lee 2001, Siau and Long 2005), IT alignment (Chan and Reich 2007, Luftman 2000), and institutionalized organizations (Meyer and Rowan 1977). Questionnaires were sent out, completed and submitted electronically via the online tool SurveyXact. The survey had a response rate of 82%. The collected data were analyzed with *SPSS* using frequency and cross tables along with Chi-square and Gamma tests. The analysis revealed that many Danish municipalities are between level 2 and 3 on Siau and Long’s (2005) maturity scale, where citizens and companies through websites can get information, use self-service solutions, download forms, and access other services. CIOs, furthermore, report consistent agreement and support for their IT strategy among the central managers in the municipal administration. Staffs do not express resistance against the use of IT in the municipalities. However, the municipalities’ IT maturity is severely limited by: (1) limited reduction of traditional communication channels with citizens and companies; (2) limited integration between the internal IT systems and the self-service systems; (3) limited IT value-measurement despite a common practice of developing business cases for IT investments, and (4) low interest in e-government among municipal politicians. Hence, the problems identified at this level are the IT management challenges of reducing non-digital services, systems integration, benefits measurement, and interest of politicians and employees. These problems were fed into the lower problem level through a detailed report documenting the survey results (Nielsen et al. 2009) and through a 1-day seminar with CIOs from the 12 municipalities participating at the project level.

## Project level

The initial knowledge interest was the same as the national level, however, with a particular focus on developing an in-depth understanding of the participating municipalities’ IT management problems in contrast to the more general understanding pursued at the national problem level. Additional stakeholders were therefore involved from 12 selected municipalities, including the municipal CEO, the citizen service manager, and the CIO. Overall, 36 semi-structured interviews were conducted, recorded, transcribed, coded, and analyzed in order to identify the major IT challenges in these municipalities. More than 600 individual challenges was identified and categorized into 5 general problem themes documented in a report (Kræmmergaard et al. 2009) distributed to the project participants.

The Results from the survey at the national level and the 5 problem themes were presented and discussed at the 1-day seminar. Based on this, the research advisory board consisting of the principal investigators and the municipal CIOs decided to focus on three themes in the working groups: (1) value creation, (2) strategic execution and portfolio management, and (3) social alignment and communication.

## Working group level

The initial knowledge interest in working group #1 on value creation was described as “IT from cost to value creation in Danish municipalities.” The topic was chosen by the CIOs because they had to face their CEOs on the issue of whether the municipalities are getting sufficient value for money with IT and whether that can be documented. Six full-day workshops have been held.

The first workshop addressed four potential problem definitions at the working group level. The four candidates were: (a) an IT business case process for a municipality, (b) stakeholder management techniques, (c) business process innovation, and (d) IT benefits realization. At the end of the workshop it was jointly decided to focus on an IT business case process.

At the second and third workshop the CIOs presented how they worked with the form and contents of IT business cases and examples of business cases were studied. These experiences were discussed in great detail. The researchers had coded the business case examples from the municipalities for differences and similarities and the results were discussed. Further, the researchers presented relevant research literature on IT value, on IT business cases, and on the government’s business case model. The discussion at these workshops led the working group to a deeper understanding of the challenges faced by the participating municipalities.

At the fourth workshop the researchers presented the results from the previous workshops integrated with ideas for a business case technique from the literature. This empirical process gradually led to a decision to narrow the problem definition to the question of whether a particular IT business case approach (Ward, Daniel et al. 2008) could be adapted to Danish municipalities and then evaluated through improvement activities in a few municipalities (Nielsen and Persson 2011, 2012).

The fifth and sixth workshop gradually moved the attention to benefits management as a set of activities embedding the business case approach. It led to the realisation that the municipalities had to improve their benefits management activities.

## Local level

The improvement activities at the local level addressed each participating municipality’s local problems. The initial problem formulations at the local level stem from what was learned through the workshops at the project level. We know so far that the three participating municipalities are different when it comes to how they use IT business cases and how they view benefits realisation. These differences will have to be addressed to cater for the problems at the local level, as the local stakeholders perceive them. The initial problems are:

* Municipality 1: A small municipality with 4,000 employees where the IT department has already some isolated experience with business cases. The IT department is pushing the application of IT in different departments when the business case is simple to understand for all stakeholders, but they have yet no experience with complex business cases let alone with benefits realisation.
* Municipality 2: A large municipality with 18,000 employees experienced in working with complex business cases. The IT department has a progressive IT policy where a minimal business case is first established and then other features, their costs and benefits are bundled with the initial business case. The experience with benefits realisation is so far very limited.
* Municipality 3: A medium-size municipality with 6,000 employees that has a rather high local tax income. The municipality has IT as a main driver in providing service to citizens. The IT department has extensive experience with business cases and the challenge seems to be to create better overview and limiting details. There is some early experience with benefits realisation, but it has not yet reached a form where it can be planned and monitored.

# Discussion

This investigation has a contribution on how to approach engaged problem formulation.

## The problems formulated

The problems identified at the national level were the IT management challenges of reducing non-digital services, systems integration, benefits measurement, and interest of politicians and employees. An early investigation of key IT management issues in the US public sector (Caudle et al. 1991), identify integration of technologies as the highest rated challenge. Systems integration seems a very persistent challenge in public sector IT management, which is not surprising considering the many different services supported by different IT systems in these often large and complex organizations. The interests of politicians and employees can also be related to educating elected officials, which was a high rated issue specifically at the county level compared to the federal and state levels (Caudle et al. 1991). However, in this study of Danish municipalities, educating elected officials appear reduced to the less ambitious goal of simply maintaining the interest of politicians and employees. Measurement of benefits has also been identified in a previous study of issues in US public IT management in term of measuring IS effectiveness (Swain et al. 1995). Planning was the most significant issue in the study by Swain et al. (1995), pointing in the direction of managerial above technical challenges in public sector IT. In a later study of issues in the Greek public sector, new IT human resources and extending use of office automation was identified as the most important (Loukis and Tsouma 2002), thus the highest rated issues varies across studies. In these earlier studies of public sector IT management issues, the reduction of non-digital services was not included. This suggest reducing non-digital services is a problem becoming more conspicuous when reaching higher maturity levels (Layne and Lee 2001, Siau and Long 2005) considering Denmark’s high ranking in e-governmental readiness (UN 2008).

The problems identified at the project level were in collaboration with the municipal CIOs limited to the three most relevant, which were 1) value creation, 2) strategic execution and portfolio management, and, 3) social alignment and communication. Strategic execution and portfolio management along with social alignment and communication corresponds to the strategic planning and IT organization alignment issues indentified as critical in the multinational study by Watson et al. (1997). Value creation can be compared to the lower rated issue in increasing understanding of IT’s role and contribution (Watson et al. 1997).

The CIOs participating in the value-creation working group perceive the development of effective business cases as a key problem in municipal creation of value through IT. Value is thus predominantly defined from a municipal perspective and less from the state and citizens’ perspectives. While IT business cases has been suggested as an effective tool for addressing public sector IT challenges (Gil-García and Pardo 2005), CIOs raised several concerns regarding what should be included in the business case and how it should be used. Previous research has in a similar way pointed to limitations of the business case for transformational and experimental IT investments (Ross and Beath 2002). In addition, the municipal CIOs argued centrally outlined business case models, such as the one developed by the Danish government, may be inappropriate to the different local government contexts. We therefore seek to introduce state of the art in IT business case development (Ward et al. 2008) to the Danish municipal case of local government, while critically evaluating what problems it may address along with what new problems it may create.

## The approach to engaged problem formulation

Action researchers at all time have emphasized it is the client’s problem that has to be solved (McKay and Marshall 2001). It is very often a complex process to deal with ill-structured problem situations (Checkland and Holwell 1998, Checkland and Scholes 1990). Checkland avoids in his Soft Systems Methodology the pitfall of tight coupling between a defined problem and a solution by eliminating the need to formulate a problem. The problem situation is thus improved through the problem-solving process without an explicit problem definition. This illustrates well how action research processes are closely linked with problem-solving processes (Chiasson et al. 2008). We conduct engaged problem formulation where we pay particular attention to what we as researchers should do in addition to solving problems together with clients. Stating the problems, documenting the problems and how they are understood, scrutinizing the problem definitions, and never taking a given problem for granted must be part of the research process. Action research per se has little to offer on how to organize the problem formulation process. We have therefore added both a research organization in levels and a levelled formulation process in the pursuit of a well-grounded problem understanding.

The problem formulation approach is engaged scholarship as Van de Ven (2007) defines it, cf. section 2. First, we have kept track of different stakeholders at four levels. Second, we have recorded and documented their different interests, experiences, and views. Third, we have used this in a dialogue with the interested stakeholders to formulate the problems to be addressed in the research collaboration.

Researchers of organizations, management, and information system usage suggest studying a single level is severely limiting research (Klein et al. 1994, Klein et al. 1999, Hitt et al. 2007, Burton-Jones and Gallivan 2007). The core of the argument is that issues at one level cannot be comprehended without paying some attention to the level above and vice versa. In the problem formulation process, we have described the area of concern through descending levels of analysis. Each level had its own research design and these have been intrinsically related, cf. figure 1. What we have done is a form of multilevel analysis by descended four levels. If we treat the ascending levels with a similar empirical approach then we can perhaps do more than logical generalization and actually perform upwards empirical analysis after the improvement activities.

# Conclusion

We have reported from an on-going research project where we have first and foremost committed to addressing what problems persist in local governments’ IT management.

We have described how we have performed the process of engaged problem formulation. Inspired by Van de Ven (2007) we define engaged problem formulation as: *joint researching and defining of a contemporary and complex problem by researchers and those who experience and know the problem.* This activity is carried out by situating, grounding, diagnosing, and inferring the problem up close and from afar by engaging those who experience and know the problem at multiple levels. The goal of such activities is to jointly produce knowledge of this problem that can both advance the scientific enterprise and enlighten a community of practitioners. We have illustrated how we went through descending levels of problem definitions and how the formulation at all four levels have been grounded in empirical data collection and analysis. We have then discussed the findings and how they relate to the existing literature on IT management problems for local governments. We have further discussed how our engaged problem formulation approach is a contribution to a better understanding of how we conduct engaged scholarship and how that informs action research.

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E-Government Value Priorities of Danish Local Authority Managers

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**Abstract.** The management of e-government is a central topic in the improvement of public administration, where the underlying values of e-government practitioners are an important (but often taken for granted) motivation for strategy and implementation of e-government projects. This chapter offers a value analysis of central trends in the public administration literature: New Public Management, the post-Weberian Bureaucracy and the New Public Service (NPS). Using the assumption that e-government is driven largely by public administrations and therefore shares public management values, we develop a value model for e-government. *Administrative Efficiency* focuses on value for money logics highlighted by New Public Management thinking. *Service Improvement*, derived from the tradition of public service, emphasises the value of providing better services to citizens. *Citizen Engagement*, with its roots in liberal democratic arguments, promotes democracy, deliberation and dialogue. A set of *Foundational Values* grounded in the deeply-rooted bureaucratic tradition is also identified. A preliminary study of local authority managers’ values shows a heavy bias towards administrative efficiency and an absence of concern for citizen engagement; the implications of these results are briefly discussed.

# Introduction

The concept of value has been used extensively both in research and public discourse about e-government. Value represents the “worth, utility, or importance of an entity” ([Esteves and Joseph 2008](#_ENREF_13)) – that which is “considered a good (worthy of striving after) without further justification or rational argument” ([Sikula, 1973](#_ENREF_41)). Bannister ([2002](#_ENREF_1)) distinguishes the concepts ‘value’ and ‘values’ where:

“Values may be described as normative characteristics or modes of behaviour that individuals, groups or organisations hold to be right or at least better than other characteristics or modes of behaviour. Values have their visible manifestation in the ways that individuals or groups behave and interact with other individuals or groups... ‘value’ is defined to be a quality applied to a good, service or outcome which supports, meets or conforms with one or more of an individual or group’s values.”

Values can be personal (an “internalised goal or ideal offered without further justification assumed to have universal agreement” ([Sikula 1973](#_ENREF_41))), or social – common values ascribed to groups and communities. In the study of public administration a broader account of public value ([Moore 1994](#_ENREF_30), [1995](#_ENREF_31)) is sometimes adopted, referring to:

* “the value created by government through services, law, regulations and other actions” ([Castelnovo and Simonetta 2007](#_ENREF_5)), or
* “the value or importance citizens attach to the outcome of government policies and their experience of public services” ([Scott et al. 2009](#_ENREF_40)), or
* “government’s ability to deliver social and economic outcomes that correspond to citizens’ expectations” ([Bonina and Cordella 2009](#_ENREF_2)).

Value can be primarily expressed in economic or monetary terms, or can be pluralistic values, including less tangible and measurable attributes:

“public value provides a broader measure than is conventionally used within the new public management literature, covering outcomes, the means used to deliver them as well as trust and legitimacy.” ([Castelnovo and Simonetta 2007](#_ENREF_5)).

Value studies serve many purposes, which can broadly be described as either summative or formative. Summative accounts serve to form the basis for evaluating past experience (for example to help determine the outcomes of an e-government project), whereas formative studies try to establish a basis for future action (for instance in prioritising e-government projects competing for funding). In the latter case, values should be understood as “broad guides to action” ([Sikula 1973](#_ENREF_41)), personal and social, explicit or internalised. Because values consist of “opinions about what is right, fair, just, or desirable,” they are not necessarily subject to scientific or objective testing and validation ([Sikula 1973](#_ENREF_41)). It is possible to build up a series of arguments to support value positions, or to analyse their occurrence in a given population, but it is not scientifically possible to prove the validity or correctness of a given value. It will also become clear in the following discussion of the public administration literature, that research, though methodologically sound, well argued, and reasonably objective is not value-free. Researchers can hold strong value positions, which are the basis for normative accounts of how public administration should develop. Figure 2 shows the dimensions considered in research conceptualizations of value.



Figure 2. Dimensions in value conceptualizations

Value is an interesting topic in the context of IT management in local government, and the DISIMIT project, because basic values of managers come to affect the decisions they make concerning the prioritisation, funding and execution of e-government projects, and their relationships with project partners. These values are partly to do with individual managers’ experience and beliefs, and partly a reflection of organisational 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 members of the public. In a time of widespread financial uncertainty, for example, an efficiency (cost saving) value strongly promoted by ministers can come into conflict with ideals of public service held by street level administrators, placing local managers in a difficult value conflict, with tough decisions to make. A long-term mismatch between organisational values promoted through e-government projects and a manager’s strongly held personal convictions can cause alienation and stress. Nor is it necessarily the case that values are easily discovered, well-articulated and mutually consistent. They often lie beneath the surface of the managerial discourse, assumed to be held by all, or swept under the table to avoid potential damaging conflict. Where they are discernible and articulated, for instance in strategy documents, and managerial statements of intention and purpose, they are not necessarily carried out in practice. As the management theorist Chris Argyris explained, espoused theory (that which managers say they believe) can be different to theory-in-action (what they actually decide to do). Formulated intentions and strategies (according to Mintzberg), can differ from the pattern of decisions which actually emerges. Especially this last problem makes a value discussion between e-government researchers and managers interesting and potentially productive. If the values that managers articulate do not result in outcomes consistent with those values, then either the values must change (difficult) or the outcome must. The researcher’s role is to delineate choices, trade-offs and paradoxes to help practitioners understand their own value landscape, and to analyses which values are predominant on the outcomes they achieve. We concur with Flak ([2009](#_ENREF_14)) that that structured ways of defining public sector values make it easier to design effective e-government projects that are also assessable. In particular, we address the questions:

* How can the debate about e-government value (understood as purpose and motivation for e-government initiatives) be summarized in such a way as to make it an effective aid to decision-making?
* What values do Danish public sector managers espouse (claim that they seek to realise) when they introduce new information and communication technologies (ICT)?

The chapter is structured as follows. There are already several contributions in the e-government literature, which examine value, and we investigate these, delineating the current e-government value landscape. We conclude, following Persson and Goldkuhl ([2010](#_ENREF_36)), that the most promising starting place for a theoretical discussion of value is in the public administration literature, beginning with one of its founding fathers, Max Weber. We take a historical perspective of three trends in this literature, which have developed in the last fifteen years and perform a value analysis of each. The first trend is new public management (NPM), where we also consider its pragmatic wing: the Reinventing Government movement. We then consider two very different reactions to NPM. The first is a restatement of many of the values promoted by the old public administration that build on Max Weber’s original formulation of bureaucracy. We call this Post-Weberian Bureaucracy. The second, the New Public Service (NPS), is a reaction to the Reinventing Government movement’s dependence on business and management values. NPS values are instead built on public service values and democratic values. We summarize these trends as the public administration value landscape. Snellen offers a three-part taxonomy of e-government which provides a good fit with the public administration value landscape, so we combine them to provide a modern, formative framework for e-government values. We develop a pilot study analysis of Danish local government managers’ espoused values, as revealed in DISIMIT empirical studies, in relation to the framework. Finally we discuss implications for practice.

# The e-government value landscape

Researchers have provided various accounts of value in e-government, and in this section we investigate how they do this and the resulting value landscape. Their purposes are both summative:

* Evaluation ([Castelnovo and Simonetta 2007](#_ENREF_5), [Chircu 2008](#_ENREF_6), [Esteves and Joseph 2008](#_ENREF_13), [Foley 2005](#_ENREF_15), [Grimsley and Meehan 2008](#_ENREF_20), [Liu et al. 2008](#_ENREF_26), [Yu 2007](#_ENREF_45)), and
* Measurement ([Steyaert 2004](#_ENREF_43), [Scott et al. 2009](#_ENREF_40), [Prakash et al. 2009](#_ENREF_37), [Kim and Kim 2003](#_ENREF_23)).

And formative:

* Conceptual integration ([Bannister 2002](#_ENREF_1)),
* Criticism ([Bonina and Cordella 2009](#_ENREF_2)), and
* Understanding ([Persson and Goldkuhl 2010](#_ENREF_36)).

We investigate two of these contributions in some detail and summarise the trends in the others. Bannister ([2002](#_ENREF_1)), grounding his discussion in considerations of IT value and public administration, identifies six categories of value for IS in public administration:

* **Foundational:** cost efficiency – three e’s of value for money: efficiency, effectiveness and economy
* **Policy formulation**: the administration’s role in developing policy.
* **Democratic**: support for and enhancing of democracy and citizen involvement in the affairs of the state.
* **Service**: the provision of service to the citizen as customer, client, claimant or recipient.
* **Internal**: values directed towards employees and internal operations of public administration.
* **External**: the state’s interactions with external organisations including organisations outside of its jurisdiction.

He identifies values within the categories as:

* **Foundational:** positive cost benefit, cost savings/reduced headcount, avoided future costs, positive return on investment, positive net present value, risk reduction, greater staff efficiency, better control/reduction in fraud and waste, increase in capacity/throughput
* **Policy formulation:** better management information, support for decisions
* **Democratic:** citizen access to information, transparency, flexibility, policy alignment
* **Service:** good service to the customer, good service to the citizen, meeting public demands
* **Internal:** improved staff morale, improved internal communications, improved ability to attract staff, better staff retention, more motivated staff, empowering staff, greater staff creativity
* **External:** being abreast of the private sector, having a good public image, being abreast of other administrations, matching other external benchmarks ([Bannister 2002](#_ENREF_1)).

In this formative account of e-government values, values become synonymous with goals and objectives. The notion of foundational values (values which are common, shared, inescapable, and upon which other values are based) is derived from the public administration literature (see below, the public administration landscape). However, Bannister differs from these accounts in assuming that cost efficiency is the sole dominating (foundational) force – an imperative that other values must build around. A more theoretical account of e-government values is given by Persson and Goldkuhl ([2010](#_ENREF_36)). They understand these values as a synthesis of two traditions of thinking in public administration: traditional bureaucracy as articulated by the German sociologist Max Weber ([1947 and other writings](#_ENREF_44)), and New Public Management as expressed in the Reinventing Government movement ([Osborne, Gaebler 1992](#_ENREF_34), [Osborne, Plastrik 1997](#_ENREF_35)). New Public Management is discussed more fully below, but Weber’s formal description of bureaucracy deserves a brief introduction here. Weber describes how economic purposive rationality (capitalism) replaces religion as the driving force of society, bringing with it the superior organisational form of bureaucracy, of which the most direct expression is not public administration, but the military. Bureaucracy is characterised by six principles:

* Fixed and official jurisdictional areas ordered by rules, laws, or regulations
* The principle of hierarchy whereby structures are established with superior and subordinate relationships
* Management of the office relies on written files
* The occupation of offices is based on expertise and training
* Full time employment of personnel who are compensated and who can expect employment to be a career
* The administration of the office follows general rules that are stable and can be learned.

It is underpinned in society by belief in legitimate authority (as opposed to traditional or charismatic authority) resting on a belief in the legality of patterns of normative rules, and the right of those elevated to authority under such rules to issue commands. Such rational-legal authority organised in the bureaucratic state apparatus is the classical civic service. The decisive reason for the advance of the bureaucratic organization is its “purely *technical* superiority over any other form of organization” ([Weber 1947](#_ENREF_44)). Bureaucracy demonstrates “optimized precision, speed, unambiguity, knowledge of the files, continuity, discretion, unity, strict subordination, reduction of friction and of material and personal costs.” Bureaucracy also offers unparalleled objectivity (discharge according to calculable rules and without regard for person) in the carrying out of administrative functions and thus promotes equity: equality before the law. Dealing objectively with complexity and specialization requires a detached expert, a trained professional official who both can understand the regulations, and administer them in a fair way where there is need for discretion – no system of rules covers every case. Weber described bureaucracy without idealizing it; he recognized many difficulties inherent in state bureaucracies. They tend to expand, and to preserve and extend their own power, making them a form of domination, which turns the public into clients. They do not necessarily recognise or act for the public good, especially where this might conflict with the underlying regulative system. Bureaucracy is naturally secretive, preferring closed groups of high-status officials that are not universally accessible, and the authority of officialdom above public opinion. In fact, the rule of bureaucracy can stand in opposition to democracy:

“under otherwise equal conditions, rationally organized and directed action is superior to every kind of collective behaviour and also social action opposing it. Where administration has been completely bureaucratized, the resulting system of domination is practically indestructible” ([Weber 1947](#_ENREF_44))

Persson and Goldkuhl analyse the core set of values articulated by Weber, which they term traditional bureaucracy and contrast them with New Public Management values (Table 1):

|  |  |
| --- | --- |
| Traditional bureaucracy values | New public management values |
| Legitimacy | Customer orientation |
| Rule of Law | Decentralization |
| Application of detailed rules | Mission and goal orientation |
| Efficiency | Improved accountability for results |
| Effectiveness | Improved responsibility to address client needs |
| Equality | Focus on cost-efficiency |
| Legality | Focus on productivity |
| Impartiality | Shift from idea of spending to earning |
| Objectivity | Introducing market mechanisms, competition, incentivization |
| Transparency | Introducing a higher degree of flexibility and discretion |
| Accountability | Empowerment of street-level bureaucrats |
| Specialization | Deregulation as reform strategy |
| Citizen as subordinate to the administration | Pushing control from hierarchy of bureaucracies to community |
|  | Preventive and proactive approach rather than reactive and curing  |
|  | Separating policy formulation from implementation |

Table 1. Bureaucratic and new public management values
([Persson and Goldkuhl 2010](#_ENREF_36))

They then suggest that e-government values are a dialectic synthesis of the two sets of values, and that aspects of both value sets are evident in the case that they study.

Elsewhere in the e-government literature, researchers focus on the service dimension ([Castelnovo and Simonetta 2007](#_ENREF_5), [Grimsley and Meehan 2008](#_ENREF_20), [Yu 2007](#_ENREF_45)) and the internal managerial dimension ([Esteves and Joseph 2008](#_ENREF_13)). Kim and Kim ([2003](#_ENREF_23)) add organisational learning and information security considerations, and various ideas of social and political value appear and reappear ([Chircu 2008](#_ENREF_6)) Liu (2008). Yu ([2007](#_ENREF_45)) incorporates elements from Nolan’s well-known stages of e-government model, including vertical and horizontal integration as desirable value goals. Scott ([2009](#_ENREF_40)) add a citizen perspective, pointing out that citizens’ values do not necessarily correspond with administrational values. Bonina and Cordella ([2009](#_ENREF_2)) summarize parts of the discussion by identifying two clusters of values: managerial public values (such as efficiency, effectiveness and performance of tasks) and democratic public values (which they characterize as equity, fairness and honesty). Figure 3 summarizes the landscape of recurring e-government values, as depicted in this literature.

Figure 3. The e-government value landscape

A further conclusion that we draw from this short investigation is about process: how to arrive at value models in a convincing way. None of the contributors offer very exhaustive empirical evidence; Persson and Goldkuhl ([2010](#_ENREF_36)) provide the most convincing theoretical argument.

# From old public administration to new public management and beyond

The following analysis of value is rooted in the Public Administration literature, as is Persson and Goldkuhl’s ([2010](#_ENREF_36)), but is updated to follow the major elements of the debate through the last fifteen years. New Public Management has been understood as a reaction to Weberian bureaucracy. However New Public Management and its implementation in the Anglo-Saxon democracies (USA, Great Britain, New Zealand, Australia, Canada) and (to a lesser extent) in Scandinavia has itself provoked strong reactions. The first reaction is the reaffirmation of bureaucratic values: a repudiation of the caricature of the old public administration promoted by popularising NPM writers (and prevalent also in the public imagination), and a restatement of enduring administrative values. This could be called the modern or post-Weberian bureaucracy and the argument for it is eloquently summarized in Goodsell’s ([2004](#_ENREF_18)) *The Case for Bureaucracy*. The second reaction is a positive affirmation of both public service and liberal democratic ideals; these are summarized, combined and delivered with passion in Denhardt and Denhardt’s ([2007](#_ENREF_10)) *The New Public Service*.

## New public management values

The starting point for NMP is a perception of what Denhardt and Denhardt ([2007](#_ENREF_10)) call the ‘old public administration’ (traditional bureaucracy) as

“formal bureaucracies plagued with excessive rules, bound by rigid budgeting and personnel systems, and preoccupied with control. These traditional bureaucracies are described as ignoring citizens, shunning innovation, and serving their own needs” ([Denhardt, Denhardt 2000](#_ENREF_9)).

The old public administration is seen as wasteful, static, overstaffed and unresponsive (the modern vernacular usage of the word ‘bureaucratic’) – in short ‘broken’ ([Gore 1993](#_ENREF_19)). NPM’s response to this perception is grounded in management practice from the private sector. Boston ([1991](#_ENREF_3)) characterises the central doctrines of NPM as:

“[an] emphasis on management rather than policy; a shift from the use of input controls ... to a reliance on quantifiable output measures and performance targets; the devolution of management control coupled with the development of new reporting, monitoring, and accountability mechanisms; the disaggregation of large bureaucratic structures into quasi-autonomous agencies, in particular the separation of commercial from non-commercial functions ... ; a preference for private ownership, contracting out, and contestability in public service provision; the imitation of certain private sector management practices, such as ... the development of corporate plans (and) performance agreements, the introduction of performance-linked remuneration systems, ... and a greater concern for corporate image; a general preference for monetary incentives rather than non-monetary incentives, such as ethics, ethos, and status; and a stress on cost-cutting, efficiency, and cutback management.” ([Boston 1991](#_ENREF_3))

Hood ([1991](#_ENREF_22)) summarizes the value differences between NPM and the old public administration. NPM favours:

* Hands-on professional management
* Explicit standards and measures of performance
* Emphasis on output controls
* Disaggregation of units in the public sector
* Greater competition in the public sector
* Private sector styles of management practice
* Greater discipline and parsimony in resource use

These operate in a context of:

* Attempts to slow down or reverse government growth, public spending and staffing
* The shift toward privatization
* Automation of public services through information technology ([Hood 1991](#_ENREF_22))

Much attention in the public arena was captured by the Reinventing Government movement ([Osborne, Plastrik 1997](#_ENREF_35), [Osborne, Gaebler 1992](#_ENREF_34)), which provided much of the motivation behind the American Gore Report ([Gore 1993](#_ENREF_19)). Alongside its “government is broken” headline, the report provided 800 recommendations, many of which were later implemented by President Clinton. In their influential book of the same name, Osborne and Gaebler lay the blame for most of America’s internal problems on its governmental institutions and argue that the solution is:

* Catalytic government: steering rather than rowing (focusing on leadership rather than service delivery)
* Community owned government: empowering rather than serving (transferring power to citizens through public choice)
* Competitive government: injecting competition into service delivery (relying on market mechanisms to dive efficiency)
* Mission-driven government: transforming rule-driven bureaucracies (focus on proactive improvement of communities rather than passive administration of law)
* Results-oriented government: funding outcomes, not inputs (measuring results, rather than distributing budgets)
* Customer-driven government: meeting the needs of customers, not the bureaucracy (developing a citizen-centric focus)
* Enterprising government: earning rather than spending (focus on entrepreneurial government)
* Anticipatory government: preventing rather than curing (antidote to passive and reactive governmental style)
* Decentralized government: moving from hierarchy to participation and teamwork (reorganization of traditional bureaucratic organisational forms)
* Market-oriented government: leveraging change through the market (change from social program enactors to entrepreneurial brokers, facilitators and seed capitalists manipulating the market) ([Osborne and Gaebler 1992](#_ENREF_34))

The movement emphasized entrepreneurial government promoting competition between service providers, where many services are privatised and citizens (redefined as customers) exercise choices governed by their individual economic well-being, based on market ideals. Government’s role is to catalyse all sectors (public, private, and voluntary) through market forces to proactively solve their communities’ problems, rather than to enforce the law or to (necessarily) provide services themselves; they are driven by their goals (missions), not by their rules and regulations. Instead of being content with administering budgets effectively, government institutions should actively seek ways of increasing their revenue, and monitor performance outcomes. Government officials become entrepreneurial managers with the freedom to galvanise bureaucracies into action in the same way that managers in industry (supposedly) can. Decentralisation and deregulation are combined with a flavour of participation and citizen empowerment. In summary, the Reinventing Government movement prefers “market mechanisms to bureaucratic mechanisms” ([Osborne and Plastrik 1997](#_ENREF_35)). Persson and Goldkuhl make an excellent summary of Reinventing Government values (already referred to in Table 1).

Frederickson ([1996](#_ENREF_17)) characterises the Reinventing Government movement as the practical wing of NPM and summarizes the similarities (Table 2).

|  |  |
| --- | --- |
| New Public Management | Reinventing Government |
| Too much trust in expertise and organizational capability and too little questioning of bureaucratic ways | The bankruptcy of bureaucracy |
| Flexibility and the routinization of change; adapting to turbulence | Innovation and entrepreneurial activity |
| Not enough concern for citizens’ demands and needs | Customer empowerment |
| An over-optimistic view of what government can or should accomplish | From bureaucratic service to individual empowerment |

Table 2. NPM and reinventing government compared ([Frederickson 1996](#_ENREF_17))

The distinction between the academic values expressed in the NPM literature and those of the popularising Reinventing Government is important because it is largely the Reinventing Government movement, and its perceived association with a particular political ideology, which has attracted criticism. Many of the central tenets of NPM are widely accepted today: such as a focus on value for money, professional leadership standards, a more citizen-centric orientation, performance review, a recognition of the importance of the market and some degree of privatisation where appropriate.

## Post-Weberian bureaucracy values

The Reinventing Government movement began to attract criticism almost as soon as it gained political momentum, with one reaction concentrated on defending traditional bureaucratic values. Moore ([1994](#_ENREF_28)) describes Reinventing Government as “misinterpreting the problem, misjudging the consequences” and criticises the “precedence of economically-based values over legally-based values.” Focus on entrepreneurial independence for government officials risks undermining the rule of law, and accountability for actions up through the hierarchy to the president. Privatisation risks eroding bureaucratic values (impartiality, fairness, objectivity) and replacing them with commercial values. Changes to administrative practices which are not rooted in public law, but instead designed to short-circuit rule-based practice which is experienced as bureaucratic in the negative sense (long-winded, pedantic, buried in red tape), eventually undermine the executive branch’s function (to execute the law as decided by elected representatives of the people), and thus fundamental democratic values. Though it has become commonplace to observe that government should be run like a business, some commentators reject the Reinvention movement’s assumption that:

“government should not only adopt the techniques of business administration, but it should also adopt the values of business. … including the value of competition, preference for market mechanisms for social choice, and respect for the entrepreneurial spirit.” ([DeLeon and Denhardt 2000](#_ENREF_8))

The ‘business is best’ myth is dismissed by Goodsell ([2004](#_ENREF_18)) who finds little empirical evidence for the proposition that businesses consistently perform better than government, and demonstrates a only marginal advantage for privatised services, and only in limited areas. Basing public policy on the cumulative market effect of self-interested service consumers requires an act of faith: that the market can come to determine public value better than the elected lawmakers and professional executors. Redefining citizens as customers risks creating inequalities based on ability to pay, undermines the public welfare function of government (where bureaucrats step in to help clients in need), and ignores the democratic role of the citizen. Whereas businesses are owned by shareholders, government is owned by citizens ([King et al. 1998](#_ENREF_24)). Public administrators respond, and are accountable to the political process and a complex set of conflicting demands from their many constituents and stakeholders, not to the market. In addition, the single-mindedness, tenacity and willingness to bend the rules associated with the entrepreneurial spirit are a double-edged sword in government:

“On the credit side of the ledger, entrepreneurs create and innovate; on the debit side, they may take excessive risks or run roughshod over people and principles.” ([DeLeon and Denhardt 2000](#_ENREF_8))

Denhardt and Denhardt ([2007](#_ENREF_10)) also point out that the managerial ‘steering not rowing’ message is potentially in conflict with efforts to decentralise government and empower citizens.

The post-Weberian bureaucracy therefore reaffirms traditional bureaucratic values such as due process and the rule of law, fairness, objectivity and impartiality, accountability through hierarchy, professionalism, legitimacy, trustworthiness and efficiency. New Public Management values, however, remain a defining part of modern public administration, despite widespread criticism of the Reinventing Government movement. The values identified by Hood ([1991](#_ENREF_22)) (value for money, professional leadership, citizen-centricity, performance review, a role for the market) are no longer understood as incompatible with traditional bureaucratic values, but as complementary to them.

## New public service values

The second reaction to NPM values is located in traditions of public service (which can be traced back to Weber) and the idea of liberal or deliberative democracy.

In the public service tradition, government officials respond to a higher calling to serve the public interest, and to develop public value. Weber argued that, as rationality replaced religion as the driving force of society, a religious calling as a motivation for action was replaced by commitment (service) to the bureaucracy, ultimately to the state. The ethos of office ([Du Gay 2000](#_ENREF_12)), understood as the vocation of public service incorporating an ethical commitment to act in the public interest, allows government to act forcefully, morally and accountably, and distinguishes government from politics or business.

In the liberal and deliberative democracy traditions, dialogue between citizens, politicians, and public servants define and re-defines the public interest. Citizenship entails more than consuming services; it also implies the ability to influence decision-making and policy development, and active involvement in political life. Such accommodations are achieved through discourse, negotiation, the building of shared agendas and consensus between citizens and government. In a liberal democracy, the institutions of government respond to shared popular views of the public interest, whilst respecting fundamental liberties and working to “block efforts by narrow factions to coerce and tax the public for reasons not warranted by the public interest” ([Miller 1989](#_ENREF_27)). The public servant thus has a special responsibility to listen to the voices of citizens, to be responsive to what is said and to “find and articulate a general or common interest and to cause government to pursue that interest” ([Frederickson 1991](#_ENREF_16)).

Denhardt and Denhardt ([2007](#_ENREF_10)) employ the rhetoric of the Reinventing Government movement to define an alternative set of values which they term the New Public Service ([Denhardt and Denhardt 2007](#_ENREF_10)):

* **Serve Citizens, not Customers:**public interest as the result of a dialogue about shared values rather than the aggregation of individual self-interests – focus on building relationships of trust and collaboration with citizens.
* **Seek the Public Interest:**building a collective, shared notion of the public interest – the creation of shared interests and shared responsibility.
* **Value Citizenship over Entrepreneurship:**public servants and citizens committed to meaningful contributions – not entrepreneurial managers.
* **Think Strategically, Act Democratically:**policies and programs meeting public needs through collective efforts and collaborative processes.
* **Recognize that Accountability isn’t Simple:**public servants attentive to statutory and constitutional law, community values, political norms, professional standards, and citizen interests as well as the market.
* **Serve Rather than Steer:**value-based leadership to help citizens articulate and meet shared interests.
* **Value People, Not Just Productivity:**success dependent on processes of collaboration and shared leadership based on respect for people.

They are critical of the sparse attention to democratic citizenship evident in the Reinventing Government movement, and argue for the “reaffirmation of democratic values, citizenship and service in the public interest. … public servants do not deliver customer service – they deliver democracy.” Government “shouldn’t be run like a business, it should be run like a democracy” ([Denhardt and Denhardt 2007](#_ENREF_10)). Table 3 adapts their summary of major value differences between the Old Public Administration, the New Public Management, and the New Public Service.

|  |  |  |  |
| --- | --- | --- | --- |
|  | *Old publicadministration* | *New public management* | *New public service* |
| *Conception of the public interest* | Politically defined and expressed in law | The aggregation of individual interests expressed through the market | Result of a dialogue about shared values |
| *To whom are public servants responsive?* | Clients and constituents | Customers | Citizens |
| *Role of government* | Rowing (designing and implementing policies focusing on a single, politically defined objective) | Steering (acting as a catalyst to unleash market forces) | Serving (negotiating and brokering interests among citizens and community groups, creating shared values) |
| *Mechanisms for achieving policy objectives* | Administering programs through existing government agencies | Creating mechanisms and incentive structures to achieve policy objectives through private and non-profit agencies | Building coalitions of public, non-profit, and private agencies to meet mutually agreed upon needs |
| *Approach to accountability* | Hierarchical – administrators are responsible to democratically elected political leaders | Market-driven – the accumulation of self-interests will result in outcomes desired by broad groups of citizen customers | Multifaceted – public servants must attend to law, community values, political norms, professional standards, and citizen interests |
| *Administrative discretion* | Limited discretion allowed administrative officials | Wide latitude to meet entrepreneurial goals | Discretion needed but constrained and accountable |
| *Assumed organizational structure* | Bureaucratic organizations marked by top-down authority within agencies and control or regulation of clients | Decentralized public organizations with primary control remaining within the agency | Collaborative structures with leadership shared internally and externally |
| *Assumed motivational basis of staff* | Pay and benefits, civil-service protections | Entrepreneurial spirit, ideological desire to reduce size of government | Public service, desire to contribute to society |
| *Administrative staff are* | Expert professionals who understand and fairly administer the rules | Entrepreneurial managers with the power to act | Public servants creating shared agendas |

Table 3. Comparison of public administration perspectives
(adapted from Denhardt and Denhardt 2000)

New Public Service values are derived from the traditions of public service and liberal democracy, and include: dialogue, deliberation, democracy, consensus buil­ding, collaboration, service and commitment to the public interest, shared leadership, respect for citizens and participatory policymaking.

## The modern public administration value landscape

In this account of the evolution of the public administration literature, we have described how bureaucratic values as laid out by Weber were seriously challenged by the New Public Management, with its commitment to managerial values from the private sector and the mechanisms of the market. In post-Weberian bureaucracy, traditional values are reaffirmed, but central values from NPM survive. The New Public Service reaffirms traditional public service and public interest ideals, and adds a democratic dimension.

A summarising discussion by Dobel ([2007](#_ENREF_11)), which takes into account these three perspectives defines a common set of formative or foundational values, complemented by values associated with NPM, and values associated with liberal democracy. The foundational set recognizes a commitment to:

* Recognize public institutions as trusts and managers as stewards (citizen as the owner of government)
* Ensure the long-term and the inclusive commons are addressed in deliberations and decisions (commitment to the public interest)
* Demand competence to serve those who rely upon public management (professionalism)
* Frame decisions by law and authorized policy (the rule of law)
* Demand good information for decision (reliability)
* Create accurate durable records (resilience)
* Build durable and competent institutional capacity (resilience and professionalism)
* Impartially serve all citizens (fairness, objectivity, impartiality)
* Address efficient use and waste as part of stewardship (efficiency).

These values address a wide range of traditional values, and contrast sharply with Bannister’s focus on cost efficiency. Additional values are associated with NPM:

* Actively seek better means of service performance (customer service)
* Respond to citizen concerns with care and timeliness (customer service)
* Ensure that equity and long term considerations are addressed in public decision (honesty, fairness)
* Work to create organizations that integrate multiple voices in their deliberations (a flavour of empowerment and participation)
* Be effective and work within the constraints of law and process to achieve measurable and real outcomes (focus on outcomes, performance measurement)
* Gain strong resource and political support for sustainable programs (steering)
* Work across sectors to address complex multi-sector problems (steering).

Values associated with liberal democracy include:

* Require maximum transparency (openness as the basis for public accountability and informing public discourse)
* Require public reasons for actions (commitment to the building of consensus on the public interest)
* Seek inclusive participation and engage the diversity of society (commitment to widespread democratic deliberation)
* Maximize citizen participation (commitment to citizen influence on government)
* Engage and respond to citizen deliberations (commitment to citizen influence on government)
* Respect citizens and honour rights in treatment and process (commitment to due process and the democratic rights of the citizen).

The public administration value landscape is complex, as to be expected with such a wide-ranging set of activities affecting all citizens in modern democracies. Those who write about it (and those who practice it) have their own value perspectives, which are clearly reflected in their normative prescriptions. Many values are shared, despite disagreements over emphasis. Nevertheless clear trends emerge: values surviving from the bureaucratic tradition, more recent values emerging from New Public Management, further values associated with liberal democracy. Many similarities with the e-government landscape depicted earlier can also be identified.

# The public administration value landscape and e-government

In this section we briefly define e-government, assuming that e-government values are dependent on public administration values. Local government managers practise e-government within the public administration value landscape. They deploy varied information and communication technologies, which support many goals and functions for government. This pattern of functions and supporting technologies constitutes another landscape which is too complex to represent here, but Snellen ([2005](#_ENREF_42)) identifies:

* Database technologies – for example as data repositories or for file sharing
* Tracing and tracking technologies – for example for workflow management and monitoring purposes
* Desk-top technologies – text processors, personal digital assistants (PDA’s), e-mail, and other Internet facilities
* Decision support technologies – for example spread-sheets, all kinds of task directed computer programs and expert systems
* Network technologies, such as websites, homepages, call-centres and e-mail.

The bureaucratic foundation of administration (as defined by Weber) are the files; in a modern public administration these records are now predominantly digital, stored in databases, document management systems, case handling systems, customer management systems and email archives. The responsibility for the durability, integrity and security of the files, which form the basis for most forms of accountability, is therefore transferred to the IT manager. Citizens have various privacy rights in relation to their personal files (information) and IT managers assume the responsibility for protecting these rights. In many cases, rules and regulations are incorporated in IT systems; for example tax regulations are encoded in on-line tax services which allow citizens to report their tax liabilities and calculate their tax for them. Such systems are impartial and objective, in the sense that they impose the same conditions for all citizens, as long as they can understand how to navigate the web interfaces. Here the IT manager takes over a responsibility for effective execution of the law, and the bureaucratic value of impartiality. IT – particularly the net – is rapidly becoming the principle vehicle for ensuring transparency in Government; any form of information that can be digitalized can also made available to all citizens with a web browser, from a meeting agenda, to videos of council meetings, to budgets and accounting reports. Politicians and senior administrators alike often see ICT as a way to drive efficiency, to reduce costs and increase pro­ductivity, though there is little evidence to suggest that this is an automatic function of the implementation of ITC. Nobel Laureate economist Robert Solow articulated the well-known productivity paradox ([Brynjolfsson 1993](#_ENREF_4)): “we see computers everywhere except in the productivity statistics.” E-Government evaluation studies typically find it hard to identify cost savings and personnel reductions: “e-government has been adopted by many municipal governments, but it … has not [yet] obtained many of expected outcomes (cost savings, downsizing, etc.) that the rhetoric of e-government has promised” ([Moon 2002](#_ENREF_29)). Efficiency gains are often devoured by the cost of implementing, maintaining and improving systems. IT systems are central to establishing the statistical foundation for performance review. Some forms of citizen service can effectively be delivered though net-based systems (for instance tax reporting services offer the conveniences of universal access, instant calculation and file storage), but many forms of case-handling (for example child custody cases) require personal contact with citizens. Efficiency values and service values are not necessarily compatible; Hazlett and Hill ([2003](#_ENREF_21)) report that “government’s two central aims, namely high quality customer service and value-for-money, could potentially be in conflict; …[there is a] lack of evidence to support the claim that the use of technology in service delivery results in less bureaucracy and increased quality. ICTs, particularly net-based social networking and collaboration systems, offer huge potential for supporting deliberation, inclusion, participation and local democracy” ([Rose and Sæbø 2010](#_ENREF_39)). IT is therefore ubiquitous in government and can serve most purposes and underpin the majority of public administration values previously identified.

If we make the (somewhat contentious) assumption that ICTs are value-neutral and serve only to enact the values of government, we may ask the questions: which public administration values can (or should) managers responsible for e-government respond to? What should they try to achieve when they initiate e-government projects?

Snellen ([2005](#_ENREF_42)) identifies three principal roles for ICT’s in e-government:

* Supporting economy of implementation
* Supporting public service provision
* Supporting democracy

He also aligns them in a chronological perspective

“When we look at the deployment of ICTs in public administration, we see that originally ICT applications predominantly played a role in the enhancement of the internal *effectiveness, efficiency, and economy* of the executive functions of public administration especially in the sphere of policy implementation. Only later on the *improvement of the quality of public services* to the citizens, as customers, clients, citizens, and subjects; to businesses and social organizations; and to other branches of the public service itself came into focus. Many governments plan to do an increasingly large amount of their business within a few years via the Internet. More modest, however, are the applications of websites and homepages, which aim to support the *involvement of citizens in democratic policy making*. These include tools such as instant polling, interactive policymaking, coproduction of policies, and so forth. The importance of ICTs for democratic purposes is still hardly realized.” ([Snellen 2005](#_ENREF_42))

These three concerns, administrative efficiency, service improvement, citizen engagement, serve as a framework for the following discussion of e-government value drivers.

# Three value drivers for e-government

We make the assumption that e-government value landscape (understood as purpose and motivation for e-government initiatives) reflects the public administration value landscape, so we next summarize the value landscape as three value drivers (administrative efficiency, service improvement, and citizen engagement), complemented by a set of foundational values. The resulting value model is intended to aid the conceptualization of purpose and motivation in decision-making for e-government initiatives.

## Administrative efficiency

Administrative efficiency combines both Weberian and NPM values in the search for value for money expressed by the three e-values: efficiency, effectiveness, and economy. These represent what Hood ([1991](#_ENREF_22)) refers to as the core value ‘keep it lean and purposeful’ and Bannister ([2002](#_ENREF_1)) deconstructs as: positive cost benefit, cost savings/reduced headcount, avoided future costs, positive return on investment, positive net present value, risk reduction, greater staff efficiency, better control/reduction in fraud and waste, and increase in capacity/throughput. It incorporates the values of cost efficiency and productivity at the centre of the managerial model favoured by NPM, and also the values of performance assessment and accountability through results. It might also incorporate some degree of market orientation, competition and incentivization in pursuit of these values.

Here we should incorporate the understanding of Dahl ([1947](#_ENREF_7)): efficiency is itself a value and should compete with other values, such as a service ideal or democratic morality. Though Bannister ([2002](#_ENREF_1)) terms these e-values ‘foundational’ implying that they are central to the pursuit of any e-government venture, we cannot see that this is a good reflection of the public administration debate and would rather point to a set of core (foundational) values expressed by Weber, and re-articulated by Hood – we return to this idea shortly.

## Service improvement

This set of values is derived from public service ideals articulated by Denhardt and Denhardt ([2007](#_ENREF_10)) and from the customer orientation of NPM. ICTs offer many opportunities to provide better services to the public (citizen, client, customer, claimant, or recipient), though care must be taken to avoid encasing the human side of government behind a digital wall. Service improvements typically include better access, avoiding travel, shorter response times, better access to information, online applications and transactions, special provision for disability, online advice, automated benefits payment, and cost savings for citizens – as well as many other things.

The improvement of services, however, is often confused with administrative efficiency. The provision of a service online in attempt to reduce personnel costs does not necessarily constitute an improved service to the public in itself, but is part of a long tradition of the automation of manual tasks through ITC. Nor does transferring tasks traditionally undertaken by administrative staff to the public (you can find the information you need on our website but our help desk is now closed three days a week).

## Citizen engagement

Citizen engagement combines ideals of citizen-centricity and community empowerment from NPM with the liberal democracy ideals of the New Public Service. Bannister understands the democratic value as citizen access to information, transparency and flexibility, and further understands policy-making as an internal administrative concern. Liberal democracy advocates would go further and focus on dialogue, deliberation, democracy, openness, consensus-building, collaboration, shared leadership, and participatory policymaking. Citizen engagement is, however, not only a democratic ideal. Online services have little efficiency impact if citizens do not engage and use them. Citizens have a role to play in designing their own services and systems if these are to be appropriate and effective ([Olphert and Damodaran 2007](#_ENREF_33)).

Engagement should not be confused with information provision, customer feedback or transparency. Where information and transparency provide the basis for understanding for informed citizen deliberation, citizen engagement is dependent upon the administration’s resolve to find out what the public interest is and to act upon it, otherwise there is no incentive for a citizen to engage. As Snellen ([2005](#_ENREF_42)) remarks, this kind of e-government functions are less well-developed. He also provides an explanation for this: the technologies supporting it are newer and their use in government less well-understood.

Both service improvement and citizen engagement are usually dependent on investment and therefore can easily conflict with administrative efficiency, at least in the short term.

##  Foundational values

Whereas the three value drivers (administrative efficiency, service improvement, citizen engagement) can represent the motivation for major new initiatives in e-government, they are dependent upon the maintenance of many other values, which can be associated with traditional bureaucratic virtues. We use the term foundational values for these and follow Dobel’s ([2007](#_ENREF_11)) public administration tradition manner of formulating them, rather than Bannister’s adaptation. These are summarized above by Hood ([1991](#_ENREF_22)) as the core values:

* Keep it honest and fair
* Keep it robust and resilient

These are elaborated by Dobel ([2007](#_ENREF_11)):

* Frame decisions by law and authorized policy
* Demand good information for decision
* Create accurate durable records
* Build durable and competent institutional capacity
* Impartially serve all citizens

Foundational values reflect traditional bureaucratic values such as legitimacy, the rule of law, the application of detailed rules, equality, legality, impartiality, objectivity, transparency and accountability. We might also extend them to include internal and external values as defined by Bannister ([2002](#_ENREF_1)):

* **Internal:** improved staff morale, improved internal communications, improved ability to attract staff, better staff retention, more motivated staff, empowering staff, greater staff creativity
* **External:** being abreast of the private sector, having a good public image, being abreast of other administrations, matching other external benchmarks.

Translated into the daily work of an IT manager in government, these represent concern for (amongst other things):

* Infrastructural integrity for databases and networks
* Data security and the privacy of citizens
* Access to information for citizens through web-sites
* The accurate representation of legislation and regulations
* The avoidance of features that inadvertently discriminate groups of citizens
* The free availability of reliable services (also to those with disabilities and minority groups)
* The comfort of fellow government employees with the tools and services they work with, and
* Access to relevant decision-making information for government managers.

Foundational values motivate the backbone of e-government, enabling the modern bureaucracy to retain its professional integrity in the digital age, and providing the platform upon which value drivers build. The e-government value drivers are summarized in Figure 4.

*Value drivers*

Figure 4. Value drivers for e-government

# E-Government value drivers and local government in Denmark

In this section, we address the question: what values do (or should) public sector managers espouse (seek to achieve) when they introduce new information and communication technologies (ICT)? We do this through a short informal analysis of the two DISIMIT reports reporting on a large data collection exercise in 2009 ([Nielsen et al. 2010](#_ENREF_32), [Kræmmergaard et al. 2010](#_ENREF_25)). The national context for local authority managers responses is the Digitalisation Strategy for 2007-2010 ([Regeringen et al. 2007](#_ENREF_38)). This focuses on three areas:

* Better digital service – one entry point to the public sector
* Digitalisation should facilitate efficiency
* Stronger co-operation should create better digital cohesion

## Administrative efficiency

The two reports show that the DISIMIT local authority managers have a strong concentration on internal organisational efficiency. They understand the need to introduce systems that respond to internal requirements assessments (rather than respond to IT supplier agendas) and to improve IT project leadership using standardised models and portfolio management. Initiatives should have clear objectives and success criteria (expressed as a business case specifying efficiency gains which can be measured) which should later be evaluated. IT projects should not be stand-alone service automations, but should take place together with organisational changes designed to realise concrete benefits (process improvement). Channel reduction is also important: citizens should be encouraged to move to digital channels to maximize efficiency gains from digital services. The means to achieve these things include better budget and payment models for IT services, better management of IT suppliers, better internal financial incentives and raising the status of IT departments. Both top management and political backing is necessary.

## Service improvement

The reports also identified a commitment to service improvement. Particularly important are identifying and prioritising service improvement options, and the planning, initiation, implementation and operation of services. Service quality is also an issue, as is the accessibility, navigability and usability of services.

## Citizen engagement

Citizen engagement is mentioned, but primarily in the context of poor take up of digital services, understood as the result of inadequate marketing. This should be understood as part of an efficiency agenda, where efficiency gains are neutralised by citizens’ unwillingness or inability to use digital services.

## Foundational values

There is wide commitment to various foundational values. There is concern for the security of personal data, identity issues (digital signature, identification and authorisation) and respecting access for non-digital citizens. It is recognised that digital systems should complying with complex law demands regarding, for example, case handling. Digital integration of legacy silo systems and across governmental organisations is a priority, as maintaining architectural integrity and the upgrade and life cycle management of systems. Sourcing strategies and the management of systems portfolios are seen as important, necessitating good relationships with IT service providers. Communication and cooperation especially across organisational boundaries are valued. Another concern is for improving the digital competence of employees and attracting new employees with IT skills.

## Summary

A comparative summary of IT managers’ commitment to the three value drivers is provided by Nielsen et al. ([2010](#_ENREF_32)) in Table 4.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | To a large extent | To some extent | Rather little | Not at all | N |
| *Greater efficiency* | 88 | 11 | 0 | 1 | 80 |
| *Better service* | 71 | 28 | 1 | 0 | 80 |
| *Inclusion of citizens in decisions* | 15 | 39 | 44 | 2 | 80 |

Table 4. IT managers’ understanding of the purpose of local authorities’
use of IT (%)

The studies indicate that:

“local authorities have a business-oriented understanding of the use of IT, which focuses on improving efficiency and service. Developing democracy and engaging citizens in political decisions through IT is not a central focus area. In this respect, local authorities’ responses match the message of the national e-government strategies, where efficiency is the overall goal for digitalisation of the public sector.” ([Nielsen et al. 2010](#_ENREF_32))

An impression of the relative weights of values in Danish local authorities is given in Figure 5. A rigorous empirical investigation will be conducted later.

Figure 5. Projected level of concern with values and value drivers in the DISIMIT municipalities.

The polar chart summarizes the relative weight afforded the four different value areas in the two DISIMIT reports studied. The empirical conclusions are therefore rather tentative. They shows a heavy focus on administrative efficiency, some focus on foundation values, less on service improvement and rather little focus on citizen engagement.

# Implications for practitioners

How should such a value framework be used in practice? In our conversations with DISIMIT managers, we find that it both reflects and clearly delineates their own values. They are not surprised that we find a heavy focus on administrative efficiency, but neither are they proud of it, and often argue that it is a temporary focus, or that it is different in other parts of the organisation, for example amongst street-level colleagues. We argue that this focus reflects a limited and possibly mistaken idea of what IT can do in an organisation. It is limited in the sense that IT can do so many other things (for example underpin innovative services and facilitate dialogue). It is possibly mistaken because research in IT in the private sector shows that IT implementations in themselves seldom provide cost savings or productivity increases. These accompany innovation, organisational development and work practice re-organisation undertaken together with IT implementation. The simple equation: more IT = more efficiency, as all experienced public administrators understand, does not hold. The only thing that is certain with the introduction of IT is that it is expensive. As researchers, we would prefer to see a more balanced use of IT in government, which paradoxically might lead also to better value (in its wider sense) for money. An example might be to explicitly build different kinds of value into business case proposals, and to focus on projects where administrative efficiency can be allied with, or a side effect of other values. An e-government project that provides a genuinely improved service to citizens will often generate a cost saving as a by-product. An exaggerated focus on efficiency values makes infrastructure projects difficult to justify, and can encourage the development of piecemeal solutions without consideration of wider architectural design which may underpin future solutions in a defensible and maintainable way. An e-government project where the aims (values) are clearly articulated can be the sensibly evaluated and its benefits co-ordinated; not in the sense of retrospective justification and attribution of blame, but in the sense of understanding where a project has supported the values that were in focus and how to build on those improvements through future work. A further use of value studies is in the exposure of humbug. Many fine words are written in strategy documents about citizen involvement and service focus, but these are of mainly rhetorical value if they are not consistently implemented because of a one-sided dedication to efficiency.

# Conclusions

In this article we posed the questions:

* How can the debate about e-government value (understood as purpose and motivation for e-government initiatives) be summarized in such a way as to make it an effective aid to decision-making?
* What values do (or should) Danish public sector managers espouse (seek to realise) when they introduce new information and communication technologies (ICT)?

We investigated several prominent strands of the recent public administration and identified some major trends. Whereas the old public administration, with its roots in Weber’s account of bureaucracy is to some extent discredited, we found that many of these traditional values are still strongly entrenched in modern government practice. New Public Management refocused the value landscape on professional management, competition, performance measurement and cost control, though without losing sight of traditional values. Reactions to NPM include a restatement of traditional values, and a focus on both democratic and service values. We assume that all these public administration values also hold for e-government projects, and summarize this debate in a way that is sharply defined to serve as a managerial aid for discussion (though some further development is clearly necessary before it can be used in a practitioner context). Foundational values are a central concern and cannot be safely ignored; the three major drivers of e-government projects are administrative efficiency, service improvement and citizen engagement.

Our short analysis of the empirical evidence available through DISIMIT studies indicates that Danish local authority managers show a heavy focus on administrative efficiency, backed up by commitment to foundational values. Their commitment to service improvement is rather less and citizen engagement is hardly in focus at all.

The remaining question is whether these prioritisations make sense and are desirable. Our snapshot of Danish local authority managers’ values was taken in 2009, after the widespread financial crisis of 2008, but before cutbacks in public spending. Public spending in Denmark continued to rise in real terms until 2010. In this economic climate, it can be expected that efficiency is a priority, but it may be that this is a prevailing view of the purpose of IT in local government, independent of these circumstances. A focus on short-term cost saving can risk undermining the foundational value of IT as the primary infrastructure for modern public administration. This means that upgrades of hardware and software, integration of IT services, development of net and mobile architectures, data integrity and security and many other foundational issues are partly neglected. All this leads inevitably to poorer, rather than better service for citizens in the medium term. IT investments do not automatically lead to better productivity unless internal reforms accompany them, so the basic premise that IT delivers cost reductions is possibly flawed. Cost-saving and service improvement are competing values (the easiest way to cut costs is to reduce service levels), so the introduction of technologies which achieve both purposes is not simple. Finally, Danish society prides itself on its homogeneity and commitment to social and cooperative values, but this is hard to see in the values of local government managers. If citizen engagement is not an e-government priority in an internet society where the majority connect through social networks, then local government risks losing its immediacy for citizens and, in the longer term, their trust.

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Improving IT Project Portfolio Management in Public Sector Organizations

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**Abstract.** IT Project Portfolio Management (IT PPM) has become increasingly popular as a way of aligning and optimizing IT investments towards organizational strategies and goals. The approach has been implemented in various organizations with some difficulties, but only few studies concerning the challenges faced by practitioners improving PPM practice has been accomplished. This research reviews the current best practice advice for improving PPM and adds to our knowledge about the PPM improvement process by harvesting the experience gained by practitioners engaged in PPM improvement. Our research findings suggests that successful PPM improvement projects are characterized by the participants ability to apply a problem-driven iterative improvement process, the participants ability to cut corners and reduce complexity as much as possible, and the participants ability to define the role of PPM in a way that respects organizational limitations for rationality but still provides value to major stakeholders. The research is based upon a multisite case study from public sector organizations attempting to improve their PPM capabilities.

# Introduction

A project portfolio is a set of projects that share and compete for the same resources and are carried out under the sponsorship and management of a particular organization (Archer and Ghasemzadeh 1999). Project portfolio management (PPM) is the simultaneous management of this whole set of projects (e.g., Meskendahl 2010). The perspective used here is that all project-based organizations have some kind of PPM practice, even though they might not use the PPM terminology. Even though they do not perceive their own practice as PPM they still select which projects to start using some kind of criteria, they still have some kind of overview of their projects, and they still perform some kind of prioritization. At least they prioritize when they experience that they can’t do all the projects they have initiated, and they still allocate and re-allocate resources to projects accordingly. PPM has for some years been recommended as a way of increasing the outcome of investments in IT projects (e.g., Jeffery and Leliveld 2004). The limited empirical research within the area indicates that organizations do not fully realize the expected benefits and has problems implementing the best practices prescribed by the PPM literature (e.g., Pedersen and Nielsen 2011).

One of the primary purposes of systematic and structured PPM is to increase the level of rationality and IT-business collaboration in decision-making about IT project investments (e.g., Kaplan 2005) thereby making IT project investments better aligned with organizational strategies and needs. Within theory about organizational decision-making it is generally acknowledged that decision-making can never be 100% rational e.g., due to uncertainty (Simon 1957), politics (Pettigrew 1973), emotions and conflicts (Maitlis and Ozcelik 2004), and personal preferences and believes (McDonald et al. 2004). Even though the limitations for acting rational are quite strong and the adoption of a new way of deciding which projects to initiate, re-prioritize or cancel potentially is a large scale change process only few empirical studies of PPM improvement processes have been published.

This research combines existing advice found in IT PPM books and scientific papers with experiences from public sector organizations trying to improve PPM practices into a coherent improvement framework focusing on best-practice advice for improving PPM. The framework should not be perceived as a complete and fully adequate improvement method, but more as structured way of presenting our knowledge about these processes. This framework might be used by organizations planning to improve their PPM practice, and might inspire other researchers to focus on the improvement process. Following all the best-practice advice included in the framework will most likely lead to failure because the improvement task will be overwhelming and extremely complicated. However, ignoring the best practice advice that makes sense in the specific situation might also lead to failure. One of the keys to succeed with IT PPM improvement efforts is exactly the ability to apply a problem-driven and iterative improvement process where the focus stays on solving relevant problems as perceived by power full stakeholders.

Section 2 provides a brief overview of current implementation advice provided by the literature, section 3 describes the research process, and section 4 presents the new PPM improvement framework. Section 5 contains the conclusion and point to future research opportunities.

# PPM improvement

Most advice about IT PPM improvement is documented in the IT PPM books (e.g., Bonham 2005, Kaplan 2005, Morris and Pinto 2007, Fitzpatrick 2005, Wideman 2004, Moore 2010, Levine 2005, Maizlish and Handler 2005, Kendall and Rollins 2003) and maturity models (e.g., Pennypacker 2005) typically written by researchers and consultants with substantial experience in improving IT PPM practice. When reviewing the current body of knowledge regarding this issue some general themes emerge across the literature:

* Which overall strategy to use during PPM improvement
* Which process to use when improving PPM
* Which PPM components that needs to be designed and implemented
* Which organizational capabilities PPM rely on

Regarding the overall implementation strategy the PPM literature (e.g., Pennypacker 2005, Jeffery and Leliveld 2004, De Reyck et al. 2005) is clearly inspired by the CMMI maturity model and the basic idea that organizations can be characterized by being on a certain maturity level, and that PPM processes and components are best introduced in a specific sequence. Just like the CMMI model suggests that certain processes should be improved before other processes. For example, that one of the first PPM elements to introduce on the lowest maturity level is a basic overview of the entire project portfolio, and that supporting PPM processes with sophisticated software should be postponed until a higher maturity level is achieved (e.g., De Reyck et al. 2005). In a similar way organizations should first consider the PPM governance structure, then the PPM processes and finally the PPM enablers (e.g., PPM software) that makes the processes more efficient (e.g., Kaplan 2005).

The literature (e.g., Levine 2005, Fitzpatrick 2005, Moore 2010, Jeffery and Leliveld 2004) consistently emphasizes that PPM is best improved using an iterative process consisting of a sequence of phases where each iteration enlarges the scope for PPM along various dimensions, e.g., by including more PPM processes or enablers or by improving PPM in a larger part of the organization.

The PPM components can be categorised into “governance structure”, “processes” and “enablers” (e.g., PPM software, metrics, standards, etc.) (e.g., Kaplan 2005), and the literature is generally concerned with the quality criteria that should be satisfied when designing or acquiring the various components. E.g., that processes should be transparent (Moore 2010) and prioritization criteria should be objective (Meskendahl 2010).

PPM improvement relies on some basic organizational capabilities. Generally, the literature emphasizes the importance of resource management (e.g., Moore 2010) and project management (e.g., Fitzpatrick 2005).

Through the case study involving organizations trying to improve their PPM practice some possible shortcomings in the existing IT PPM advice were identified e.g.:

* The challenges related to improving decision-making processes and the complexity involved seemed underestimates by the literature. A starting point for improving PPM could is to understand why bad portfolio decisions are made or why even high quality decisions aren’t implemented, and how the decision-making processes might be improved to reduce these problems.
* Emphasizing compliance with various PPM maturity models, best practices and standards is not the best way to improve PPM. The experienced PPM consultants interviewed as part of this research as well as the observations from the case study indicates that a more problem-driven approach is suitable.

The goal of this research has been to combine the experience from the studied organizations, the experience from PPM consultants and the existing literature into a PPM improvement framework that might be used by other similar organizations. The empirical data in this investigation is not sufficient to rule out existing best-practice advice about improving PPM practice, and doing so is not the goal. On the contrary the goal has been to provide a broad understanding of the improvement process and the challenges faced by practitioners when trying to improve PPM practices.

# Research method

The empirical setting for this research is Danish public government organizations. The research design is based on case study approach (Walsham 1995) involving four municipalities. The participating organizations are all among the more mature municipalities from an IT management perspective (Kræmmergaard and Nielsen 2010). The research method is based on the following activities:

1. Existing literature about improving PPM was studied and candidate best practices and critical success factors were extracted and grouped into a PPM improvement framework.
2. The four participating organizations have been studied for a period of two years, their maturity regarding PPM has been assessed and strength and weaknesses in their PPM practice has been identified (Pedersen & Hansen 2010). The PPM improvement framework were evaluated and refined by comparing it with the empirical findings in terms of observations from the case organizations, and by explicitly having participants from the case organizations review and comment on the framework based on their experience.
3. The case organizations were all relatively immature PPM users. To compensate for this the resulting list of factors and practices were refined by interviewing experienced PPM implementation consultants about what they perceived as critical success factors and best practices for PPM improvement.
4. Finally, the framework was reviewed by both the participating municipalities, the previously interviewed PPM consultants as well as IT managers from two other municipalities with experience in PPM improvement.

# The PPM improvement framework

The framework is best introduced by referring to a conversation with an experienced consultant with several years of consultancy experience from improving IT PPM practice in public sector organizations. Seeing the rather long list of improvement advice previously identified through the literature study and the case study, he politely said that one of the reasons that his consultancy company was rather successful was that they didn’t make it more complicated than it had to be. Basically they just focused on solving the most important PPM problems for the most important stakeholder using the simplest solution that they could think off and implement within a few weeks. However, when systematically going through the long list with the consultant during the interview it became clear that they actually took care of most of the concerns on the list: It was a matter of adapting the content to the specific situation and down-scale the complexity, and effort used, as much as possible doing what was absolutely necessary to succeed, and nothing more.

By reviewing the literature and grouping related best-practice advice a range of improvement activities has been identified:

1. Choosing the improvement strategy,
2. Designing the improvement process,
3. Evaluating the current PPM Practice,
4. Designing the PPM governance structure,
5. Designing the PPM process,
6. Performing quality assurance and
7. Integrating the new PPM components into the business.

Furthermore a range of foundational management capabilities were identified:

* Strategy management,
* Alignment management,
* Resource management,
* Project management and
* Benefits realization management.

Improve-ment

Strategy

Improve-

ment

Process

Practice

Evaluation

Governance

Design

Process

Design

Quality

Assurance

Alignment

Management

Ressource

Manage-ment

Project

Manage-ment

Business

Integration

Strategy

Manage-ment

Benefits

Realization

Manage-ment

Figure 1. The PPM improvement framework

The foundational capabilities are defined as capabilities that PPM depends on in the sense that the outcome of the related activities is needed by PPM.

Strategy management includes the ability to establish and maintain organizational strategies and goals. Organizational strategies and goals are needed to align the portfolio (e.g., De Reyck et al. 2005), to define and align project goals (Wideman 2004) and to support project prioritization and avoid that projects are prioritized based on the stakeholders ability to influence and not on the project proposal itself (Moore 2010).

Alignment management is about establishing and improving the general collaboration and shared understanding between the IT department and the rest of the organization. According to Jeffery and Leliveld (2004) alignment is vital for PPM. Unsatisfactory alignment results in problems like lack of respect for the IT department, communication problems between IT managers and business managers, business deciding projects without consulting IT, or IT managers keeping business managers uninformed about IT (Jeffery and Leliveld 2004). PPM is a ways of structuring the collaboration effort and requires that basic collaboration capabilities and shared understanding are in place.

Resource management is about providing an overview of current available resources and how resources are allocated. The portfolio management board needs information about resources to know when to start projects (Levine 2005). It does not help approving projects if the needed resources are not allocated: All decided projects should have a resource plan and it should be verified that the resource requirements can be met (Moore 2010).

Project management and benefits realization management capabilities are needed to execute projects and realize the benefits. An established project management practice is beneficiary in many ways (Fitzpatrick 2005). Even the best IT investments ideas are of no value if the organization cannot implement them (Fitzpatrick 2005), PPM depends on proper monitoring of project scope, budget and duration and on post mortems on projects to improve cost estimation (Moore 2010). Project estimates must be checked to avoid low quality or intentionally misleading estimates as input to project prioritization and selection (Moore 2010). Without benefit realization, capabilities it does not make sense to invest heavily in IT projects at all. The foundational capabilities are not described in more detail in this article.

The activities are described in a logical order, but should not be perceived as a complete activity model for PPM improvement. However, the model can serve as an inspiration and checklist for practitioners trying to improve PPM practice and as an inspiration for other researchers that want to study PPM improvement processes. The following subsections describe key best-practices identified within the various improvement activities.

## Establish improvement strategy

Establishing a strategy for the improvement effort is a key issue. The strategy should be tailored to the specific situation, but the following principles are always important:

* View the PPM improvement initiative as an organizational transformation project and make an executive manager responsible for the organizational changes.
* Use an iterative, problem- and risk-driven improvement process. Minimize the complexity and scope of the improvement process as much as possible and develop a business case that clearly defines how the organization benefits from solving the problems.
* Manage the improvement initiative as a project, create and maintain momentum without stretching the organizations capability for change too much.
* Staff the improvement initiative with the best people by providing proper incentives and exploiting existing PPM experience and capabilities within the organization.
* Be very specific and concisions about the role that PPM is going to have and how the improvement effort should be perceived.

A PPM improvement initiative is about changing how IT project decisions are made and by whom so it is an organizational change project and not just technical project introducing new software tool (e.g., Kaplan 2005). IT support for PPM is important because it provides some structure and makes it easier to gather project information, and analyse and communicate portfolio performance, but it is not a goal in itself. Some of the interviewed IT managers and the consultants highlighted that IT support can facilitate the change process in two ways: By clearly demonstrating how relevant portfolio level information that improves decision-making can be produced, and by facilitating that new kind of views and analysis can be produced instantly as the information is wanted by decision-makers.

Managing organizational change and getting management support is always critical, but especially critical in this situation because it is about changing the way that managers manage, and because the managers leaders should feel comfortable with and responsible for the new processes. PPM improvement should start at the top with senior management buy-in (Levine 2005), building and sustaining senior management support is essential (Levine 2005), and in the end senior management should be accountable for the results (Fitzpatrick 2005). Moore (2010) recommends motivating PPM improvement through incentives and not by forcing people to use new processes.

Both the literature (e.g., Levine 2005, Fitzpatrick 2005, Moore 2010, Jeffery and Leliveld 2004) and the data collected as part of this research consistently emphasise the need for an iterative improvement process where IT PPM performance information is used to optimize the effort. The consultants interviewed as part of our research viewed a problem-driven approach as one of the most important factors in being successful when improving PPM practice. Their key strategy to succeed was to focus on the most important unsolved problem as experienced by the most important stakeholders. All the actions should somehow be linked to solving real problems. One of the ways off establishing and keeping a problem based perspective is to develop a business case for the various iterations as suggested e.g., by (Fitzpatrick 2005). The business case should focus on the problems to solve and the resulting benefits, who’s to benefit from the improvements, how they are supposed to benefit, and how decision-making behaviour will have to change (Kaplan 2005).

Three major improvement risks have been identified through this research, and these should be considered as part of defining the strategy:

* Making the PPM improvement process too complicated – primarily by accepting that the improvements requires large-scale improvements in the foundational capabilities, e.g., that a new ambitious project management model needs to be implemented first.
* Making PPM improvements too simple – primarily by failing to understand the organizational politics involved, e.g., by challenging the existing power balance too much or providing a degree of visibility that is considered dangerous by important stakeholders.
* Making PPM improvements process irrelevant – primarily by focusing on standard compliance instead of problem solving.

The consultants found that getting lost in improving one of the foundational management capabilities, or just initiating actions to follow a specific standard, even though doing so actually would not solve any problems were major risks. In their experience, succeeding was about initiating as little change as possible to solve the concrete problems as experience by the most important stakeholders. Making PPM improvements dependent on improving, e.g., project management practices in general in an organization would make it difficult to produced quick wins regarding PPM practice in general and make the improvement process much more complicated and risky.

The managers from public sector organizations consistently emphasized the political implications involved. Improving PPM was considered highly political for two reasons. First, the politicians running the municipalities obviously have different political interests and the information produced when being transparent about IT projects and portfolio performance could be used in political struggles. Second, changing the way IT project decisions were made had political implications on an organizational level, e.g., by centralizing decision-making or by changing the various stakeholders’ possibilities to influence decisions.

Providing proper project management (Levine 2005, Maizlish and Handler 2005) and creating and maintain momentum is considered critical by most of the IT-PPM literature (e.g., Levine 2005, Maizlish and Handler 2005) and was considered very important by the practitioners interviewed as part of this research. On one side a fast paced improvement process should be established because it is very difficult to maintain management focus if visible results are not produced within a short timeframe, but on the other side the organizations capability for absorbing the changes should be respected (Moore 2010). One way of accomplishing this is exactly to use an iterative process that makes it possible to benefit from quick wins, e.g., in terms of providing valuable data that significantly improve decision-making.

The literature emphasizes the need for attracting good people to PPM work e.g., through various incentives in order to succeed (Jeffery and Leliveld 2004) and that existing capabilities and resources should be exploited (Moore 2010). The interviewed consultants found that badly staffed project management offices can be a barrier for PPM improvements and that failure to recognize existing PPM practices that actually works not only waste time but also creates resistance. Staffing the improvement effort with inexperienced employees just graduated from university and burned-out managers, because the improvement effort is considered less important that, e.g., managing real IT projects is a bad strategy. The project group responsible for leading PPM improvement should represent all major stakeholders and have the authority to make PPM design decisions (Fitzpatrick 2005).

Maybe the most important part of the strategy is being absolutely clear about the role of PPM. The organizations taken part in this research were all convinced that PPM was beneficial for their organizations, but also convinced that the gap between the rational ideals presented in the IT PPM books were far away from their current practice and out of reach given the organizational limitations that they worked under. The following metaphors regarding the role of PPM have been identified as part of the research, and elements of all of them will most likely be present in all organizations.

* **The Fire brigade:** PPM is like a fire brigade trying to perform some kind of after the fact damage control. One IT manager from a municipality described that they performed “corrective PPM” in the sense that they tried to make the best of the situation, e.g., by closing low value projects, trying to deal with political decisions about new IT investments, or performing resource allocating when ends didn’t met and projects were delayed.
* **The Improviser:** PPM is like an improviser exploiting the opportunities that comes along, e.g., in terms of optimizing project proposals or spotting new opportunities. One IT managers described how they were very concerned about optimizing project proposals and on-going projects, and how they focused on making decisions right, not on making the right decisions.
* **The Negotiator:** PPM is a player in the political games trying to facilitate negotiations among key stakeholders with the goal of establishing compromises that while not optimal still provides benefits for the organization, at least from the negotiators own perspective. This role was visible and important in all the organizations.
* **The Coach:** PPM is like a soccer coach that starts a game with some kind of strategy but also acknowledges that corrections have to be made on the fly by the individual players. During time outs or breaks you evaluate the situation and adjust the overall strategy that serves as the guideline for the individual players.
* **The Air traffic controller:** PPM is like an air control tower where there is absolute transparency about all the planes (projects) at all time, information is always updated and reliable and decision-making is highly centralized.

The message is not that organizations should choose one of these metaphors, but that they can serve as inspiration and as a vehicle for discussion and formulation of the overall role and vision for PPM. Generally, PPM can be used to bring some order into the decision-processes regarding IT projects and compensate for some dysfunctional patterns, but complete rationality can never be achieved.

## Designing the improvement process

The key principles about the improvement process can be summarized the following way.

* Use a phased, iterative, problem- and risk-driven improvement process that delivers relevant, fast and visible results.
* Identify, analyze and manage the stakeholders and focus on the political implications.
* Each iteration should focus on solving the most important unsolved problems for the most important stakeholders that can be solved with acceptable solution risks and timeframe.
* Establish close collaboration with key stakeholders and future users.
* Generally design and implement the governance structure before processes and enablers.
* Start by addressing PPM related problems in a narrow scope, make it work, and enlarge the scope in subsequent iterations. Each iteration can expand the scope for PPM by:
	+ Including new parts of the organization
	+ Increasing the part of the IT budget that are governed by PPM
	+ Including more categories of projects
	+ Including new or refining PPM components (e.g., new processes or tools)
* Educate future users and integrate the PPM improvements in existing decision processes in the organization.

There is generally agreement about the overall structure of the improvement process: Organizations should apply an iterative improvement process (eg. Levine 2005, Fitzpatrick 2005, Moore 2010). First, there is a need to demonstrate early results in order to maintain management attention, support and momentum, second PPM is best improved by introducing new ways of managing the project portfolio in a small part of the organization before widespread implementation, and third because an iterative approach allows for learning and exploiting lessons learned (Jeffery and Leliveld 2004). As PPM is adopted in larger parts of the organization, the early adopters should ideally become advocates for PPM and demonstrate evidence of success (Moore 2010).

Each iteration contains the following major activities: Practice evaluation, Governance design, Process design, Quality assurance and Business integration. Our research indicates that one of the key facilitators for using a fast paced iterative process is that the supporting software is flexible and easily configured to provide new analysis and reports and to support new processes and governance structures without large programming efforts.

Generally the first iterations should emphasize getting the governance structure right because this is the most challenging part that will evoke most resistance, because the governance structure must be used to get approval off other PPM components and because processes are easier to design when the governance structure are in place (Kaplan 2005). Furthermore the literature (e.g., De Reyck et al. 2005) consistently emphasize that one of the first actions is to provide an overview of the existing portfolio. The initial overview will most likely reveal that the current portfolio is problematic in some regard and foster the first improvement initiatives in two ways: By identifying IT project investments that needs to be reconsidered and by illustrating in which areas improvements are needed to optimize IT project investments in the future. When designing iterations the following model illustrates some of the major concerns.

Organ-ization

Budget

Compo-nents

Categories

What’s the scope?

What’s the problem?

Stakeholder

importance

Problem

importance

Solution timeframe

Solution

risk

Figure 2. Designing an iteration

Stakeholder management is an essential part of both problem identification and change management (e.g., Maizlish and Handler 2005). When deciding which problems to solve the major issues are the importance of the problems and the stakeholders that personally experience the problems, the level of risk that characterize the solution and how the related risks can be reduced, and the timeframe within which the solution can be provided.

Based on which problems that needs to be solved the scope of the iteration is decided by choosing which categories of projects to include in PPM, which parts of the organization that are covered by PPM, which part of the budget that are governed by PPM and finally which components (governance, process and enablers) that are changed in order to solve the problem.

Problems should be clearly linked to portfolio problems (e.g., an analysis of the portfolio reveals that the overall risk level is too high, that progress is to slow, or that resources are used on low value projects) and personally experienced by important stakeholders. The problems as well as the proposed solutions should be communicated to as part of a planned communication effort targeting the involved stakeholders and future process users in order to manage expectations (e.g., Fitzpatrick 2005) and ease the change process.

Generally, the most simple and low risk solution that can solve the problem should be chosen. Initial iterations should provide solutions without providing too much detail. Later iterations refine the solutions based on practical experience and provide advice that is more detailed. The improvement objectives for each iteration should be based on the practice evaluation to secure that they are realistic (Maizlish and Handler 2005). Fitzpatrick (2005) suggests that nothing should be implemented before the success criteria and how they will be measured has been defined.

PPM is conceptually simple from a technical or process perspective, but challenging from an organizational and political perspective (Kaplan 2005) and the improvement project should be aware of political issues and not suggest more radical changes than what realistically can be implemented. The practitioners taking part in this research highlights issues like:

* Resistance from project managers that think that their projects are so important that their projects should be excluded from regular project prioritization processes and that they personally should report directly to top-management short cutting normal PPM processes and governance structures.
* Resistance from middle managers fearing reduced control over previously decentralized IT budgets.
* Resistance from top-managers fearing that a high degree of transparency regarding portfolio performance and controversial decisions, e.g., closing politically approved but low-value projects, might create political problems.

The level of performance in the foundationally capabilities might create various risks that makes PPM improvement difficult. Generally, the level of performance in these capabilities must be reflected in the proposed solutions:

* Lack of clear and agreed upon business strategies makes project prioritization difficult and has implications for the prioritization process,
* social alignment issues might foster misunderstandings and communication problems during team decision-making processes in the portfolio management board,
* as a consequence of lacking overview over allocated and available resources too many projects might be initiated,
* poor project management capabilities makes portfolio level decision-making difficult due to low quality estimates or progress reports, and
* benefits management problems might make IT project investments less attractive than what they appear to be in the business cases.

Due to the political nature of the improvements stakeholder management is especially important. Besides staffing the improvement project with representatives for all major stakeholders, close collaboration with future users planned and systematic communication to the part of the organization that is included in the scope, acknowledging existing practises that already work, and expectation management towards key stakeholders is vital. Furthermore, the solutions should be approved by all major stakeholders before they are implemented (Fitzpatrick 2005).

When implementing the improvements it is not a matter of implementing completely new processes and organizational structures, but more about integrating the solutions into existing decision-making processes and management processes in general:

* one of the major issues in the organizations that we have studied is that IT project decisions are isolated from other kinds of business decisions making it difficult to align IT services and systems with organizational needs and strategies, and
* integration is needed to avoid duplicate efforts e.g., regarding in terms of introducing overlapping report mechanisms.

## Practice evaluation

The starting point for PPM improvement is a thorough understanding of the current PPM practice. The guiding principles are:

* Document and analyze the current project portfolio.
* Evaluate the current practice, decision quality and consensus in PPM decision-making.
* Evaluate the readiness, capacity, and limitations for PPM related change.
* Identify the areas within the organization where PMM might create most value and identify specific PPM related problems that are personally experienced by key stakeholders.

Basically it is about documenting the current portfolio, presenting the result for the managers in charge and having them evaluate whether they like what they see and identify major problems. The problems are solved both on the specific and general level: E.g., if the portfolio contains some low value projects actions are initiated on the specific level to deal with these specific projects, and on the general level PPM process might be improved to deal with or avoid a similar situation in the future. In all the organizations that have taken part in this study two key issues were important for improving IT PPM:

* Relating IT-PPM improvements to specific and concrete portfolio level problems experienced by key stakeholders
* Understanding how much transparency, rationality and change in portfolio-level decision-making the organizations could deal with.

None of the organizations perceived PPM as a goal in itself and IT managers had little success when trying to convince top management to implement structured PPM in general. However, solving specific portfolio level problems were a key issue and perceived as relevant. Specific problems are easily identified when documenting and analyzing the current IT project portfolio. One consultant explained how the first analysis in one organization had revealed that IT project investments were completely unbalanced when compared to the issues rated as most important by the political leadership, and a portfolio manager how they first analysis had identified several low value projects that subsequently were closed saving money and releasing resources for more valuable projects. Documenting and analyzing the portfolio is generally recommended as the first step throughout the IT PPM literature (e.g., Levine 2005). First, documenting and analyzing the portfolio creates the foundation for making portfolio decisions that improves the balance and overall value of the portfolio. Doing that the first time might alone pay for the efforts invested in improving the PPM capability (Levine 2005). Second, the specific problems identified about the current portfolio are used to identify general PPM problems that need to be solved in order to avoid similar portfolio problems in the future. Third, by clearly motivating general IPPM improvements by the need to solve specific problems as personally experienced by major stakeholders momentum can be created and maintained (Levine 2005).

Improving PPM could be perceived as laying a jigsaw: The IT managers, or others pushing PPM, might see the complete jigsaw picture (the entire PPM model they want to introduced) but could only solve the jigsaw by presenting the individual pieces (the IT PPM components) for the rest of the organization as the related problems is experienced and acknowledged by key stakeholders. One IT manager explained how they had previously failed when just proposing new processes and standards: The business had to experience the need by failing or experiencing problems before new processes were accepted.

Having identified IT PPM related problems (e.g., an unbalanced portfolio) the current practice can be evaluated and compared to acknowledged best practices and PPM models in order to identify relevant improvements. When doing so it is important not only to understand the weakness in current practices that causes the problems but also to understand the motivation for change, the capacity for change and the limitations that must be respected (Maizlish and Handler 2005). One portfolio-manager explained how they mixed bilateral and multilateral decision-making processes to cope with difficult issues: In order not to embarrass managers he would deal with critical issues like closing low value projects by contacting the manager in charge bilaterally without making it into an issue at portfolio board meetings. He also explained how they had to respect the limitations causes by being a part of a highly political organization: On late night during negotiation about next year’s budget politicians had decided that the organization should save approximately 4 mill. $ by introducing speech recognition technology in the entire municipality this way bypassing all kinds of prioritization processes and strategies decided on the administrative level.

The IT PPM literature generally assumes that PPM can be improved just by providing better information that supports decision-making. Off course improved information quality helps, but there are other aspects as well. The team in charge should investigate dysfunctional aspects in the current decision-making processes that impacts decision-quality and decision-consensus (Pedersen and Nielsen 2011 ).

Understanding which part of the organization PPM improvements will create most value is a vital part of evaluating the current practice and used to scope the effort (Maizlish and Handler 2005). Furthermore, the team should not only focus on problems but try to identify and exploit existing PPM resources, experiences and competencies in the organization (Moore 2010).

Generally the literature emphasizes that measureable success criteria should be linked to the improvement initiatives making it clear what level of improvement that are expected, and that impact of the improvement effort should be measured after the implementation (Maizlish and Handler 2005).

## Governance design

Governance design includes designing the organizational structure used to make PPM decisions as well as the corresponding portfolio structure. The portfolio structure includes how the portfolio is divided into sub portfolios (segments) and categories. Best practice advice can be summarized this way:

1. Define the scope for PPM.
2. Design a governance structure for PPM decision-making that includes a portfolio management board and supporting functions that delivers the information needed for portfolio management.
3. Design the IT project portfolio structure.
4. Authority and responsibility for the IT project portfolio should be placed in business and not in the IT function.

Define the scope for PPM (e.g., Maizlish and Handler 2005). It should be well defined what is included and what’s left out. Two concerns are especially important: That all activities that compete about the same resources should be included because a shared prioritization is needed, but also that smaller ad hoc activities can be decided and executed without too much bureaucracy (Blichfeldt and Eskerod 2008). This might be accomplished by explicitly defining a resource buffer in the portfolio that can be allocated to small but urgent projects without approval from the entire board (Blichfeldt and Eskerod 2008). In some of the studied organizations, having this kind of explicit buffer was impossible because it immediately would be used to cut budgets. Instead, managers used low priority or long term and less urgent projects as buffers.

When designing the governance structure integration with existing decision-making processes and organizational structures is a key issue. The board prioritizes projects, makes portfolio decisions and provides the overall direction for, and approval off, the PPM components and should be established as one of the first initiatives (Fitzpatrick 2005, Kaplan 2005). Business integration was a challenge for all the studied organizations: Some of the organizations experienced that separate boards were created isolated from regular business decisions making it difficult to align IT projects with other kinds of business development, all the organizations experienced that disintegration from political budget processes and negotiations could result in IT related decisions that were less than optimal leaving little room for the rational analysis and prioritization that is the cornerstone in PPM. Generally it was quite difficult for the organizations to do pro-active portfolio management, because IT project related decisions were made ad hoc in many different settings. One organizations said that the best they could hope for right now were some kind of after-the-fact re-active portfolio management were they made necessary corrections to portfolio, e.g., by closing or re-thinking projects that turned out to be less valuable than originally expected. A key issue for the participating organizations were to design a governance structure that on one side allowed for flexibility and fast decision-making and on the other side established a proper level of centralized control making sure e.g., that duplicate investments were avoided and that cross functional projects were prioritized. The literature (e.g., Jeffery and Leliveld 2004) generally recommends that accountability for portfolio decisions should be transferred to the business.

Besides forming the portfolio management board, some supporting functions are usually needed. Fitzpatrick (2005) suggests that organizations establish a staff group that evaluates project proposals, maintain the quality of business cases, and prepare reports and recommendations for the board, and an operation analysis group that analyse organizational performance information with the purpose of spotting problems that needs to be resolved e.g., by starting new projects. Furthermore, Fitzpatrick (2005) also suggests that organizations appoint a portfolio manager that is responsible for implementing the board’s decision and for the day-to-day coordination and maintenance of the portfolio information.

Creating and maintaining positive relations and team dynamics among board members in order facilitate efficient and effective decision-making were considered vital by the organizations, and doing so is generally recognized as an important facilitator for decision-making in teams (e.g., Pedersen and Nielsen 2011).

When designing the IT project portfolio structure the portfolio should be split into segments (reflection the organizational structure) and categories (reflecting the various kinds of projects), and the various attributes (e.g., the relation between projects and organizational strategies) used to characterize and prioritize projects should be defined (e.g., Maizlish and Handler 2005). The portfolio structure should support:

* Evaluation of the portfolio balance – e.g., the level of risk or level of strategic alignment
* Differentiated decision-making depending on the nature of the project belonging to specific categories.
* That only comparable projects actually are compared during project prioritization especially that short term operation focused projects are clearly separated from longer term strategic projects
* That centralization vs. decentralization of decision-making can be handled properly.

One of the most difficult issues is how to deal with project cancellation. Levine (2005) recommends that organizations develop a culture that supports cancelling poor projects, but this is easier said than done, and project cancellation remains a challenge for most organizations.

## Process design

Regarding process design, the following best-practice advice has been identified:

* Adapt processes to the specific organization.
* Provide relevant and reliable information.
* Go for transparency – but be aware off the political limitations.
* Processes should be user friendly.
* Postpone sophisticated software support until PPM and the requirements for software support are understood.

Taylor the PPM processes to the specific organization and add more details as more experience is gained about how to perform PPM (Fitzpatrick 2005). Ideally the processes should be aligned with the competencies, level of experience and engagement among the participants as well as the organizational culture (Maizlish and Handler 2005). The processes should be flexible enough to handle that different categories of projects requires different kinds of decision-making processes. The following factors have impact on the way decisions can be made: The level of uncertainty, conflict, risk, cost and return (Pedersen and Nielsen 2011).

Even though the processes should be flexible enough to facilitate decision-making about quite different projects, they should still be simple (Levine 2005). Simplicity makes it easier to use the processes and create fast results during the improvement process. One way of achieving simplicity is to trust the participant’s judgment and decision-making skills, and not rely on too many rigid and detailed rules.

The PPM processes should provide relevant and reliable information when it is needed for decision-making and all portfolio reports should be clearly related to and address specific portfolio problems, decisions and actions – otherwise they are meaningless (Moore 2010). The PPM processes should provide increased transparency about the IT project portfolio and transparency about the way that decisions are made (Kaplan 2005, Moore 2010). A transparent process is easier to improve, it reduces redundant work, and it increases the value of the information produced because more people can use it (Moore 2010). However increased transparency is not always welcome (Jeffery and Leliveld 2004). In the organizations studied as part of this research transparency was only welcome to a point.

During PPM decision-making in general procedural fairness in terms of decisions being based on arguments and data not on ability to influence is important (Moore 2010). Without procedural fairness, the processes will lose credibility (Moore 2010).

Both the literature (e.g., Fitzpatrick 2005) and the participating practitioners emphasize that PPM processes must be user friendly. If managers conclude that they are too complicated or rigid the improvement effort will fail. Data collection is especially critical and should be automated if possible, and reuse data already collected for other purposes (Moore 2010). Redundant data collection should be avoided. Only data that are actually used by decision makers to make specific decisions should be collected.

The PPM processes should include a project evaluation and prioritization tool (Fitzpatrick 2005) that makes it easy for the participants to:

* Link prioritization criteria to organizational strategies, goals and performance measures
* Apply the criteria to optimize individual projects before prioritization
* Use the prioritization criteria on specific projects to evaluate, compare and select projects

The project proposal process should collect project ideas and proposals from many different sources (Moore 2010, Kaplan 2005). The value of the portfolio cannot be any better than the project proposals submitted for prioritization. The more ideas, the stronger the portfolio can be, and more ideas makes it easier to balance the portfolio properly, e.g., according to organizational strategies and required level of risk (Moore 2010).

The project prioritization process should be robust and transparent (Moore 2010). Transparency makes prioritization easier and also makes it easier to produce high quality project proposals. The prioritization process should balance the use of objective prioritization criteria and rational analysis with the use of management experience and intuition during prioritization. Kaplan (2005) recommends “a process-based approach that structures the workflow and guides managers through the analytics, postponing the application of intuition and judgement to near the end of the decision-making process.” The process should facilitate that all relevant perspectives are exploited through constructive cognitive conflicts to increase decision quality, and facilitate that commitment, shared understanding, and consensus are created to ease the implementation of portfolio decisions (Pedersen and Nielsen 2011). Furthermore, the prioritization process should establish a proper balance between short-term projects and longer term strategic projects. Even though strategic alignment is important, some resources should be allocated to projects that explore new directions not in line with current strategy.

* The project selection process should not only be based on an evaluation of individual projects, but also on how these projects impacts that portfolio, the dependencies between projects and how synergies might be exploited.
* The portfolio monitoring process should not only focus on project execution and project cost but also on benefits realization and benefits optimization, and on identification and management of project dependencies. A key issue is to make sure that decision-makers get valid feedback about the quality of past decisions so that they might improve their decision-making skills (Sadler-Smith and Shefy 2004). The frequency of the monitoring process should reflect the stability or the portfolio and the environmental dynamics (Floricel and Ibanescu 2008).

The process should be supported by PPM software. The literature generally advices that sophisticated software support is postponed until the PPM processes are well understood (De Reyck 2005), that organizations should choose proven PPM software (Levine 2005 ) and not develop their own software or settle for spreadsheets (Fitzpatrick 2005) and that the PPM software should be integrated with existing IT management systems (Levine 2005).

The literature recommends that several kinds of metrics are used to manage the project portfolio, identify needs for new IT projects and improve PPM processes:

* Portfolio management: Metrics that supports monitoring of project execution (e.g., project costs) (e.g., Jeffery and Leliveld 2004) and benefits realization (e.g., Maizlish and Handler 2005). During the project lifecycle different metrics are appropriate for different phases (Jeffery and Leliveld 2004).
* PPM process improvement: Metrics that support monitoring the efficiency and effectiveness of PPM processes (Maizlish and Handler 2005).
* Project identification: Performance measures for measuring organization performance according to the defined organizational strategies and goals (Fitzpatrick 2005).

Designing the processes the key issue is to focus on business integration, that is, not to invent something entirely new but to integrate PPM into existing decision-making processes.

## Quality assurance

All the PPM improvements should be submitted to Quality Assurance. The key principles are:

* Perform quality assurance on all PPM components before they are released.
* Support the process by providing relevant standards.
* Conduct a simulation.
* Systematically improve the components.

Quality assurance activities includes that all PPM components are evaluated before they are released for use (Fitzpatrick 2005). As a vital part of quality assurance a basic standard for business cases and project proposals should be established to enforce quality and to make it possible to compare project proposals no matter where they come from (Fitzpatrick 2005). If projects are very different in size, organizations might define two standards, one for low-cost low-risk, and one for the rest (Fitzpatrick 2005).

By conducting a manual simulation of the entire PPM process before it is released the efficiency and user friendliness of the various components can be tested and improved (Fitzpatrick 2005). The simulation should involve the future process users, and serves as a way of providing basic training before real use. Generally, all the components should be approved by representatives for all major stakeholders. The literature (e.g., Levine 2005) generally emphasize that the processes should be implemented and tried out in a small part of the organization before they are implemented in the entire organization. There should be established some kind of support for the process users before widespread use, and by regularly conducting audits it is possible to evaluate whether the implementation is successful (Levine 2005).

As part of the quality assurance activity it should be monitored whether PPM decisions are executed properly (Levine 2005) and the PPM components should be systematically improved based on the data collected through the various quality assurance activities (Fitzpatrick 2005).

## Business integration

Business integration is about implementing the designed solutions into existing management and decision-making processes. The key principles are:

* Establish close collaboration with key stakeholders.
* Regularly communicate the plans and progress regarding PPM improvement.
* Provide training for process users.
* Integrate PPM into existing management structures and processes.

PPM should not be perceived as a new management system working in parallel with existing systems rather PPM should be integrated into the existing management system in the organization in order to align IT project decisions with organizational and business development efforts in general. One of the issues identified in the organizations we have studied was that it could be quite difficult to separate IT projects from other kinds of projects. Portfolio management should integrate business units and the IT department planning and decision-making processes across the enterprise (Kaplan 2005), and PPM should be embedded into the existing budgeting and decision-making processes. In the same spirit the PPM software should be integrated with other relevant systems used to manage the organization. Accountability for PPM should eventually be transferred to the business (Jeffery and Leliveld 2004) and employees should be trained in the PPM process as well as in financial and project management (De Reyck et al. 2005, Jeffery and Leliveld 2004). Although most IT professionals have sufficient knowledge to build a proper business case for a project, the PPM board must understand the assumptions behind those calculations, the sensitivity of these results and the risks that might impact project returns.

# Conclusion

This paper defines an PPM improvement framework based on a literature study of the existing best practices, the empirical studies from public sector organizations and the experiences from consultants engages in PPM improvement. Even though PPM is becoming increasingly popular only few empirical studies of the PPM improvement process has been published. The framework here is clearly limited due the modest empirical data, but it might still serve as an inspiration for practitioners engaged in PPM improvement for researchers that want to study and improve the implementation of PPM.

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Managing Uncertainty and Conflict in IT Project Portfolio Management

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**Abstract.** Maximizing the outcome of IT project investments has been a major concern among practitioners and researchers for years. Several approaches have been suggested one of them being project portfolio management (PPM). Even though PPM offers straightforward and valuable techniques for aligning IT project portfolios with organizational needs and maximizing the outcome of project portfolios, practitioners find them difficult to implement. Our research suggests that one of the reasons is that PPM builds upon classic rational ideals about decision-making in organizations that are hard to realize, and even in some aspects counterproductive, for non-routine decision-making. Especially we focus on the importance of incorporating mechanisms that deals with uncertainty and conflict during portfolio decision-making, and the importance of identifying and understanding dysfunctional decision-making patterns and limitations as part of improving PPM practice. Reducing the reliance on classic rational decision-making ideals and incorporating other decision-making styles more aligned with decision-making practices in organizations might ease PPM implementation and improve the outcome of systematic PPM efforts. The research is based upon a multisite case study from public sector organizations attempting to improve their PPM capabilities.

# Introduction

Maximizing the value of IT project investments has been on the agenda for years. One way of increasing the value of IT project investments is project portfolio management (PPM). The cornerstone in PPM is a classic rational decision-making approach to project selection where objective criteria and scoring algorithms are used to select the most optimal mix of projects (e.g., Kaplan 2005) that satisfies both short and long-term business needs and strategies.

This way of managing a portfolio of IT projects has been given some attention by practitioners but is still not widely used (e.g., Jeffery and Leliveld 2004, Cooper et al. 2004), even though the approach promise to cure serious and common problems like starting too many projects, starting low-value projects, and failing to optimize the portfolio (e.g., Kaplan 2005).

Jeffery and Leliveld’s (2004) empirical investigation involving US-based IT organizations show that 65% of the CIO’s believed that PPM yields significant business value, but only 17% of the organizations actually claimed to fully benefit from systematic PPM practices. Blichfeldt and Eskerod (2008) found that even organizations considered mature PPM users experienced major difficulties when adapting and using PPM techniques and principles.

Much of the current PPM research is normative (Blichfeldt and Eskerod 2008) suggesting new PPM approaches, only few studies investigate actual PPM practices and the difficulties that practitioners experience. The purpose of our research is to confront normative PPM theories with actual IT project portfolio management practice and contribute to increased understanding of the difficulties that PPM practitioners experience. Furthermore, we aim to enrich the current PPM body of knowledge by drawing upon theory about decision-making in organizations. Even though the core PPM activities focus on decision-making, theory about organizational decision-making is generally not exploited within PPM theory. In this spirit, this paper examines how PPM related decisions regarding IT projects are made in practice in public sector organizations and we use theory about organizational decision-making to interpret and understand our observations.

Our research confirms that structured PPM is challenging to implement and suggests that one of the reasons is that PPM builds upon classic rational ideals about decision-making in organization that are hard to realize and even in some aspects counterproductive for non-routine decision-making. Especially we focus on the importance of incorporating mechanisms that deals with uncertainty and various kinds of conflict during decision-making, and the importance of identifying and understanding dysfunctional decision-making patterns and limitations as part of improving PPM practice.

The remaining part of the paper is structured as follows. Section 2 describes PPM principles and techniques and relates PPM to the classic rational model for decision-making. Section 3 contains selected theoretical contributions within organizational decision-making that facilitates a deeper understanding of PPM practices and might improve the advice given to practitioners. Section 4 describes the research process, and section 5 presents the analysis of current practices in the participating organizations drawing upon empirical data from our investigation in a case study in Danish local government. Section 6 suggests how PPM methods and principles might be changed to better support organizational decision-making about IT projects portfolios. Section 7 summarize our findings and discuss the limitations.

# IT project portfolio management

A project portfolio is defined a set of projects that share and compete for scarce resources and are carried out under the sponsorship and management of a particular organization (Archer and Ghasemzadeh 1999). PPM is generally defined as the simultaneous management of this whole set of projects as one large entity (e.g., Meskendahl 2010) and involves “a dynamic decision process, whereby a business’s list of active new product (and R&D) projects is constantly updated and revised. In this process, new projects are evaluated, selected and prioritized; existing projects may be accelerated, killed or de-prioritized; and resources are allocated and reallocated to the active projects” (Cooper et al. 1997).

Historically PPM has its roots within the field of modern portfolio theory (Markowitz 1952) that concerns how to balance risks and rewards in investment portfolios. The portfolio management concept has been introduced into other fields, e.g., R&D / NPD (e.g., Cooper et al. 2000), project portfolio management in general (e.g., Blichfeldt and Eskerod 2008), and IT (e.g., De Reyck et al. 2005). One of the first uses of portfolio thinking within IT management dates back to 1982 where McFarlan (1982) suggested a risk based IT project portfolio management approach.

There are however relatively few clear IT-PPM contributions published within the field of IT management, and the management books about IT-PPM that serve as the primary inspiration for IT managers generally draw upon research contributions from different fields.

Besides improving IT project investment decisions PPM is proposed as one way of reducing typical problems found in project-based organizations: Starting far too many projects compared to available resources (e.g., Cooper and Edgett 2003, Blichfeldt and Eskerod 2007); having low value strategically misaligned projects in the portfolio (e.g., Kendall and Rollins 2003), poor coordination between projects, lack of business leader commitment, lack of cross-functional working, and resistance to change (De Reyck et al. 2005), reluctance to kill poor projects, always selecting short-term and easy projects reducing future success potential and competitive advantage (Elonen and Artto 2003). Cooper and Edgett (2003) emphasizes that resource related problems are a significant root cause for poor portfolio performance because using too few resources on too many projects leads to poor quality.

Within new product development, some empirical findings (e.g., Cooper et al. 2000, Cooper et al. 2004, Killen et al. 2008) indicate a positive influence of project portfolio performance on organizational performance and the empirical research by De Reyck et al. (2005) indicates that this might also be the case for IT organizations. However, even though Cooper et al. (2004) found that formal portfolio management improves new product development, their study also revealed that even the best performing PPM users generally were far from having implemented PPM best practices or reaching the overall goals of e.g., having a balanced portfolio.

PPM is primarily concerned with making decisions about prioritizing projects, adding and removing projects from the portfolio (De Reyck et al. 2005) and most of the PPM models implicitly rely on rational decision-making theory (Blichfeldt and Eskerod 2008). In the rational tradition decision-making is seen as intentional, consequential action based on consistent and agreed upon goals and preferences, information of alternatives and their consequences, and decision rule in which decision makers objectively select actions on the basis of its consequences for the preferences (e.g., Lindblom 1959). In the remaining part of this section, we will describe how major PPM elements relate to the rational model for decision-making.

In the context of PPM the “consistent and agreed upon goals and preferences” that guides decision-making are defined as (e.g., Meskendahl 2010, Elonen and Artto 2003, Cooper et al. 1997):

* Maximization of the financial value of the portfolio. Maximizing the financial value of a portfolio includes both maximizing the financial value of individual projects and maximizing the synergies between projects in the portfolio (Meskendahl 2010).
* Aligning the portfolio to organizational strategy. Strategic alignment involves considering the alignment of project goals to organizational strategy, and the alignment of resource allocation with strategy (Meskendahl 2010).
* Balancing the projects within the portfolio. Several dimensions (e.g., risk vs. reward) have been suggested but the suggestions found in the literature are not entirely consistent and some of the criteria suggested are dependent of each other (Meskendahl 2010).

In a specific organization, these general goals are made concrete by defining specific goals (that are related to overall strategies) for a specific part of the portfolio and by defining how the portfolio should be balanced along various dimensions. The goal is a balanced portfolio that enables an organization to achieve its objectives without being exposed to unreasonable risk (Mikkola 2001). Besides strategic alignment several other dimensions has been suggested, for example:

* Short term incremental projects vs. long term radical projects (e.g., Chao and Kavadias 2008, Chao et al. 2009, Archer and Ghasemzadeh 1999). Short term incremental projects address current operational problems while long term projects might prepare the organization and the technological infrastructure for the future needs by creating new markets, develop new or improved technologies and processes, or build new skills and competencies (Shenhar et al. 2001). Innovative and long-term projects need to be carefully considered because organizations tend to select the short-term and easy projects even though there is a positive relationship between organizational success and a more balanced effort (e.g., Meskendal 2010, Martinsuo and Lehtonen 2007). The balance between incremental and radical projects should reflect environmental complexity and instability (Chao and Kavadis 2008). Instability favours short-term incremental projects while environmental complexity favours more long-term radical projects.
* Risk vs. reward (e.g., Killen et al. 2008) meaning that the risk that an organization accepts should be balanced compared to the rewards that might be gained by taking these risks.

Information about alternatives is provided by building a portfolio oversight (e.g., De Reyck et al. 2005), by collecting information about both candidate and ongoing projects, and by analyzing both project level information (is this project attractive in its own given our e.g., strategic preferences or financial goals?) and different portfolio alternatives (if we choose these projects – do we then achieve the required portfolio balance across the various dimensions?) (Cooper et al. 2000). Based upon the portfolio information various, e.g., financial and risk focused analysis are prepared and used to support decision-making about finding the proper balance in the portfolio (e.g., De Reyck et al. 2005).

Basic project management practices are needed because they help making reliable information about individual projects available for PPM decision-making (Martinsuo and Lehtonena 2007). Monitoring portfolio performance and understanding the progress regarding the achievement of the goals and objectives is one of the most important PPM objectives (De Reyck et al. 2005) and doing so requires reliable information about the individual projects.

As part of portfolio decision-making organizations should analyze and manage interdependencies (e.g., sequential dependencies, overlapping outcomes, competition for scarce resources, and change bottlenecks) between projects with the purpose of reducing inter-project competition for resources and to turn project overlaps into productive interdependencies and synergy (e.g Thorp 1999). By taking interdependencies into consideration the portfolio approach can deliver benefits beyond the results of independently managed projects (Platje et al. 1994), reduce double work and exploit synergies regarding technologies, marketing, knowledge and resources (Loch and Kavadias 2002, Verma and Sinha 2002).

Information about resource availability is a key issue. Organizations are consistently reported to start far more projects than they can actually staff leading to poor portfolio performance and problems (e.g., Blichfeldt and Eskerod 2008, Cooper and Edgett 2003) and information about available resources are necessary to decide which projects to start or continue (e.g., Cooper et al. 2000). A management practice that secures that resources are used as decided is needed (Blichfeldt and Eskerod 2008). Either all projects must be included in PPM (resulting in a higher cognitive and resource wise burden in doing PPM) or a buffer must be reserved for ad hoc projects not managed as individual projects in PPM (Blichfeldt and Eskerod 2008).

The decisions rules used in PPM are closely related to the rational ideals about decision-making. Portfolio research generally emphasize that portfolio selection should be based on “a rigorous, clear, and formal approach to portfolio selection” based on “suitable and accurate data, explicit and objective criteria, reasonable and clear rules, transparent and known procedures” (Meskendahl 2010).

The starting point is the overall agreed upon and communicated organizational strategy (e.g., De Reyck et al. 2005). The basic idea is that resources are allocated in line with strategy (Cooper and Edgett 2003, Martinsuo and Lehtonen 2007) and that a formal prioritization process is applied consistently to all on-going and candidate projects on a periodical basis (Archer and Ghasemzadeh 1999, Cooper et al. 2001).

One approach as described by Cooper et al. (2000) is to allocate resources to various portfolio segments, or strategic buckets, and then prioritizes projects within each segment or ‘bucket’ using various prioritization tools that take the decided criteria into consideration. Each bucket is filled with projects until all the available resources allocated to that particular bucket are used. The criteria are related to the various portfolio dimensions (e.g., risk). Different criteria should be applied for different kinds of projects or portfolio segments, and the criteria should include more than financial aspects (e.g., Thiry and Deguirel 2007). While short term operational projects can be appropriately ranked using financial criteria, this is not the case for long term strategic projects. Killen et al. (2008) actually found that widespread use of financial criteria was negatively correlated with the ability to bring an organization into new markets and product arenas.

Even though various software tools can support portfolio analysis De Reyck et al. (2005) suggests that using advanced software makes most sense for mature PPM users.

Since the whole point of PPM is to select projects that create most value for the organization it is a pre-condition that business leaders are taking part in the management boards making portfolio decisions and that the management team possess the financial and strategic skills to make these decisions (De Reyck et al. 2005).

Empirical investigations indicate that it is difficult to realize the rational decision-making process suggested by most PPM literature. These investigations (e.g., Cooper et al. 2004) consistently indicates that even the most mature PPM users are far from having implemented all the prescribed PPM best practices and achieving a strategically balanced portfolio, and that organizations are not behaving rationally. Many of these difficulties can be related to two major challenges: How to deal with conflicts and how to deal with uncertainty.

Conflicts surface for example as competition among projects for the allocation of individual experts (e.g., Platje et al. 1994), difficulties even for mature PPM users to make sure that resources are used as decided (Blichfeldt and Eskerod 2008), decision-making being based on power (Elonen and Artto 2003), portfolio decision-makers that manipulate qualitative ranking methods to get the desired output (Chao and Kavadias 2008), and as opportunistic project management behaviour (Engwall and Jerbrant 2003).

Uncertainty caused e.g., by poor quality of information makes decision-making difficult regardless of the sophisticated portfolio selection and decision tools (Elonen and Artto 2003) and ever changing business needs caused e.g., by changes in the organizations environment (Floricel and Ibanescu 2008). Poor project planning might create further portfolio level uncertainty making it difficult to make high quality portfolio decisions that might lead to endless fire fighting efforts (Engwall and Jerbrant 2003).

As previously mentioned modern portfolio theory and ideals about rational decision-making is the most significant theoretical foundation behind PPM techniques and principles. Even though PPM is about making decisions our literature review shows that organizational theory about decision-making is hardly used in the PPM literature, and both PPM theory and practice might be improved by drawing upon organizational theories about decision-making in organizations.

# Decision-making in organizations

Most strategic decision processes concern decisions with uncertain outcomes and actors with conflicting views (Eisenhardt and Bourgeois 1988). Both uncertainty (e.g., Mathiassen and Stage 1992) and conflict (e.g., Robey et al. 1993) has for years been regarded as key issues for managing IT projects and many implementation difficulties summarized in the previous section can be related to these two challenges: How to deal with uncertainty in terms and how to deal with conflicts. In the next two sub sections, we present theoretical contributions regarding uncertainty and conflict during decision-making that might help us understand and improve PPM theory and practice.

## Decision-making and uncertainty

Mintzberg and Westley (2001) distinguish between three kinds of decision-making approaches primarily based on the level of uncertainty characterizing the decisions: ‘thinking first,’ ‘seeing first’ and ‘doing first.’ These approaches are especially relevant in a PPM context because they match the various categories of IT projects normally found in a project portfolio and provide a starting point for adapting portfolio decision-making to various situations. Thinking first applies well to low uncertainty projects, e.g., addressing maintenance and optimization issues in established production processes, seeing first applies to projects concerning the development of new applications and processes, and doing first applies to path-breaking innovative projects, e.g., concerning new disruptive technologies that are completely unknown to the organization.

Thinking first is the most prevalent perspective on how decisions should be made in organizations. It is generally viewed as more scientific and it emphasizes thorough analysis and planning. It is verbal and values facts (Mintzberg and Westley 2001). As previously described, this rational decision-making tradition is the perspective behind most of the PPM literature. Simon’s (1957) bounded rationality reformulates the rational view to take into account how individual behavior, although not rational in the economist´s sense, is “in good part intentionally so” (Simon 1957, p. 200). Bounded rationality assumes that actors are goal-oriented, but acknowledge cognitive limitations of decision makers attempting to achieve those goals (Jones 1999). Mintzberg and Westley (2001) suggest that decision-making labeled as thinking first is applicable only when “the issue is clear, the data reliable, the context is structured, thoughts can be pinned down and discipline can be applied”, in other words: when uncertainty is low.

Seeing first is less analytical and more focused on creating solutions “where many elements have to be combined into creative solutions and communication and commitment are key issues” (Mintzberg and Westley 2001). Where thinking first is planning-oriented and cherish facts, seeing first emphasize visioning and ideas. Rather than being based on facts and systematic analysis, this kind of decision-making is based on the deep knowledge, strategic vision, intuition and ideas that the participants bring. Delbecq (1967) describes a similar kind of decision-making as ‘creative decisions making.’ What characterizes this kind of decision-making is that the design of possible alternative solutions is intertwined with deciding the solution. Although there is little empirical research on intuition in strategic decision literature (Elbanna 2006), making decisions by intuition is increasingly viewed as a viable approach in the decision-making process (Sadler-Smith and Shefy 2004). Khatri and Ng (2000) propose three indicators of intuition: Reliance on judgment, reliance on experience (e.g., based on deep knowledge of problems related to a specific job) and the use of gut feeling. Decision-makers use intuition when decisions should be made fast, information is inadequate and there is no precedent (Elbanna 2006). Seeing first is also related to the garbage can model assuming solutions do not automatically follow problems; sometimes actors have a set of solutions ready to apply to problems that occur (Cohen et al 1972, Kingdon 1995).

Doing first is the decision-making strategy to use when facing new challenges and neither facts nor reliable ideas are at hand (Mintzberg and Westley 2001). In these situations experimentation and learning is used to create the experience and knowledge needed to make high quality decisions. These kind of decision-making processes are theoretically based on, e.g., the work by Karl Weick (1998) about improvisation and experimentation. Mintzberg and Westley (2001) describes it like this “... doing various things, finding out which among them works, making sense of that and repeating the successful behaviours while discarding the rest. Successful people know that when they are stuck, they must experiment. Thinking may drive doing, but doing just as surely drives thinking. We don’t just think in order to act we act in order to think.” Lindblom (1959) express a similar but slightly different decision-making style. Lindblom (1959) makes a distinction between the rational-comprehensive-method which is “…the appropriate technique of relatively small-scale problem-solving where the total numbers of variables to be considered is small and value problems restricted,” and the method of successive-limited-comparisons which is suitable large-scale problem and acknowledge that “limits on human intellectual capacities and on available information set definitive limits to man’s capacity to be comprehensive.”

Lindblom (1959) describes how the wise decision-maker use an incremental, experience and learning based decision-making strategy. It is impossible for any policy maker to foresee the implications of implementing a specific policy, so decision makers are advised to implement policies in a series of successive incremental changes, where on step builds upon experiences from, and removes problems introduced by, the previous step. No wise decision maker would expect “his policy to be a final resolution to a problem” (Lindblom 1959).

## Decision-making and conflict

PPM decisions are loaded with potential conflicts. These might impact both the quality and level of consensus in portfolio decisions. Constructive cognitive conflicts might improve decision-quality, affective conflicts might harm decision quality, and consensus is needed to facilitate the implementation of decisions. Theory about conflicts during decision-making is therefore valuable for understanding and improving portfolio decision-making.

Interestingly, management teams that engage in cognitive conflicts generally make higher quality decisions than teams that do not (Schhweiger et al. 1989). Cognitive conflict is “task-oriented and arises from differences in judgement” (Amason and Schwieger 1994, Amason 1996). The quality of decisions made by management teams generally depends on the cognitive capabilities of the teams, especially the cognitive diversity in the team, and the interaction process used by the team (e.g., Amason and Schwieger 1994, Amason 1996). Teams characterized by cognitive diversity make more innovative and higher quality decisions than less diverse teams (e.g., Bantel and Jackson 1989); especially if they use a decisions making-process that encourages the participants to contribute and exploit their diverse background and capabilities (e.g., Amason and Schwieger 1994).

Even though some kinds of conflicts increases decision quality, they might also have negative side effects: Conflict improves decision quality, but might also reduce the much needed consensus to actually implement a specific decision and harm the long term affective acceptance and positive personal relations between the team members needed to produce high quality decisions in the future (e.g., Amason and Schwieger 1994, Amason 1996). Some researchers (Priem et al. 1990) therefore suggest that decision-making teams should find the right balance between decision quality and consensus having the importance of the decision in mind, and not risk long-term affective acceptance in the team for decisions of less importance. The seriously negative side effects emerge when conflicts turn into *affective* conflicts.

Affective conflict “involves personalized, individually oriented disagreements” (Amason and Schwieger 1994, Amason 1996). Affective conflicts might arise from misinterpretations during cognitive conflicts, e.g., when task-oriented critique is misinterpreted as personal critique. Besides having negative implications for the specific decision-making process, affective conflict typically escalates beyond the original issues creating problems for future decision-making in the team (Amason and Schwieger 1994, Amason 1996). Affective conflicts can also be caused by highly competitive environments or an environment where criticism of ideas is interpreted as insincere political behaviour (Amason and Schwieger 1994, Amason 1996).

Political behaviour is in this context defined as observable, but often covert, actions by which organizational actors enhance their power to influence a decision (Eisenhardt and Bourgeois 1988). Political actions involve “behind-the-scenes coalition formation, offline lobbying and cooptation attempts, withholding information and controlling agendas” as opposed to “open and forthright discussion, with full sharing of information, in settings open to all decision makers” (Eisenhardt and Bourgeois 1988). Politics are not surprisingly associated with poor firm performance because they are time consuming and restrict information flow (Eisenhardt and Bourgeois 1988). Even though conflict is a pre-condition for political behaviour, conflicts don’t have to lead to political behaviour if organizational actors can argue, have open disagreements, experience that arguments count and collaborative decision-making is the norm (Eisenhardt and Bourgeois 1988), that is conflicts remain cognitive.

# Research method and setting

The empirical setting for this research is Danish public government organizations. The Danish public sector is structured into state, regional and local government and, on the local level, 98 municipalities are responsible for most civil services such as schools, day-care centres, elderly care and citizen service centres as well as infrastructure. The municipalities are politically managed organizations and in 2007, the municipalities were restructured by merging 271 into 98 municipalities. As in most other organisations, the use of IT has increased considerably over the last decades, which among other things have resulted in rising challenges concerning the management of IT projects.

The research design is based on an interpretive case study approach (Walsham 1995) were multiple cases are used to understand PPM decision making. Much of the empirical research accomplished so far regarding PPM is based on quantitative approaches and there is a recognized need for qualitative and case study based research to capture and understand more of the complexity involved in PPM practice (Killen et al. 2008). In this line of thought and as part of a larger action research project (DISIMIT) we have investigated IT project related PPM decision-making practices in four local government organizations (municipalities) that have an acknowledged need for improving the way they manage their IT project portfolios. The participating organizations are all among the more mature municipalities from an IT management perspective (Kræmmergaard and Nielsen 2010). The participating municipalities range from 5.000 to 18.000 employees and thereby represent different perspectives on the scope of PPM.

The research has been conducted from 2008 to 2010 in close collaboration with the four participating municipalities. The municipalities participated with the purpose of improving their capabilities for performing PPM, while the researchers participated with the purpose of increasing our understanding of PPM practice and confronting normative PPM literature with the practices and challenges experienced in these municipalities in order to advance our knowledge about how to implement and perform PPM. The research process has included the following main activities:

To support a thorough assessment of the PPM related challenges in the municipalities a comprehensive literature study of the PPM literature was conducted (see section 2 that provides an overview), and generally acknowledge practices and principles were elicited and structured into an assessment framework. The idea was to use the assessment framework to compare acknowledged best practices with the established practices in the participating municipalities and identify deviations. The municipalities could subsequently use the deviations to identify areas where they wanted to improve and the researchers could use the deviations to increase the understanding of the areas where the prescribed practices seemed inadequate compared to the challenges faced by the practitioners.

The assessment framework was validated through a group interview involving IT managers from the participating organizations. The group interview was organized such that the participants first expressed and discussed what they perceived as important issues regarding PPM in their organizations. After that, the assessment framework was presented and compared to the issues emphasized by the IT managers. The purpose was to ensure that the overall content in the framework was perceived as relevant by the participating practitioners and covered the issues raised by the practitioners. Secondary the purpose was to create a shared understanding about PPM related concepts among the participants in order to avoid misunderstandings.

The assessment framework was subsequently used to assess the PPM practices in the organizations. The assessments were conducted, as structured interviews were the participating practitioners were asked how they organized and conducted PPM related processes. The answers were documented directly in a spreadsheet containing the questions and the interviews were recorded as well. This way the foundation for comparing actual practice with prescribed practices was established. After the assessment meetings, the data was analyzed and a report for each municipality was produced by the researchers. The analysis documented identified strengths and weaknesses in each of the municipalities in terms of compliance to or deviations from acknowledged best practices as described in the PPM literature.

The analysis reports produced in the previous step were validated by the municipalities. In some areas the municipalities acknowledged the identified weaknesses, in other areas the municipalities simply disagreed with prescribed best practices and the reasons were discussed and analyzed.

A cross-organizational analysis was conducted with the purpose of identifying general problems or characteristics across the participating organizations and to identify areas within the current body of knowledge that seemed inadequate compared to the challenges faced by these organizations. The cross organizational findings from this analysis were presented and discussed as part of a group interview including the same group of people that took part in validating the assessment framework. The results of the analysis are reported in (Pedersen and Hansen 2010).

Having identified some areas where the advice given by the PPM literature seemed inadequate compared to the challenges faced by the participating organizations various theoretical contributions (described in section 3) was introduced and used to produce a second analysis of all the data to provide a) a deeper understanding of the problems and b) to provide some suggestions about how the inadequacies might be resolved. By adopting different decision making theories we made an analysis of the empirical finding in terms of rationality, uncertainty and conflict among different stakeholders. The results of this analysis are described in section 4. Adopting theory about decision-making in organizations turned out to be valuable and provided a deeper understanding of PPM practice, the PPM literature and some major PPM related challenges.

A series of 7 workshops were held each workshop focusing on different aspects of PPM and how the related challenges faced by the municipalities and the inadequacies identified in the PPM literature could be resolved. The workshops generally consisted of a session where the researchers provided suggestions about how the challenges and inadequacies could be resolved and a discussion where the participating practitioners would discus and comment on the recommendations. The discussions were recorded and subsequently analyzed by the researchers. The outcome of the analysis is described in section 5.

# Analyzing IT PPM practice

In this section, we present the analysis of our cases. The analysis is structured along the different parts in the classic rational decision making process as they are used in prescribed PPM methods. The overall goal with the analysis is to confront PPM methods with actual IT project portfolio management practice and contribute to increase understanding of the difficulties that PPM practitioners experience as described in the introduction. The analysis is structured along the following PPM core activities:

* Defining portfolio goals
* Creating information about alternatives
* Applying decision rules and procedures

During the analysis the previously described theories about decision-making in organizations was used to interpret the collected data and enrich our understanding of the difficulties that practitioners are facing.

## Defining portfolio goals

PPM methods builds upon the assumption that well defined and agreed upon organizational strategies are in place, that these strategies can be translated into portfolio goals making it relatively straightforward to align the project portfolio with overall strategies (e.g., De Reyck et al. 2005). However these organizations experienced that strategies were uncertain, ambiguous and unstable, that the relationship between strategies and projects were complicated and that the IT departments’ strategic needs for being perceived as responsive addressing short term issues was just as important as being aligned with overall business strategies. Furthermore, municipalities are both rather diverse and political and this makes it difficult to define overall and agreed upon portfolio goals.

In these organizations, the strategies were rather general and ambiguous making it easy to relate most projects to some parts of the strategies but also making it difficult to rank which projects supported strategies in the best way. Furthermore, what was considered important could easily change, and IT managers not only considered what was defined as the most important issues right now, but also how the priorities might change which is quite reasonable due to the long time span between the decision to start a project and the benefits are realized. The precision, stability and agreement about preferences, which is the basic assumption behind the rational model and PPM, were not always there. One IT manager explained the difficulties related to implementing changes to organizational preferences like this:

 “… it’s when the prioritization criteria changes that it’s gets really dangerous. when the organizations and top managements priorities changes.. for instances right now the situation is changing, and we now have to promote projects that focus on finding money and cutting cost … now it is not about improving the service level any more … if people keeps acting based on the outdated prioritizes because they are not sufficiently clear, and isn’t integrated in the routines, then we really get into problems … and that’s where we are now … it takes time before people changes preferences and a shared understanding is created.” (Municipality 4)

Managers involved in portfolio decision-making not only had to deal with ordinary project related uncertainty, e.g., regarding detailed requirements but also uncertainty related to overall organizational strategies and goals and how they might change in the future, e.g., as a consequence of change in administrative and political leadership or the economic situation. Changing priorities was not simply implemented by changing the weight of specific criteria in a PPM project prioritization algorithm as described in the PPM literature (e.g., Cooper et al. 2000). The hard part would be to create consensus, understanding and commitment about the new priorities needed to facilitate the implementation of portfolio decisions aligned to the new priorities, just as described in (Amason and Schwieger 1994, Amason 1996).

The involved IT managers did not perceive portfolio alignment as a one-way relationship, as assumed by the PPM literature, where PPM is presented as a tool for implementing organizational strategies (e.g., Meskendalh 2010). Actually, the relation between portfolio content and strategy was more complicated. Some portfolio decisions would challenge and maybe change organizational strategies. In one municipality, an IT manager attempted to provide web-based citizen-service even though this was not appreciated by managers in charge of citizen-service or not even in line with official politics at the time. Eventually however this actually became the official strategy. Other portfolio decisions were about implementing new strategies, e.g., the implementation of a new ERP-system that streamlined and standardized work across previously separated municipalities now merged into one larger municipality and other parts of the portfolio would support current strategies by making sure that day-to-day operations were efficient and effective, e.g., updates and fixes to current operational systems. This way different projects in the portfolio could actually seem almost contradictory or at least poorly aligned with organizational strategy.

The portfolio level of uncertainty, in terms of defining stable and strategically aligned portfolio goals, was generally challenged by a concern by the IT depart­ments to be perceived as flexible and responsive, and to establish and maintain good relations with the rest of the organization:

 “We have a culture where we try to be flexible and responsive to meet the needs of the organization … it is not possible to plan … new projects and tasks that we didn’t expect will emerge… if our attitude were rigid and formal every time then we would get a lot of problems and discussions … we would end up using all our time on conflicts… we have to prove our value for the organization by being flexible … otherwise they could just as well outsource us … understanding the business and having good relations is important.” (Municipality 3)

This issue reflects that portfolio decisions not only was about serving general organization strategies, but to a large extent also about serving the IT departments local strategies and interests by being experienced as responsive and valuable by important stakeholders this way building good relations and avoiding being outsourced.

The rather diverse portfolios, including very different projects reflects that municipalities have a more diverse function (eldercare, healthcare, education, waste collection and environmental issues, city planning, etc.) than most private companies also increased uncertainty. A diverse portfolio simply increases the requirements for insight and information about application domains, local strategies, technologies etc. to make high quality portfolio decisions. Furthermore, it was difficult to scope the portfolio and its management. Building a new school is not an IT project but it feeds many IT projects that have to be coordinated with the overall school building project and this overall project was not managed as part of the IT project portfolio.

## Creating information about alternatives

When facing high uncertainty both the information systems literature (e.g., Mathiassen and Stage 1992) as well as the more general theory on decision-making in organization (e.g., Simon 1957) suggests that organizational actors should reduce uncertainty by collecting or creating relevant information that increases decision quality. In some areas the organizations studied here did that, e.g., by using external consultants and experts, performing business analysis as part of project preparation, getting information from vendors, discussing issues and solutions with colleagues, by exchanging experience with other similar organizations and not the least by learning as projects unfolded. However, the organizations also consciously avoided collecting information that could reduce project and portfolio level uncertainty.

In one of the participating organizations the IT department wanted to engage the rest of the organization in the process of systematically identifying possible projects, but the initiative was not approved by management because they feared that doing so would create too high expectations leading to disappointment among employees, even though having this kind of information could reduce uncertainty about which projects to initiate and how they should be prioritized:

 “… some years ago we wanted to involve organizational members more broadly in identifying possible projects, but the management board didn’t like it, they were afraid that by asking we would create a lot of expectations that couldn’t be satisfied.” (Municipality 2)

In another organization one of the very few major failures was caused by an unrealistic business case that served more as a sales presentation by the people wanting to start the project than a proper foundation for making decisions about the project. Generally, the organizations did not include resource estimates in their business cases. Some IT managers had the perception that resource costs didn’t matter, in other organizations the resources came from many different departments and each department had to locally consider and decide how many resources they would spend on a specific project and no total resource estimate was made. One IT manager said that if the costs related to internal resources became visible, it would become more difficult to get projects approved.

None of the organizations had implemented systematic quality control of project proposals or business cases. Employees were supposed to use their colleagues to provide informal feedback on their suggestions. In some cases, focus was mostly on how to communicate the project proposal in order to convince project sponsors:

 “… ideas are qualified and presented in two ways…in the first round it is about framing and describing the idea in a way that makes the politicians want to allocate money for the project. What do the people behind the project think that the politicians want to hear?” (Municipality 2)

A major part of PPM is to provide portfolio level information that supports top management in monitoring how the portfolio develops and supports strategic decision-making about how to prioritize resources, and how to align the portfolio to overall strategies (e.g., De Reyck 2005). While this seems obvious and natural from a pure rational decision-making perspective, this could not be done in these organizations:

“… we needs a higher degree of transparency up to the top most administrative level – but not to the political level, if we did that we would turn it into a political arena… You could say that our political leaders has it as their job to disagree, they live on disagreement … the political leadership currently in charge has a legitimate requirement that we don’t create problems that can be used by political opponents.” (Municipality 4)

Another IT manager in the same municipality even doubted that the top most administrative level in general would like to get precise and unambiguous portfolio information:

 “… the level that we need to do portfolio management on is the top most administrative level that doesn’t prefer ambiguity… in some areas managers will still prefer that portfolio information is a bit fuzzy and unclear.” (Municipality 4)

All the organizations taking part in the study was characterized by not producing detailed portfolio information regarding how many resources or money that was used on specific categories of projects or parts of the organization. None of the organizations taking part in the study systematically evaluated whether projects had the expected outcome in terms of realizing the planned benefits. One major reason for not evaluating project outcomes were that it could create problems:

 “if we say that the savings of doing this project is 7 million … then the budgets in the departments are reduced with 7 million when the project starts … the benefits are taken up front … that’s the way the music plays …if the project then gets delayed it is just bad luck… then off course we could go out and evaluate whether the departments actually reduce their costs with 7 million as a consequence of the project … but it wouldn’t make sense in our organization, to be honest … actually nobody would like to hear about it… but off course we have to come with some well-prepared suggestions and the departments will challenge it up front… the battle is taken up front … later on it is up to the departments to actually realize the planned benefits and if they can’t cut the cost by implementing the IT systems, they just have to find the money in some other way… all this theory about benefits realization quickly runs dry in our organization.” (Municipality 1)

Also it was regarded as difficult to measure the benefits:

 “… we don’t evaluate whether the business case sticks, it is really difficult to measure because a lot of other things changes too … instead in some cases we just cut the budget up front, if you try to measure the savings, you never get finished… we have generally cut the administrative costs for the last years, and as a compensation we get these it systems… the business cases for each projects is more a pedagogical tool that makes people think in benefits and how to realize them, but the politicians know that to get results they need use the big knife and cut the budgets.” (Municipality 2)

Performing evaluations and creating information about benefits realization success and failures could reduce uncertainty about whether implementation efforts had any impact and how to improve implementation efforts. Generally the organizations could make better decisions by improving the bookkeeping part of IT PPM about resource estimates and resource use. None of the organizations knew how many resources they used on project work, or how many resources that were currently allocated to projects. Moreover, data collection in regard to time used on specific projects was considered problematic by all the organizations. It wasn’t only an issue about fixing some procedures and establishing a system for collecting the data. It would be perceived as lack of trust or too much control:

 “… it would be perceived as inappropriate and far out control, people would feel like they are being controlled.” (Municipality 4)

In some ways the organizations tried to reduce uncertainty by creating or collection information, but they also avoided creating relevant information that could improve their possibilities for managing the portfolio. Some of the observed actions (e.g., withholding information) clearly resemble the political behaviour described by Eisenhardt and Bourgeois (1988). In terms of the decision-making theory (Amason and Schwieger 1994, Amason 1996) the IT managers were very focused on establishing and maintaining good long term affective relations with important stakeholders that they would depend on in future portfolio related decision-making. Their possibilities for rational decision-making was not only bounded by human limitations, e.g., regarding considering all the alternative solutions and dealing with uncertainty and complexity, or practical difficulties in getting valid information, but also by the political reality, the organizational culture, and the need for establishing widespread consensus in order to successfully implement decisions. These practices increased uncertainty and jeopardized decision quality and the possibilities for learning.

## Applying decision rules and procedures

Making decision about a single high uncertainty project is challenging. Making decisions about a large project portfolio with numerous high uncertainty projects makes the task overwhelming.

Difficulties separating project design and project selection. Project design and project selection was not always separated into distinct activities. For smaller low uncertainty projects, the situations where Mintzberg and Westley (2001) recommends thinking-first design and selection could be separated but for other projects management would not simply choose between projects as proposed but challenge the scope and design of projects. In these cases, their approach was more towards seeing first than thinking first. A business unit could for example propose a low cost project addressing some local needs, while central IT management preferred to invest a bit more and maybe get relatively more value, e.g., because the project would also solve similar problems elsewhere. When engaging in such a process the borders between design and selection of projects became blurred, and the rational ideas about selecting between well-defined alternatives broke down. One IT manager expressed it like this:

 “… we work with various scenarios for a project… if we invest this we get these benefits, but if we invest a bit more we might get these additional benefits – it is our duty to illustrate this for decision-makers – if we can see that we can get more value out of a project we discuss it with our networks and contact the right level of management – we shouldn’t just accept financial limitations if we can see that the organization might benefit from a larger investment.” (Municipality 1)

Selecting projects was not just about selecting projects. It was also about designing and choosing between alternative scenarios for a range of projects. IT projects seldom turn out as expected, and since many important decisions still have to be made when IT projects are decided, a single IT project actually bears an infinite number of possible outcomes. When selecting between projects the organizations were not selecting between fixed easy to quantify objects, but vibrant organisms that continuously changed, was designed and re-designed in response to changes in the environment, new insights and learning, and to cope with unforeseen problems, accidents and opportunities. Managers evaluating a project using objective criteria, as prescribed by the portfolio management literature (Meskendahl 2010) under these circumstances are actually evaluating only one out of many more or less desirable outcomes that might, or might not, come true. In the organizations studied here these evaluations were mainly based on managers individual understanding, intuition and hopes for a project at the particular moment in time, their interpretation about other stakeholders opinions and intentions, their understanding of what would be realistic to achieve, their interpretation of what was important at right now and in the future, and evaluations were based on rather unreliable data.

All these sources to uncertainty severely limit the possibilities to act fully rational. As a consequence the IT managers generally used a less analytical, planning based approach and relied on an improvisational portfolio management approach: They had no ambition about having a complete and comprehensive understanding of the entire portfolio, but tried to exploit opportunities and solve prioritization problems as they emerged. In this way they relied more on “muddling through” (Lindblom 1959) than on comprehensive rational analysis, they were, like suggested by Mintzberg and Westley (2001) adapting their decision-making styles to take the level of uncertainty into account. When doing so the primary strategy was to stay focused on whatever was considered most important, but the approach resulted in many of the same resource-related problems as reported by Blichfeldt and Eskerod (2008) and Cooper and Edgett (2003). One IT manager explained the situation like this:

 “… too many projects pops up and gets on to the list… the optimism is too high regarding what we actually are able to do… we want to do so much.. and we start so many activities… in some mysterious way the most important projects actually gets through.” (Municipality 4)

Another IT manager explained how they coped by waiting for the right window of opportunity to launch a new project, and by negotiate current commitments in order to make sure that whatever was considered most important at the moment got resources and the attention it needed. Working in this way continuously adjusting portfolios and projects could result in frustration among employees:

 “… there are always more projects than we can do… but sometimes projects get stuck for some reason, and then people have other projects to work on… it results in some frustrations because at times all projects are actually running.” (Municipality 2)

Generally, the portfolio strategy applied in the organizations was to deal with uncertainty by solving problems as they emerged, and not to invest in comprehensive analysis of alternative solutions or insisting on a complete understanding of all consequences before a portfolio decision was made.

The organizations invested in some activities to reduce uncertainty, but they also refrained from reducing major uncertainties as described in the previous section.

### Decision-making based on intuition, experience and negotiation

As previously described PPM frameworks emphasize the need for objective prioritization criteria to rank projects as part of portfolio decision-making. This approach is well in line with the rational model of decision-making. The practitioners taking part in our study appreciated this kind of information, especially financial measures, but generally rejected the idea of reducing project prioritization and decision-making to a mathematical and programmable exercise. None of the participating IT managers accepted the idea of letting scoring algorithms play any major role in portfolio decision-making. They preferred to make the initial prioritization based on intuition, experience and insight into the overall strategies and political climate. Then after having evaluated the outcome considering, e.g., the availability of key resources, and working out the details in the business cases, the prioritization could change:

 “… I prefer to make the initial prioritization based on gut feelings, then line up the key resources… and see how we can get through.” (Municipality 4)

The participants used criteria such as personal judgment of importance and strategic fit, the number of users going to benefit from the project, whether the project was doable given the circumstances, what important stakeholders thought about the project, how much the primary beneficiary stakeholder wanted the project, availability of key resources, considerations about organizational vs. local needs (in reality cross-functional projects could end up being prioritized lower by local managers than their own local projects), whether it only had internal impact or affected citizens and companies in the municipality, and off course financial consequences. Some projects were simply must-do projects that had to be done, e.g., due to new legislation, updates from vendors that had to be implemented, or simply because it was decided by upper management.

Stakeholder motivation and demand was a key criterion. The IT managers had a saying “We are playing with those people that want to play with us” (e.g., Municipality 2), meaning that they only wanted to do projects together with department managers that really wanted to participate and use the outcome. Project selection was not just based on an evaluation of the possible merits of an individual project but also on an evaluation of stakeholder commitment and capabilities. On the other side some of the IT managers also expressed frustration because the lack of interest and commitment from some department managers were blocking for exploiting obvious opportunities for IT-based organizational improvement which lead to a less than optimal IT project portfolio from a value maximization perspective. The PPM literature (e.g., Thiry and Deguirel 2007) emphasizes that a broad range of criteria that not only focus on financial benefits should be applied during decision-making, but some of the criteria (e.g., not creating problems for the political leadership) used in these organizations could never be formally included in a spreadsheet used to score projects for prioritization purposes.

In one of the municipalities, the management board decided that major departments should not wait on each other: If they wanted to start new IT initiatives, they should do it. Previously they had insisted that if something needed to be done everybody should do it for efficiency reasons and to avoid double work, but this policy became an obstacle for the most dynamic departments. This new policy could result in some redundancy and double work, which PPM is supposed to eliminate (e.g., Loch and Kavadias 2002, Verma and Sinha 2002) but it was perceived as a necessary cost by upper management in order to encourage organizational flexibility and development.

Especially for the non-routine decisions, the situations where Mintzberg and Westley (2001) recommends seeing first and doing first, reliance on a decision-making styles suited for routine decision-making would be misplaced. In these situations the decision-making process should be more open in terms of including and exploiting the cognitive diversity among decision-makers (Amason and Schwieger 1994, Amason 1996) as well as the experience, creativity, intuition and deep knowledge that the decision-makers bring to the table (Sadler-Smith and Shefy 2004). The goal is not to exclude alternative perspectives by focusing narrowly on predetermined criteria, but to encourage alternative views and constructive cognitive conflict with the purpose of increasing decision quality, understanding, commitment and ultimately consensus (Amason and Schwieger 1994, Amason 1996). The organizations studied here used multiple perspectives in order to increase the quality of decisions, but mostly in an unsystematic and informal way outside the formal structures where the final decisions were made. When preparing project proposals or business cases, people would generally use their personal networks and close colleagues to ‘play ball with,’ as one manager expressed it. Using gut feeling and experience didn’t imply that there was no ranking or prioritization of projects, but rather that the ranking was based on a shared understanding about what is most important:

“… the most important projects get most attention, and people work on the others (less important projects) when a high priority project for some reason gets stuck… The ranking is not explicitly described … but there is a shared understand of what is most important.” (Municipality 2)

Besides using gut feeling, experience and testing ideas by using personal networks, negotiating was an important part of most decisions: “the fact that there are politicians in the top changes everything, it means that everything turns into some kind of negotiation” (Municipality 2). Also some projects, or specific categories of projects, could suddenly turn political e.g., because the economic situation changed: “What is happening now is that projects that involve savings are moved to the political organization” (Municipality 3).

Typically decisions about starting projects was a two phase decisions, first management decided the project, but deciding the project didn’t automatically imply that the resources were available so after approving a project there could be a long decision-process regarding resource allocation:

 “… we don’t have a lot of explicit resource allocation… even though the IT management board has decided a project, it doesn’t mean that the resources are allocated.. we try to describe the work packages … but the departments might be doing a lot of other projects using the same resources… we try to find the right time to start the project, it is based on gut feeling.” (Municipality 2)

One of the major issues highlighted by most of the IT managers was how to bridge the large differences in perceptions about IT between the IT function and some department managers. Theory (e.g., Amason and Schwieger 1994, Amason 1996) describes how cognitive differences in a management team can create cognitive conflicts that contributes to improved decision quality, but in some cases the perception of IT was so different that almost no decisions could be made about starting new IT projects. One IT manager complained that these differences lead to less than optimal IT investments because money was used where department managers were positive and engaged in IT based organizational development, and not necessarily where the potential for exploiting IT was greatest.

Even though the managers generally rejected the very rational decision-making approaches as exemplified by the PPM literature, decisions was generally presented as if they were the result of a rational process. One IT manager expressed it like this: “when formally seeking approval of projects we don’t state that it is partly based on intuition and randomness… at times being rational means being post rational” (Municipality 1).

PPM is very much about making the right portfolio decisions in terms of selecting the “right” projects and cancelling projects that turns out to be not that “right”. However, in our study the organizations were just as concerned with making sure that the decisions became right. None of the organizations established rigid and detailed specifications up front for internal projects, but allowed projects to learn and optimize during project execution:

“… our projects are governed by an overall mission statement describing goals and purposes, not by detailed and rigid requirements that must be fulfilled… It’s ok to learn and change during the project, we are so experienced that we know that things will change and we seldom experience rigid requirements … we present some ideas and it is not a problem if things change e.g., because something turns up to be more difficult than expected … it requires a lot from the project managers.”(Municipality 3)

Besides learning and making things better, the constant renegotiation and expectation management efforts also made project selection decisions ‘right.’ There was an on-going refinement process of creating consensus, understanding and commitment to adjustments of the original decision. There were very few clear-cut failures even though the results could turn out different than originally expected. Participants and stakeholders would create a shared understanding that the project was successful by reinterpreting the original project goals:

 “I can’t remember any 100% failures … I think one of the reasons is that we don’t have these failures is that we don’t have these clear cut goals… so if the goals and expectations are discussed and reformulated as the project progresses it doesn’t go completely wrong … you just agree that the outcome is pretty much ok … you just convince yourself that it is ok.“ (Municipality 4)

In other situations, the organizations tried to make the best out of decisions that were more or less forced upon them by being creative and trying to get some kind of value out of the situation:

 “… let’s say that a vendor releases a new upgrade that we have to implement.. then we look at this and ask ourselves: well we have to do it, but how do we get any value out of this? We always try to see it as an opportunity and evaluate whether we can increase the outcome.” (Municipality 1)

Furthermore, the organizations tried to establish incentives for actually realizing benefits thereby making the decisions right:

 “…we have always been bad at describing how we would get money out of it… we have tried to improve in this area… the principle is that we pay for the project but they (the user departments) have to pay for operations, they have to be very carefully about benefits realization, if there are not their costs will just increase … this model pushes benefits realization efforts locally… the requirements that projects should have a short payback period creates initiative for being ambitious about changing work procedures when investing in new systems… previously we used to just by systems.” (Municipality 2)

Given the high level of uncertainty especially at the point where projects initially are decided and the many obstacles that these projects might encounter, it is natural that portfolio management not only address making the right decisions when selecting projects but also focus on making high uncertainty decisions become right during project execution.

The introduction of systematic PPM is often justified by referring to the possibility to cancel on-going projects that doesn’t seem to be valuable for the organization. It is consistently reported in the literature (e.g., Cooper and Edgett 2003) that some projects are initiated and kept going even if their potential contribution is questionable and some stakeholders believe that resources could be used more appropriately. This happened in the case organizations as well, not in a large scale, but it happened. One IT manager expressed it this way:

 “It can be difficult to close projects. We have closed projects, and we have also reduced project budgets … and we are getting better at it … now I’am brutally honest ... at times we would like to close a project, but other parts of the organization has different perspectives ... kill your darlings that’s never easy … then it might turn into a negotiation: they keep their project and in return they accept that some other projects are continued … in other situations we might just close projects … some projects are first forgotten, nothing happens on them, and then officially stopped.” (Municipality 1)

Another organization emphasized that closing projects could cause political problems:

 “… it’s not something that we are good at … there are some special considerations because we are a political organization… it becomes especially problematic if the project is so large that it has been approved at the political level, then you get even more sensitive about stopping it because doing that makes organizational performance problems visible … some might use this politically... that’s a special issue in public organizations.” (Municipality 4)

Sometimes it also seems easier to get extra funds to continue a problematic project than to cancel the project:

 “... it’s actually easier to get more money to continue a problematic project than it is to cancel the project.” (Municipality 4)

From a strictly rational decision-making perspective, this is a severe deviation from best practice, from other perspectives this is a price that sometimes must be paid. Organizations must balance short-term decision quality and long-term collaboration and affective relationships in the management team making the decision (Amason and Schwieger 1994, Amason 1996). If key decision-makers fear that a decision to cancel a project might create affective, or political, conflicts and long term relationship problems that would influence future portfolio decision-making negatively, they should take this into consideration as well.

## Summary

Based on the assessment of PPM practice in the studied organizations it is fair to say that organizations were not doing PPM as recommended by the literature. Some problems could be reduced by following the advice given by the PPM literature, especially regarding resource allocation and management, while other challenges seemed more difficult to overcome by using existing PPM prescribed practices. Most important it is clear that the rational ideal behind PPM methods was far from the realities faced by the IT managers taking part in this study, and that their PPM practices could never match the prescribed level of rationality as described in PPM methods:

* **High Uncertainty**: The level of uncertainty on project and portfolio level was so high that the idea of making rational decisions in the classic sense based on comprehensive objective information about business strategies, business priorities, available resources and alternative projects and project proposals could never be realized. There clearly was an imbalance between the sophisticated PPM analysis and decision techniques suggested by the literature and the uncertainty experienced by the participants.
* **Selective Information Avoidance**: Organizational actors making decisions in high uncertainty contexts are supposed to reduce uncertainty by gathering relevant information. This was also the case here, but in some areas the organizations consciously avoided creating, collection and distributing information that could reduce uncertainty and improve decision quality because other issues were more important than reducing uncertainty. Making decisions in a high uncertainty context and deliberately not reducing uncertainty doesn’t improve the possibilities for rational decision-making.
* Decision-making based on experience, intuition, interaction and negotiation: The decision-making practices used in the organizations were far from the rational ideal as described in the PPM literature. The involved IT managers relied more on experience, intuition, interaction and negotiation to make decisions, than on objective criteria and structured decision-making processes. More effort was used on creating consensus, shared understanding and commitment thereby making decisions implementable than on making optimal decisions from a pure rational perspective.
* Making decisions right or making the right decisions: The involved organizations ability to make decisions right in terms of e.g., learning and being responsive during project execution was just as important as making smart rational decisions up front. While the PPM literature relies on analytical activities to *forecast* how the future might be given some specific project investments, the IT managers were more into *shaping* the future.
* Reframing and re-negotiating expectations and goals: As a natural part of running projects goals and expectations was continuously adjusted, re-interpreted and re-negotiated leading to a situation where only few projects were considered failures even though the outcome might be different from what was originally expected.

When making a lot of decisions in a high uncertainty context and at the same time not seeking relevant information rationality is really bounded. To manage the portfolios the IT managers involved compensated by using intuition and experience, by creating consensus, understanding and commitment through negotiation and relationship building, and by putting a lot of effort into making the decisions right during project execution. When that failed, the organizations were generally concerned about dealing with this without creating more problems for the involved stakeholders than absolutely necessary.

# Discussion

## Improving IT-PPM practice and theory

It is fair to ask whether these organizations are doing project portfolio management at all. In one way, they are not: They are certainly not doing PPM as presented by most IT project portfolio management books. In another way they are: They are actually managing a portfolio of IT projects. They prioritize projects, they decide which projects to start, they try to align projects with the current strategies etc. The basic rational ideas behind PPM principles is obviously appealing, but could not be realized in these organizations primarily due to the reasons described in the summary in the previous section. Based on the case study and theory about decision-making in organizations, we will discuss some key issues that are relevant for improving both PPM practice and theory.

As a researcher or consultant, it is easy to design and describe perfectly rational PPM models, as a practitioner they are a bit more difficult to implement. Rationality is bounded (Simon 1957) and it makes sense to analyze the specific dysfunctional factors that reduces decision quality and consensus during PPM decision-making when improving PPM practice and such a step should be included in PPM implementation models. Some of these factors might be removed or reduced over time others might be acknowledged as conditions that PPM has to be performed under. PPM improvement initiatives that challenge organizational fundamental values and power structures probably have a high risk of failing, and PPM implementation teams should carefully choose what to challenge and what to accept.

In the present case some of these dysfunctional characteristics was so deeply rooted in the organizations that they could be perceived as conditions that PPM had to be practiced under, rather than something that could be changed as part of improving PPM. E.g., being a politically governed public organization where budgets and decisions are made through political processes has some implications for PPM decision-making that from a purely rational perspective is highly dysfunctional, but from a political perspective is legitimate political behaviour.

The PPM literature (e.g., Meskendahl 2010) presents PPM as a tool for strategy implementation and the literature (e.g., Cooper et al. 2000) provides straightforward techniques for achieving strategic alignment, yet even the most mature PPM using organizations have problems in doing so (e.g., Cooper et al. 2004). Our research indicates that there are at least the following relationships between projects and overall strategy: *Supporting* current operational strategy, e.g., projects optimizing current systems and securing day-to-day operations, *implementing* strategy, e.g., an ERP-implementation project used to standardize and optimize current work-processes after a merger of previously independent units, and *shaping* strategy, e.g., ‘loyal innovation’ in terms of pilots and experiments decided by management and ‘hostile innovation’ in terms of skunk-work that would seriously challenge current strategies, that was initiated by ‘true believers and champions,’ without high level management fully understanding or officially approving what was going on. These relationship types are related to the decision-making categories defined by Mintzberg and Westley (2001).

In these organizations strategies and organizational preferences could be unclear, they would change, people wouldn’t necessarily agree, and changes in strategies and preferences would take some time to settle making it difficult, and rather subjective, to pinpoint what a the proper strategic balance would be and whether it was satisfactory. An empirical investigation within new product development states that *“*initial idea selection still seems to be a very political and champion-based activity” and approximately 40% of the ideas ‘selected’ for advancement actually move forward through informal channels outside the formal prioritization and decision-processes (Barczak et al. 2009). Defining what a strategically balanced portfolio look like is not trivial at all, and maybe some of the initiatives and projects that are misaligned with current strategies actually turn out to be beneficial for the organization and ends up shaping future strategies.

The PPM literature (e.g., Thiry and Deguirel 2007, Killen et al. 2008) recommends that different prioritization criteria should be used for different types of projects. The theory about decision-making in organizations states that not only are the criteria different: The way that decisions are made are different and different skills are needed depending on the level of uncertainty and conflict, this was actually the case as well in the organizations we have studied. The contribution from Mintzberg and Westley (2001) can be used as a starting point to identify suitable decision-making skills, practices and team interaction process depending on the level of uncertainty that characterizes a specific segment of the project portfolio. Most of the decision-making practices suggested by the PPM literature are primarily suitable for low-uncertainty decisions and doesn’t encourage constructive cognitive conflicts.

PPM decision-making finding the right level of cognitive diversification in decision-making teams is important. Mintzberg and Westley (2001) emphasizes that the need for exploiting cognitive diversification in management teams increases with the level of uncertainty. Our case organizations did not work systematically with these issues. In some situations, the cognitive diversification was too low because people would choose to always get feedback on project proposals from close colleagues. In other situations, the cognitive distance was too large, e.g., when IT managers and some department managers had so different perspectives off the role of IT no decisions could be made. In some situations managers in charge of PPM boards needs to increase cognitive diversification to increase decision quality, in other situations they have to find ways to decrease cognitive diversification among stakeholders just to get any decisions at all. Another related issue is to design team-interaction processes in a way that does not rule out the benefits of constructive cognitive conflict and discussion. Forcing participants to make “objective” decisions and avoid discussion and disagreement by insisting on advanced scoring algorithms might be counterproductive. The PPM literature generally emphasize the need for more holistic (e.g., Meskendahl 2010) and cross-functional (e.g., Kaplan 2005) projects that focus on creating and realizing benefits through cross-functional projects. Doing so requires management skills in dealing with high levels of cognitive conflicts because the participants will have very different backgrounds and perspectives, and increasing cognitive conflict most likely also makes it more difficult to ‘stick to the schedule and the specification’ and comply with the traditional criteria for successful project execution because.

The prescribed PPM decision-making practices can be perceived as a way of ruling out the human element and especially intuition making portfolio decisions strictly rational and objective. If making decisions were that simple, there was no need to engage top-level and highly experienced managers in the process. On the other hand: The combination used in the organizations we have studied heavily relying on intuition and experience and not emphasizing thorough analysis of portfolio level impact is a high risk endeavour. Organizations and managers need to balance intuition and rationality when making strategic decisions in fast paced environments (Sadler-Smith and Shefy 2004). The starting point when selecting projects might be based on management experience and intuition, as preferred by some of the managers taking part in our study, but managing a portfolio involves so much information and complexity that suggestions based on intuition and experience should be challenged and tested by a thorough analysis of the portfolio: E.g., is this portfolio doable at all from a resource perspective, and is the overall profile satisfactory? By alternating between modes where management intuition and experience are exploited and modes were the implications are analyzed with respect for the level of uncertainty better decisions might be made. But rationality will still be bounded by e.g., political realities. The PPM literature emphasizes that a broad range of criteria should be applied during decision-making, but some of the criteria (e.g., not creating problems for the political leadership) used in these organizations could never be formally included in a spreadsheet used to score projects for prioritization purposes.

PPM methods generally aim to improve the foundation for rational decision-making by suggesting proper processes and by providing portfolio level information that informs portfolio decisions. However, if intuition plays a major role in PPM decision-making, there should be a similar focus on how to improve the use of intuition in portfolio decision-making. The combination of relying on intuition and experience when deciding projects and not systematically evaluating the outcome of projects is a bad combination. Sadler-Smith and Shefy (2004) emphasizes that managers using intuition depends on receiving honest, accurate and constructive feedback, that managers must get a feeling for ‘their batting average’ in terms of how successful their intuitions really are, that they should be aware of the typical biases, that they systematically should invite people to challenge their intuitions by playing devil’s advocate, and that they generally should capture and validate their intuitions. PPM practices should not focus entirely on providing information that is more accurate and processes and tools that supports rational decision-making, but also on how management intuition and experience can be improved.

One of the major goals of PPM is to remove irrationalities by re-prioritizing or closing projects that seem less attractive compared to other projects (e.g., Kaplan 2005). Even though this might seem like common sense and result in high quality decisions from a rational perspective both the decisions-making theory (Amason and Schwieger 1994, Amason 1996) and the organizations that we have studied takes a broader perspective considering the possible organizational, affective and political consequences. If closing a project upsets major stakeholders, damage personal relations in management teams and reduce future possibilities for making high quality decisions, it might not be a good idea after all. Dramatic decisions about projects are not isolated events, but may spread and poison other decision-making processes involving the same actors. Surely, some projects will have to be cancelled, but closing projects might create affective and political conflicts that are so harmful that the business case for closing the project is less attractive. The same consideration is relevant when starting new projects. It’s not only about making high quality decisions from a rational perspective, but also about creating the necessary level of consensus that ensures that the management team will provide active support in times of trouble. A natural consequence of acknowledging the importance of personal relations for decision-making in management teams is that portfolio managers are well advised to maintain and improve group dynamics and personal relations among portfolio decision-makers and consider whether the climate is so positive that high quality decisions can be made even though they might be difficult. Deciding which decisions should be on the agenda is not just about objective rational analysis of organizational needs but also about assessing whether the climate is sufficiently constructive for making high quality decisions about important and difficult issues.

# Conclusion

PPM is a valuable and relevant discipline for all project-based organizations. Even if the organizations don’t think about their management practices in terms of structured PPM they still face all the issues related to deciding which projects to start or cancel, how to manage resource allocation, how to align projects with strategy etc.

Our research contributes to extend PPM literature and provides advice for PPM practitioners. Current PPM research is primarily normative and the purpose of our research has been to confront normative PPM theories with actual IT project portfolio management practice. Furthermore, we aimed to enrich the current PPM body of knowledge by drawing upon theory about decision-making in organizations. To do so we examined how PPM related decisions regarding IT projects are made in public sector organizations. Our research suggests that one of the reasons that PPM is difficult to implement, even though the principles seem straightforward, is that PPM builds upon classic rational ideals about decision-making in organization that are hard to realize and even in some aspects counterproductive for non-routine decision-making. Especially we suggest that mechanisms that deals with uncertainty and various kinds of conflict during decision-making should be considered, and to identify and understanding dysfunctional decision-making patterns and limitations as part of improving PPM practice.

The decisions made as part of PPM are so important for organizations that they *ought* to be rational, but exactly because these decisions are so important for various stakeholders rationality will suffer. Giving up on perfect rationality doesn’t mean that PPM isn’t needed, but rather that PPM should incorporate other decision-making styles that are more aligned with decision-making practices in organizations.

Our research is not without limitations. The involved municipalities differ in size, governance structures and political leadership and the challenges faced by public sector managers most likely differs from the challenges faced by private sector companies. However, the initial interviews undertaken in the participating municipalities resulted in a rather homogenous picture regarding IT management related challenges. This might not be that surprising since they all face the same IT related requirements from central government, they use the same vendors, they all work under the same institutional regulations, and the IT managers take part in the same communities. Second, the municipalities taking part in this study are deliberately not representative. They have been asked to participate because they are perceived to be among the most mature Danish municipalities from an IT management perspective and they are highly motivated for change and improvement.

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A Business Case Method for IT Investments in Danish Municipalities

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**Abstract.** Effective management of information technology (IT) investments is increasingly important for Danish municipalities. This is why they along with other both public and private sector organizations increasingly are using IT business cases. The business case is a document specifying the main rationale behind the expected value and cost of an IT investment for the adopting organization. However, experiences from Danish municipalities reveal difficulties in developing effective IT business cases for purposes beyond simple cost savings. Based on collaborative action research with Danish municipalities, we present insights on the challenges in contemporary IT business case practices. We applied these insights in conjunction with contemporary literature on business cases to develop a business case method for Danish municipalities. Based on the municipalities’ evaluation of the method we summarize its key contributions to IT business case practice in local government organizations.

# Introduction

IT management is instrumental in organizational exploitation of IT (Feeny and Willcocks 1998). However, researchers have documented numerous IT management issues in both general and country specific public sector investigations (Swain et al. 1995, Caudle et al. 1991, Chang et al. 2000, Loukis and Tsouma 2002). IT management in public organizations can be particularly difficult because of the increased 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 and Lee 2005). Danish municipalities share these difficulties and are in eminent need of initiatives and tools to help manage IT investments more successfully.

A common tool used in both public and private organizations for managing IT investments is the business case (Ward et al. 2008). 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 IT investment for the adopting organization. This definition is used in Danish central and local government practices and in research on business cases (Ward et al. 2008, Eckart et al. 2009, Eckartz et al. 2010). In Gil-Garcia and Pardo’s investigation of e-government success factors they studied the reasoning behind business cases (Gil-García and Pardo 2005). They argue 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 and Pardo 2005); that empirical base is lacking so far.

The purpose of this research is to improve IT business case practices in municipalities. We report on an action research study on IT business cases in Danish municipalities that we carried out as part of a larger collaborative practice research (Mathiassen 2002) effort in the DISIMIT project. In collaboration with a group of municipal IT managers, we identified IT business cases as a key concern in their practice. Following this insight, we initiated improvement activities for their IT business case practices.

The chapter is structured as follows. Section 2 describes the theoretical background on IT business cases, followed by our research approach in section 3. In section 4, we present our findings on municipal IT business case practices and propose our IT business case method for municipalities. The chapter ends with a conclusion in section 5.

# Theoretical background

Only a limited amount of empirical investigations of IT business cases is available, e.g., 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 nonprofit organizations (Braaksma et al. 2006), and strategic IT investment decisions (Ross and Beath 2002). The most prominently published approach to developing an IT business case in the information systems literature is, that of Ward, Daniel and Peppard (2008), which has its offset in benefits management (Ward and Daniel 2005). Benefits management is receiving increasing attention in e-government research and is an area well aligned with local governments’ need for more effective management of value creation with IT.

The approach to developing IT business cases is based on research of both private and public organizations (Ward et al. 2008) and features six steps indentifying 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. Their approach differs from most 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 IT and the business changes that are required to deliver them.
* Owners are identified for ensuring the business changes are achieved.

In general, does the recognition of non-financial benefits correspond well with the non-profit nature and political agenda in public sector organizations (Dufner and Holley et al. 2002). Public sector organizations are likely to estimate the potential value of an IT investment by looking at both its economic value and its political value (Chircu and Lee 2003). The measurement of benefits supports informed and documented agreements between IT management and the affected public organization and facilitates later benefits evaluation. Linking benefits to both the IT and organizational changes is highly relevant in addressing the difficulties of change in public sector organizations (Fernandez and Rainey 2006). Finally, the ownership of benefits and business change corresponds well with the frequently divided authority over IT decisions (Chircu and Lee 2005) and large number of influential stakeholders in public sector organizations (Bannister 2002). In summary, the characteristics of the business case method appears valuable for public sector IT management, suggesting similar usefulness for Danish municipalities.

# Research approach

Our action research effort to improve the practice of using IT business cases in municipalities was part of the DISIMIT project. The action research (Baskerville and Wood-Harper 1996, Baskerville and Wood-Harper 1998, Davison et al. 2004) involved a working group consisting of representatives from 4 municipalities (ranging from 4,000 to 30,000 employees) and 2 consultancy firms and action researchers from a university (Nielsen and Persson 2010). This working group identified business cases as a key concern in the municipalities IT management and initiated improvement activities to address it. As researchers we considered the argued value of business cases for IT management (Ward et al. 2008) and the lack of empirical knowledge on business cases in e-government (Gil-García and Pardo 2005). We then initially adapted a business case method based on the approach by Ward et al. (2008). We improved the method in three iterations based on explicit evaluations in three municipalities. Following the iterations, we closed the action research process when the working group had assessed the method’s usefulness. The working group then decided to elicit the method as a handbook available to other municipalities.

The action research process had eight key encounters, which were either a full day workshop or evaluation of the business case method at a municipality:

* 2009-11-11 Workshop on the research project organization and improvement focus
* 2009-12-16 Workshop on business case models and experiences
* 2010-02-08 Workshop on the business case content, development and context
* 2010-06-29 Evaluation of business case method at municipality 1
* 2010-08-18 Evaluation of business case method at municipality 2
* 2010-10-13 Workshop on further development of the new business case method
* 2010-10-26 Evaluation of business case method at municipality 3
* 2010-12-09 Workshop on benefits realization based on a business case

Preceding each encounter, we wrote a study protocol inspired by the case study protocol advocated by Yin (2003). Our study protocol documented initial thoughts and decisions for each of the action research criteria suggested by Nielsen (2007): roles, documentation, control, usefulness, frameworks, and transferability. We documented all encounters through audio recordings, filed notes and minutes; and we distributed the minutes to all participants. Following each encounter, an audio recoded debriefing meeting (Spall 1998) was conducted among the participating researchers. A participating researcher furthermore wrote a reflective diary entry (Jepsen et al. 1989) on the encounter and the period before the encounter. We integrated the data analysis into the action research process, in particular through the debriefing meetings following each encounter. We analyzed the municipalities’ business cases and related documents between the encounters and we then presented and validated the results at a workshop. This integration of data analyses throughout the action research process allowed continuous feedback as we presented our results to the practitioners. The documentation in the form of debriefings and research diaries also allowed later critical revisits to our analyses and decisions.

# Findings

In the following, we present our findings on IT business case practices in Danish municipalities and the proposed business case method.

## Municipal IT business case practices

A business case can have different forms and purposes across municipalities and even within a single municipality. While the literature claims that the main purpose of developing an IT business case is to obtain funding approval for the financial investment (Ward et al. 2008), this was not always the dominant issue in the Danish municipalities. Their investment decisions were in some cases already made and they developed a business case post hoc to justify and promote the IT investment decision internally. Sometimes central government provided a business case that could serve either as the investment decision or as basis for the development of a new business case that included the specifics of the municipality. We identified three different types of business cases relative to a municipality’s IT investment decision in the initial workshops see Figure 6.

The municipalities develop Type-1 IT business cases before their municipal managers decide on the IT investment. This type corresponds with the literature, where the main purpose of developing an IT business case is to obtain funding approval for the financial investment (Ward, Daniel et al. 2008). Thus, a Type-1 business case influence or informs the municipality’s IT investment decision. Type-1 business cases appeared usually as very minimalistic in terms of content, e.g., characterized by only a simple return on investment analysis. However, additional characteristics could be included as listed on the Type-1 IT business case document in Figure 6.

The municipalities develop Type-2 IT business cases after their municipal managers have decided on the IT investment. Thus, a Type-2 business case elaborates or justifies the municipality’s investment decision. Type-2 business cases are the most common in the municipalities, and IT project managers sometimes request a business case because it is required by the project management method, e.g., Prince2, adopted by several municipalities.

Figure 6. Three types of business cases relative to a municipality’s IT investment decision (Nielsen and Persson 2012)

Other public or private organizations develop Type-3 IT business cases before the municipal managers have decided on the IT investment. Thus a Type-3 business case may influence or in some cases force the municipal managers to adhere to an externally decided IT investment (e.g., from a central government department). A Type-3 business case may also influence a Type-1 business case, e.g., if it is from a private consultant or IT supplier. Municipalities can transform Type-3 IT business cases into a Type-1 or Type-2. They can also transform a Type-1 into a Type-2, but many of their business cases they do not transformed at all. In summary, we found that IT business cases in the municipalities had different forms that could change over time relative to the municipalities IT investment decision. However, the municipalities did not consider a Type-3 IT business case very useful in ensuring realization of its proposed value without transformation into a Type-1 or Type-2.

In addition to the different types of IT business case, the initial workshops further revealed a concern among the IT managers that the very extensive general business case method of central government was much too inclusive, complex, and expensive to apply. The IT managers based their concern on experiences in 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 for binding agreements without extensive formalization of contracts or business cases. Finally, the size of the IT investments in the municipalities did not justify extensive work on a business case, as 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 general method had 40. We did a comparison of the central government’s general method with the three municipalities’ and presented this in the workgroup. In our comparative analysis of these four IT business case methods, we identified six overlapping 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 IT managers 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’ IT manager and their chief executive officer. Our analysis applied a model of IT value in public administration (Bannister 2002) and we presented its results at a later workgroup meeting. The analysis revealed a predominance of foundational values relating to cost-efficiency considerations. However, their value discourses also included policy formulation, democratic, service, internal, and external values.

## The IT business case method

Our analyses of how the municipalities’ developed their business cases suggested a need for a new and leaner IT business case method, which addressed their needs for both a Type-1 and Type-2 business case (see Figure 6). Our literature review of business cases identified the approach by Ward et al. (2008) presented in Section 2 as a basis for improving their current practices. Their approach has six steps that largely covered the shared elements from the analysis of the municipalities’ business cases and it allows for non-financial benefits. We translated the method to 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. We intended to address the business case needs in most municipalities with our method and presented it in a brief handbook made available to all municipalities (Nielsen and Persson 2011).

The resulting method involves four steps: (1) define motivation and investment objectives, (2) identify benefits, measures, and owners, (3) structure the benefits, and (4) identify costs and risks. In the following, we elaborate on these four steps.

### Define motivation and investment objectives

In addressing the first step, the business case should present the challenges faced by the municipality and substantiate how the suggested IT investment contribute. Such a motivational description is short and contains significant challenges for the municipality. The motivation may address internal organizational challenges or external challenges such as new laws, benchmarking, or new standard procedures.

* Motivation: What internal and external challenges is the municipality facing?

A good motivation may base on an overall financial agreement, digitalization opportunities, or demographical projections. While a poor motivation, receives low interest from decision makes, for example by focusing on specific technical issues or public administration practices. Following the motivation, the investment objectives are identified. Investment objectives are limited in numbers and shows how the investment contributes to the municipality’s challenges described in the motivation. All involved managers need to agree on these general investment objectives.

* Investment objectives: What does the suggested investment contribute to the municipality?
* Investment objectives: How is the investment addressing the municipality’s challenges?

Good investment objectives summarize the intent with the investment at a general level and show what value the investment creates for the municipality. The value is the sum of one or more specific benefits for which the IT investment contributes (These benefits are specified in step 2). Value for a municipality is not only financial that is achieved through optimization of resource consumption and defined in terms of time and money. Value is also the achievement of fairness, mutuality, and proper discharge of duties defined in terms trust and entitlements. Value is finally also the achievement of robustness, reliability, and adaptivity defined in terms of security and survival (Hood 1991).

IT investments often have high complexity that may not only cause delays, but also blur the focus on achieving the planned benefits. An individual responsible for the business case is therefore appointed to maintain focus on why the IT investment takes place – namely for the realization of benefits. The individual responsible for the business case must therefore update the business case when planned objectives and benefits change. The planned objectives and benefits must be documented and communicated clearly to all parties involved. A successful business case responsible ensures that the various stakeholders are heard and that they explicitly take responsibility in the benefits realization. IT investments themselves create no value for the municipality, it is the organizational changes, it can support. Thus, the business case responsible must be able to bring together and negotiate with all the different actors that will be responsible for the organizational changes.

* Business case responsibilities: Who is maintaining the business case document and sustaining the benefits realization process?

An appropriate business case responsible is an influential manger in the municipality with an interest in the IT investment's success relative to his or her management area. The business case responsible may not perform all tasks personally, but can appoint a deputy recruited internally from the municipality or from an external consultancy. It must however still be indisputably, where responsibility lies. A tempting but poor choice of business case responsible will be the responsible technical project manager for the IT investment, which has great insight into the technology, but not in the affected business processes. Other poor choices of business case responsibility will be whole groups or units or municipal managers with low interest in the IT investment or limited ability to negotiate with the parties responsible for the organizational changes.

### Identify benefits, measures, and owners

In addressing the second step, the municipal managers affected by the IT investment identify the benefits expected from addressing the investment objectives. Investment objectives differ from benefits by requiring agreement among all the involved decision makers and managers. Benefits, on the other hand, is usefulness for specific groups or individuals resulting 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 usefulness achievable by the IT investment, (2), a measure to determine whether it is achieved, and, (3) an owner who gains from the benefit, can give it value, and make sure it is realized. An IT investment with few investment objectives may have numerous benefits for numerous stakeholders.

* Benefits: What usefulness can be achieved by the IT investment?

A benefit often emphasized in business cases for digitalization of municipal work processes is postage savings. The popularity of this benefit in municipal business cases can be due to the ease of determining a financial measure for the benefit. However, it is important not only to focus on benefits easily measurable in time and money. The benefits with more difficult measures may often turn out to be the most significant on the long run. Important to the success of an IT investment is also the identification of benefits for the actors’ central to the overall benefits realization. These benefits may be fewer errors in the casework or higher employee satisfaction. Following the identification of a benefit may determining its measure help a more precisely formulation. Thus, if a benefit is higher efficiency, its measure must be independent of efficiency changes occurring without the influence of the IT investment.

* Measures: How do we determine whether a benefit is achieved?

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 base on comparisons of the case and case complaints ratio before and after implementing the IT investment. Employee satisfaction can be measured through quantitative employee surveys, employee retention times, or a personnel manager's assessment before and after the IT investment is implemented. When determining benefit measures, it is important to consider whether the advantages of such a quantitative study is large enough compared to the costs of implementing it. An inexpensive alternative may be to rely on a manager's assessment.

* Owners: Who may gain from the benefit or represent a group gaining from the benefit?
* Owners: Who can influence realization of the benefit?

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 IT investment and ensure the benefit is realized. The owner may be personally involved in the implementation or participate by the resources and influence that she or he has. An owner does not necessarily realize the benefit as it may depend on workflows that are beyond the owner's direct control or influence. However, it is the owner's responsibility to give value to a benefit in the business case and ensure that there is a plan for its realization. The right owners can contribute to both the commitment to investment, but they can also help to provide a business case with a good reputation – especially if the owners are experienced managers who are influential in the municipality.

It is important benefits ownership refers to a named person rather than a department or function held by several people. This limits the possibilities of avoidance of responsibility when necessary organizational changes need implementation. With redeployments or hiring related to benefits ownership, it is important to follow up on the business case. Predecessor's commitments in benefits realization must be passed on to the successor. Alternatively, it may be necessary to modify the business case by rewording or perhaps even eliminate the affected benefits. In general, the formulation of a benefit involves consideration of relationships between benefit, measure, and owner.

### Structure the benefits

In addressing the third step, the benefits are structured by placing them in a benefits grid in Table 5, distinguishing between the type of change and degree of explicitness. Table 5 has three types of change in the columns and four degrees of explicitness in the rows. Placing benefits in the grid show what type of organizational change give rise to the benefits and what degree of explicitness is know or should be investigated before the IT investment is made. The benefits grid is an alternative to simple listings of benefits, encouraging to more discussions and documentation of expected benefits, making a more robust business case. Using the benefits grid in all the municipality’s business cases helps comparisons of investments and their mutual prioritization.

|  |  |
| --- | --- |
|  | Type of change |
| Do new things | Do things better | Stop doing things |
| HighDegree of explicitnessLow | Financial benefits  |  |  |  |
| Quantifiable benefits |  |  |  |
| Measurable benefits |  |  |  |
| Observable benefits |  |  |  |

Table 5. Benefits grid (Ward et al. 2008)

The first task in using the benefits grid is to identify the type of change required for each benefit. The type of change necessary for the realization of a benefit can be straightforward, while in some cases requires more analysis.

* Organizational change: What type of change is required for realization of the benefit?

Each of the three types of change represents different organizational challenges. Stop doing things may for example involve manual processing of routine matters or closing communication channels between the municipality and the citizen. Municipalities, however, have a wide range of service commitments and regulatory considerations that may make it difficult to realize this type of benefits. Do things better is a type of change relevant to many benefits in a municipal IT business case. These benefits are however often the least innovative and productive in the long run. It is therefore important to focus on the benefits of stop doing things or doing new things with IT investments. Doing new things could include the provision of new internal or citizen-oriented services. It is especially these benefits, which can demonstrate the value of an IT investment outside the circle of people involved directly. A benefit’s value has four levels of explicitness in Table 5. An important criterion for placing benefits in the four rows is the level of documentation. Each benefit’s initial place in the grid is at the observable level. It then relies on the benefit owner to document the extent it is possible to move the benefit up to a higher degree of explicitness. The degree of explicitness reflects what is known about a benefit’s value.

* Benefit valuation: How explicit can the value of the benefit be determined?

Various techniques can help lift benefits from measurable to quantifiable: (1) Internal documentation collected over a given time period can be helpful in the determining the benefits of stopping doing things. (2) Modelling and simulation can be used in the calculation of benefits associated with stop doing things or doing things better. (3) Benchmarks and reference organizations can support valuating benefits based on experiences from similar organizations such as other municipalities that have invested in the IT system, but also governmental, private or foreign organizations. (4) Pilot studies can be useful to test the technology but can also be useful for evaluating the benefits of doing new things. The resulting benefits grid should provide an overview of the benefits of the IT investment proposed in the business case. The grid shows a nuanced picture of the IT investment's expected value, where different people will focus on different benefits. Benefit grids may be very different across municipalities – even in cases where they involve the exact same IT system. Different municipalities have varied opportunities or willingness to explicate benefits to a quantifiable or financial degree.

### Identify costs and risks

In addressing the fourth step, the IT investment’s costs are identified and the associated risks are assessed. The costs also include those that are recurring after implementation such as licenses, data traffic, 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.

* Costs: What are the costs of the IT investment?
* Costs: What recurring costs does the IT investment entail?

Not all costs can be estimated in financial terms and some of these may heavily influence the overall balance between costs and benefits in a business case. For example, may stopping a specific service 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 necessary changes needed for realizing benefits. Not only general risks for the IT investment needs identification, but also those associated with the contingencies for each benefit. The value of a high-risk benefit determines the importance of alleviating it.

* Risks: What contingencies may prevent the realization of investment objectives or benefits?

The risk analysis may reveal risks of such high importance that their alleviation should be included in the business case’s costs. Considerations of a step’s influence on the other steps in the business case method are 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 between the business case elements is very beneficial.

# Conclusion

We have applied an action research approach to study how we can improve IT business case practices in Danish Municipalities. Our action research has given insights on contemporary IT business case practices in Danish municipalities. We have used these insights to develop a business case method based on previous research (Ward et al. 2008, Ward and Daniel 2005) and iteratively designed it to address the needs of Danish municipalities. As a result, we have proposed a method involving the four steps:

1. define motivation and investment objectives
2. identify benefits, measures, and owners
3. structure the benefits
4. identify costs and risks

The proposed method emphasise (1) dynamic utility, in particular the use of business cases after a municipality’s IT investment decision, (2) benefits ownership, by assigning named stakeholders to assess and realize benefits, (3) minimal content, by involving only for steps, and (4) social commitment, requiring significant informal interaction beyond the written material. Evaluation of the method (Nielsen and Persson 2012) suggests municipal IT business cases in general should seek minimal contents, benefits ownership, dynamic utility, and social commitment.

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Dynamic Relationships in E-Government Initiatives: Craftsmanship, Partnership, Companionship, and Entrepreneurship

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**Abstract.** IS plays an important role in modernization of the public sector, and government agencies increasingly use IT for both innovation purposes and exploitation of existing opportunities. These organizations not only see IS as an enabler of business strategy but also focus on the operational and tactical benefits of IS. However, although IS management has been studied at the strategic level, middle management has not received the same attention. Existing research has, for example, investigated the relationship between the Chief Information Officer (CIO) and top management, but no studies have looked at the relationship between IT and middle management in bridging the gulf between the strategic and operational level and bringing about IS benefits to the organization at the tactical level. This article addresses this research gap by exploring the relationship between IT and middle management in government agencies across four Danish municipalities. Based on an exploratory, multiple case study we develop a descriptive model of the dynamic relationships between IT managers and line managers in public organizations. The model describes four archetypes – craftsmanship, entrepreneurship, partnership, and companionship – depending on the level of involvement (arm’s-length versus embedded) and the envisioned role of IT (management versus leadership). The model is a powerful vehicle for understanding and possibly changing the relationships depending on the needs and visions of the organization wanting to increase its e-government maturity.

# Introduction

Since the mid-‘90s information technology has been used within the public sector to support and gradually transform governmental services (Weerakkody and Dhillon 2008), and with the advent of the internet and the diffusion of the underlying technology interest in e-government has increased dramatically (Gil-Garcia and Martinez-Moyano 2007, Heeks and Bailur 2007). The prospect of changing public sector organizations from bureaucracies to service organizations better equipped to meet citizens’ needs in the new millennium holds great promise (Wimmer 2002). By tapping into the potential behind modern technology, electronic government (e-government) is made possible. According to Weerakkody & Dhillon, “e-government is about the transformation of internal and external processes of government using information and communication technologies to provide efficient and user focused services to citizens, businesses and other stakeholders” (Weerakkody and Dhillon 2008, p. 2). E-government is seen as the key to improving efficiency, encouraging participation by citizens, and improving governance (Weerakkody and Dhillon 2008, Schware and Deane 2003, Lee et al. 2005). The increased focus on e-government has resulted in a similar increase in research on the subject (Grönlund and Horan 2004, Gil-Garcia and Martinez-Moyano 2007), including research on the various stages of e-government development resulting in different maturity models (Siau and Long 2005, Moon 2002, Lee 2010, Layne and Lee 2001, Klievink and Janssen 2009, Janssen and Veenstra 2005, Andersen and Henriksen 2006).

Siau & Long (2005) present a frequently cited stage model describing five maturity levels of e-government. According to the authors, public sector organizations implement different changes moving from one stage of e-government development to the next (Siau and Long 2005). The move from stage one (web presence) to stage two (interaction) and from stages two to three (transaction) is technological in nature focusing on automation of existing processes. By comparison, the jump1 between stages three and four (transformation) is cultural in nature whereas the move between stages four and five (e-democracy) is political in nature. The purpose of the latter two is to radically transform government services – a transformation which calls for a higher degree of change within government and in terms of interacting with citizens. Moving from one stage to the next requires changes and entails different challenges. Sarikas & Weerakkody have determined that most change efforts come to a halt at the transaction stage of e-government development (Sarikas and Weerakkody 2007) despite many government agencies striving toward this maturity level (Dhillon et al. 2008). Due to the difficulties in changing government services and reaching the transformational stage of e-government, or simply t-government, knowledge about how to successfully jump to the transformation stage is of particular interest. T-government redefines the delivery of government services, entails complete transparency and new ways of working, and requires a single point of contact between government agencies and citizens (Afﬁsco and Soliman 2006, Dhillon et al. 2008, Siau and Long 2005, Layne and Lee 2001, Gil-Garcia and Martinez-Moyano 2007, Weerakkody and Dhillon 2008). However, our knowledge about barriers to t-government is limited. Van Veenstra et al. (2011) have identified 23 impediments, divided into three categories (Governance, Organisational and managerial, and Technological) blocking public sector organizations from reaching the transformation stage of e-government. Their findings lead the authors to conclude that the impediments have not received sufficient attention in the literature, and that additional knowledge is needed to successfully overcome the impediments and achieve the goal of t-government (van Veenstra et al. 2011). Dhillon et al. (2008) also identify various challenges confronting government agencies in transforming government services, including lack of senior management commitment (Dhillon et al. 2008). In addition, Reinwald & Kræm­mer­gaard (2011) point to stakeholder engagement at various levels as key to moving toward t-government (Reinwald and Kræmmergaard 2011).

From the broader Information Systems (IS) literature, we know that collaboration between IT and management is crucial to success in IT projects as well as IT-based innovation (Bashein and Markus 1997, Boynton et al. 1994, Bassellier et al. 2003). Existing research has investigated the relationship between the CIO and top management at the strategic level. For example, El Sawy & Pavlou (El Sawy and Pavlou 2008) have shown that commitment and a shared mindset between the CIO and top management team “are prerequisites for leveraging digitalization to obtain strategic success” (Hansen et al. 2011: 2). Although the role of top management has been studied, little is known about middle management. No studies have looked at the relationship between IT and middle management in bridging the gulf between the strategic and operational level and bringing about IS benefits to the organization at the tactical level. Yet the literature points to the importance of IT and middle management collaboration. For example, Bassellier et al. (2003) state that “the literature supports the notion that partnerships between IT and line management lead to IT success by fostering successful project implementation” (Bassellier et al. 2003, p. 323). Management of IT requires trained IT professionals as well as shared responsibility between line managers and IT professionals to ensure alignment between IT and business objectives (Bassellier et al. 2001). Moreover, in IT-based innovation the involvement of middle management is necessary. Den Hengst & de Vreede (2004) conclude that “there is evidence that it is important to include knowledge and build support from the bottom as well, by inviting the middle managers. Top managers are often isolated from daily practice and therefore, do not understand the business and real issues to the extent middle managers do” (den Hengst and de Vreede 2004, p. 87).

The lack of knowledge about the relationships between IT managers and line managers and how it affects e-government implementation and the transformation of government services leads to our research question: How can we empirically describe and understand the relationships between IT managers and line managers in local government? We explore the relationships between these managers in government agencies across four Danish municipalities in an attempt to understand and describe their relationships. We develop a relationship model as a vehicle for understanding and possibly changing the relationships between IT managers and line managers depending on the needs and visions in terms of e-government maturity.

The paper is organized as follows. In the following section we outline our research approach. In section 3 we present our findings in the form of a relationship model. In section 4 we discuss the implications of our research for practitioners as well as researchers.

# Research approach

The study presented here is a qualitative, exploratory, multiple case study. The case study method is a well-established research approach within IS (Benbasat et al. 1987, Cavaye 1996, Lee 1989). We organized our research as a case study for a number of reasons. First, case studies are suited for investigating “a contemporary phenomenon within its real-life context” (Yin 2003, p. 13) and our goal was to understand the relationship between IT and middle management in government agencies across four Danish municipalities. Second, multiple data sources is a key characteristic of case study research (Yin 2003), and we had access to very rich data from multiple sources, including interviews, workshops, and written material. Third, the case study method is advantageous in situations where investigators are asking ‘how’ or ‘why’ questions about events over which they have little or no control (Yin 2003, p. 9); our investigation was driven by such a question (how can we empirically describe and understand the relationships between IT managers and line managers in local government?) based on our analysis of the working relationships and collaborations between IT managers and line managers in the participating municipalities.

The research took place between September 2010 and June 2011. Figure 1 depicts the research process by means of a timeline. The research was conducted in collaboration with four Danish municipalities. The municipalities (Frederikshavn, Hedensted, Odense, and Viborg) vary in size (61556, 46119, 190103, and 93745 citizens respectively)3, are geographically dispersed, are engaged in digitization efforts, and are confronted by the challenges of transforming government services. Such efforts include the implementation of various self-service solutions, secure and encrypted communication between citizens and public employees, and digital signature for accessing online services.

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Figure 1. Case study timeline

Data collection and analysis was an iterative process involving joint meetings, workshops, interviews, and analyses between events. Table 1 provides an overview of our data sources.

|  |  |  |
| --- | --- | --- |
| Source | Data | Participants |
| Joint meeting | 13 Sep, 2010 | 4 |
| Interviews | Frederikshavn | 6 Dec, 2010 | 4 |
| Hedensted | 1 Dec, 2010 + 10 Jan, 2011 | 5 |
| Odense | 6 Jan, 2011 | 4 |
| Viborg | 15 Nov, 2010 + 25 Nov, 2010 | 5 |
| Joint meeting | 2 Feb, 2011 | 6 |
| Workshops | Frederikshavn | 19 May, 2011 | 14 |
| Hedensted | 23 May, 2011 | 6 |
| Odense | 25 May, 2011 | 6 |
| Viborg | 13 May, 2011 | 19 |
| Joint meeting | 6 Jun, 2011 | 4 |

Table 1. Data sources

The case study was kicked off with a joint meeting (September 13th 2010) of the municipal IT managers who were asked to describe and exemplify what they consider good and not-so-good relationships with other parts of their organizations. Based on input from that meeting, interview guides were prepared. We conducted 18 interviews (November 15th 2010 – January 10th 2011) with the IT managers, line managers, and IT employees in each municipality, using distinct interview guides (Kvale 1996, Patton 2001) for each management level. The guides focused on exploring the research question and facilitated a natural flow of open-ended questioning. The questions were carefully selected based on Saxton (1997) who has studied the effects of partner and relationship characteristics (partner reputation, prior affiliation, shared decision making, and similarities between partners) on alliance outcomes (Saxton 1997). Our approach was thus semi-structured; the interviews lasted from one to two hours and provided comparable data across the four units to support theory development. To facilitate data analysis, we had all the interviews transcribed. The interviewees were selected with the help of the municipal IT managers who were asked to identify exemplary relationships and relationships with improvement potential. All involved in each relationship were interviewed. In the wake of the interviews, we analyzed the empirical data and developed a first draft of a relationship model. The model was subsequently presented and evaluated at a joint meeting (February 2nd 2011) of the IT managers and line managers. Based on their feedback, the model was revised and further developed in anticipation of the workshops (May 13th 2011 – May 25th 2011) in each municipality where the model was validated and used as a communication device in discussing the evolvement of existing relationships. The workshop participants debated the future direction of their relationships in support of digitization efforts and transformation of government services. Their input was used to fine-tune the model which was approved at the last joint meeting (June 6th 2011) of the IT managers.

During data analysis, we searched for patterns across the four cases and in turn we developed the observed patterns into descriptive theory in the form of a relationship model. We engaged in theory building by juxtaposing insights from the four cases into relationship patterns between IT managers and line managers engaged in digitization efforts. First, we listed similarities and differences among the four cases in order to break simplistic frames and foster sophisticated understanding (Eisenhardt 1989). We also compared and contrasted the four patterns to deepen our understanding and search for possible explanations (Miles and Huberman 1994). Second, we considered existing e-government literature to generalize each pattern and to integrate them into a comprehensive view of the relationships between IT managers and line managers. In this process of creative thinking and discussion, we sought to develop descriptions of each pattern as a particular type of working relationship. This process – corresponding to Weick’s “disciplined imagination” (Weick 1989) – also involved investigating our theory’s comprehensiveness by considering other possible patterns. We concluded each round of data analysis with key informant reviews2 (during the joint meetings and workshops) in which the public employees participating in the research project provided feedback on our analyses and the relationship model.

# Findings

Based on our investigation of the relationships between IT managers and line managers engaged in digitization efforts in four municipalities, we have been able to discern four interaction patterns, which are summarized in the relationship model shown in figure 2. The model describes four archetypes – craftsmanship, entrepreneurship, partnership, and companionship – depending on the level of involvement (arm’s-length versus embedded) and the envisioned role of IT (management versus leadership). These relationship types are dynamic in the sense that they have the potential to evolve over time.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |  |  |
| --- | --- | --- | --- |
| Embedded | Partnership | Companionship |  |
| Arm’s-length | Craftsmanship | Entrepreneurship |  |
|  | Management | Leadership |  |

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Figure 2. The mid-level management relationship model

An arm’s-length relationship is impersonal and instrumental. Knowledge of the other party in the relationship is limited, and contact is established only when problems arise focusing on one’s own priorities. Trust and insight into the expertise of the other party is low. In contrast, a socially embedded relationship is more personal, trustful, and collaborative. Both sides of the relationship know each other intimately, accept their mutual dependency, and are committed to working together toward common goals (Schultze and Orlikowski 2004, Uzzi 1997). A management focused relationship is concerned with problem-solving activities and doing things right. A leadership-focused relationship, on the other hand, is oriented toward innovation and doing the right things (Zaleznik 2004, Kotter 1990). These two dimensions – arm’s-length versus embedded relationships and management versus leadership-focused relationships – delineate four archetypes: Craftsmanship, entrepreneurship, partnership, and companionship.

Craftsmanship revolves around operational support. The relationship is limited to solving immediate problems. Experiences from previous encounters have resulted in mistrust and taught line managers to avoid involving IT managers in order not to complicate matters. Whenever they work together, the roles and responsibilities are clearly defined with the line managers calling the shots. Success is measured in terms of helping the line managers provide better and improved services to their clients.

Entrepreneurship is focused on strategic development. The line managers have positive experiences from previous digitization efforts and are willing to experiment with new technologies in supporting and transforming government services. The relationship is characterized by uncertainty in terms of what to expect, and although line managers are reluctant to defer to the IT managers’ expertise, roles and responsibilities are unclear as the relationship is constantly evolving. The evolving nature of the relationship also implies that the success criteria are emergent.

Partnership is about collaborating on operational issues but is not limited to problem-solving. Previous experiences have left both sides with positive expectations for the future, and line managers are very open to new ideas, even though the IT managers and their employees place great demands on them. The partners put trust in each other’s expertise and intentions, which, in turn, results in decisions being taken together. Roles and responsibilities are shared with each partner making specific contributions. Success depends on being able to maintain a portfolio of reliable and efficient systems.

Companionship is centred on strategic development and the utilization of technology for changing the way government agencies work and provide services to citizens. Experiences from cross-functional teamwork have taught IT and line managers to use digitization in transforming their organization. The division of roles is unclear as both sides assume responsibility for achieving the strategic benefits of modern technology. The success of the relationship depends on being able to transform IT-based innovations into perceived value for citizens and the organization alike.

Table 2 summarizes key characteristics of the four relationship archetypes.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Craftsman-ship | Entrepreneur-ship | Partner-ship | Companion-ship |
| *Primary activities* | Operational support | Strategic support | Joint operational responsibility | Joint strategic responsibility |
| *IT governance structure* | Clear division of roles – line managers responsible | Unclear division of roles – shared responsibilities | Clear division of roles – shared responsibilities | Unclear division of roles – shared responsibilities |
| *Critical successfactors* | Customer satisfaction, efficiency improvements | Emergent | Efficient and reliable systems | IT-enabled innovation and strategic benefits |

Table 2. Relationship characteristics

Examples of the craftsmanship relation include implementing highly specialized software tools and solving system errors blocking employees from continuing their work. On several occasions software tools had been purchased without consulting the IT strategy or discussing it with the IT departments due to lack of trust, and because the IT employees were not believed to have sufficient specialist knowledge. Examples of such tools include highly specialized systems for monitoring water quality and drainage in Frederikshavn municipality. In Hedensted municipality, such tools include a case management system for servicing unemployed people. However, in both cases the IT department’s help was needed to integrate the software with the existing portfolio of systems. Their help was also enlisted whenever system malfunctions or other problems occurred, preventing employees from completing their work assignments. In both instances, the relationship was about fire fighting, i.e. solving immediate problems.

The entrepreneurship relation manifested itself when introducing e-learning and labour reducing technologies in Viborg municipality. Competing demands and reorganization within the health and nursing sector highlighted the need for digitization and IT-based solutions. Such solutions had the potential to support and transform government services by relocating and empowering employees to provide care for clients in their own homes rather than at treatment centres. It proved, however, difficult to align expectations between stakeholders. On the one hand, the line manager involved was disappointed with the rate of progress and the IT department’s lack of strategic focus on those areas. On the other hand, the IT manager regarded the demands as unreasonable considering his obligations to other parts of the municipality. The misaligned expectations led to a lack of clarity concerning roles and responsibilities. In the end, the goals of the digitization efforts were subject to negotiation.

The partnership relation was expressed in the growing collaboration between the IT department and the line manager of children and youth affairs in Viborg municipality. Awareness about the potential contribution by the IT department had historically been low within that sector and their services had therefore been requested only at the time of implementation. Positive experiences from the last encounter (implementing a system that allows parents to digitally put their children down for childcare and to regularly check waiting lists) during which the IT manager and his employees proved themselves managerially and technically competent resulted in earlier involvement with greater expectations and responsibilities being put on the IT department. As a consequence, the next project (digitization of all communication between parents and schools as well as childcare institutions) was run collaboratively with clearly defined roles and goals. While the line manager was responsible for the pedagogical/teaching strategies, the IT manager was charged with generating ideas (for example, providing news through SMS messaging) for the implementation of the strategies through greater use of IT.

Lastly, an example of the companionship relation was the decision to invite the IT manager to a seminar about the future of public libraries in Odense municipality. IT was only one topic on the agenda, but prior experiences made it natural to involve him as a valued discussion partner. The relationship between the IT manager and the line manager of the municipality's department of culture evolved over time to the point where not only concrete e-government related IT projects but also the more general IT development within the municipality was being debated. In that way, the relationship became a breeding ground for novel ideas with no clear division of roles and responsibilities but with the common goal of reaping the strategic benefits of IT-enabled innovation.

# Discussion and implications

Our investigation of the relationships between IT managers and line managers in local government has both practical and research implications. In terms of practical implications, the model is a powerful vehicle for understanding and possibly changing the relationships depending on the needs and visions of the organization wanting to increase their e-government maturity. The model facilitates communication between key stakeholders about existing and future relationships. By using it to describe current relationships within public sector organizations, the model may be used as a basis for discussing the desired level of involvement (arm’s-length versus embedded) and the envisioned role of IT (management versus leadership) in supporting and transforming government services. Such discussions help managers determine whether any given relationship impedes or advances on-going as well as planned digitization efforts to reach higher stages of e-government development. Due to their dynamic nature, it is possible to modify the relationships to better suit the needs of the organization. The workshops in the four municipalities demonstrated the usefulness of the relationship model as a communication device. The model was instrumental in fostering mutual understanding and facilitating discussions about desired future relationships as well as collaborative projects. For example, in Odense municipality, the model was used by their digitization forum, consisting of various line managers and an IT manager from each of the municipality’s two IT departments (one focusing on operations and the other on development), to discuss strategic digitization efforts and coordinate cross-disciplinary projects. In that forum, many of the line managers’ ideas were tested, and the IT managers were encouraged to come up with ideas for linking technologies to e- and t-government visions of the municipalities. In Viborg municipality, using the model accentuated the need to renegotiate the relationship between the IT department and the various line managers. Subsequently, it was decided to assign an IT contact person to each department. In turn, these contact persons became business agents who were empowered to collaborate with the departments at the strategic level.

In terms of research implications, our relationship model presents interesting prospects for future research. As previously mentioned, e-government is seen as the key to improving efficiency, encouraging participation by citizens, and improving governance (Weerakkody and Dhillon 2008, Schware and Deane 2003, Lee et al. 2005). As a consequence, the various stages of e-government development and the barriers to t-government, in particular, have attracted the attention of practitioners and researchers alike (Siau and Long 2005, Moon 2002, Lee 2010, Layne and Lee 2001, Klievink and Janssen 2009, Janssen and Veenstra 2005, Andersen and Henriksen 2006, Sarikas and Weerakkody 2007, Dhillon et al. 2008, van Veenstra et al. 2011). Despite our knowledge of various impediments, we still know very little about what it takes to reach the transformational stage of e-government. Previous research has, however, shown that collaboration between IT and management is crucial to success in IT projects as well as IT-based innovation (Bashein and Markus 1997, Boynton et al. 1994, Bassellier et al. 2003), and our case study contributes to that line of research by exploring the relationship between IT and middle management in four municipalities engaged in digitization efforts. More research is nonetheless needed on how the relationships affect both e- and t-government implementation. Preliminary results suggest that the entrepreneurship and companionship relations are needed when confronted by the challenges of transforming government services (i.e., jumping to the transformational stage of e-government). We might even speculate that as we move from stage one to stage three the level of involvement tends to increase (from arm’s length to embedded relationships), while the jump to stages four and five requires a change in the envisioned role of IT (from management versus leadership focused relationships). Meanwhile, future research is needed to test this proposition. Looking at our four cases, the empirical data lends credence to this claim. In Viborg municipality, information technology has been utilized to restructure and decentralize parts of the organization, moving public employees closer to their clients, and to improve employees’ skills through e-learning. Moreover, within the health and nursing sector, welfare technology has been incorporated into the strategy of enabling the elderly to remain in their own homes for as long as possible. In both instances, the line manager has challenged her IT counterpart to collaborate more closely with her in transforming existing government services through novel use of IT. The relationships between the IT and line managers is, therefore, categorized as entrepreneurship. In Odense municipality, developments within the social services department saw the relationship between the responsible line manager and the IT manager evolve from craftsmanship, over entrepreneurship, to companionship. In the beginning, the relationship centred on systems maintenance and support, but due to the growing use of IT he was selected to spearhead a newly established business development unit with the goal of rethinking the organization and strengthening the collaboration between IT and line management within the municipality.

# Notes

1. The word “jump” signals an order-of-magnitude change. Rather than supporting, automating, and digitizing existing processes (stages 1-3), the transformation stage changes the way government agencies provide their services (Siau and Long 2005).
2. Key informant reviews is the practice of presenting interviewees and other research subjects with the analysis in order for them to determine the validity of the interpretations (Mason 2002).
3. According to Statistics Denmark: http://www.statistikbanken.dk/FOLK1.

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Adaptive Leadership in Digital Transformation:
The Role of the Facilitator

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**Abstract.** Leaders’ ability to quickly adapt IT practices is especially critical in today’s increasingly turbulent environment with frequent changes in the competitive and technological landscape. However, developing such adaptive leadership is a difficult and complex process. Often, underlying assumptions within the organization result in business leaders being inattentive to digital transformation issues and in IS leaders playing sub-optimal roles within the organization. Since IS and business leaders are often unaware of these assumptions, they may find it difficult – or even controversial – to discuss them. Hence, as unbiased third-parties, facilitators can be of tremendous value to help leaders think outside the box, reflect, and change the assumptions that shape current IT practices. Drawing on the Participatory Process Model (PPM) and its application within two organizations (Hansen et al. 2011), this chapter discusses the important role of a facilitator in helping IS and business leaders uncover their underlying assumptions to quickly respond to challenges in digital transformation.

# Introduction

In today’s increasingly digital world, IT is fused into products and services as an essential fabric of business (El Sawy 2003). This IT fusion has dramatically expanded the innovation potential of organizations, for example by adopting dominant IT platforms and letting others use these to provide complementary products and services, or, by increasing the organization’s digital connectivity to facilitate internal and external collaboration. At the same time, frequent changes in the competitive and technological landscape puts considerable pressures on leaders’ ability to readily learn, creatively think, and rapidly adapt to new demands and opportunities (Uhl-Bien and Marion 2009, Tanriverdi et al. 2010). To succeed, Slater and Narver (1995) argue that adaptive leadership is required. Providing such leadership requires that leaders constantly envision issues within their organization that require new learning, innovation, or new patterns of behaviour (Uhl-Bein and Marion 2009).

However, providing adaptive leadership is often a difficult and complex exercise. To succeed, it is essential to uncover, understand, and reflect on the assumptions that shape the organization’s current practices. As insiders, IS and business leaders are often unaware of their assumptions and find it difficult – or even controversial – to discuss them (Kaarst-Brown 2005). Such assumptions emerge over time because of the organization’s history, and they influence all aspects of IS leadership. Thus, despite achieving high status and a seat at the top management table, IS leaders often experience lower status than their business peers, they play sub-optimal roles within the organization, and their ability to provide effective leadership is compromised (Kaarst-Brown 2005). Moreover, because many business leaders are inattentive to digitization issues, IS leaders may not be invited to high-level business meetings (Huff et al. 2006).

Facilitation between top leaders can be of tremendous value to uncover the assumptions underlying IT practices and stimulate rapid adaptation in digital transformation. As unbiased third-parties free from the organization’s existing relationships and collaboration patterns, facilitators’ perspectives and ideas are more likely to be seen as non-controversial as IS and business leaders consider options for change (Weinberg 1985, Paton 2008). As a result, facilitators can help top leaders go beyond existing practices and quickly adapt their approaches to digital transformation in response to new demands and opportunities.

In this chapter, we draw on the Participatory Process Model (PPM) developed by Hansen et al. (2011) and its application within two organizations, to discuss the role of a facilitator in helping IS and business leaders strategize in response to challenges in digital transformation. In the next section, we describe the PPM. We then offer a detailed account of how we used the PPM to facilitate discussions between IS and business leaders in two organizations. Drawing on the literature, we conclude with a discussion of the role of the facilitator in strategizing between IS and business leaders.

# The Participatory Process Model

 The Participatory Process Model (PPM) presented by Hansen et al. (2011) comprises four steps – initiate, analyze, debate and act – that a facilitator uses to guide the interactions between IS and business leaders (see table 1). Throughout the four steps, participants debate three dimensions to uncover the differing IS and business leader views and their underlying assumptions about the IS function:

1. Value of IT
2. Strategic orientation of IT
3. IS leadership roles

Table 2 summarizes these dimensions and the categories that were used to provide a common terminology for the leaders to discuss and reflect on assumptions about IS leadership.

## Four step of facilitation

To make facilitation manageable, the PPM proceeds in four distinct steps.

### Step 1: Initiate

The purpose of the first step is to make the participants aware of existing views and wished-for changes in relation to the three dimensions of strategic thinking about digital transformation (see table 2) The facilitator interviews the IS leader individually and the business leaders as a group. Because the business leaders will likely have different views and interests, interviewing them together gives individual leaders insight into these differences and offers an initial opportunity to negotiate shared positions. Responding to each others’ ideas and comments, they can influence each other’s view points (Nahar et al. 2006) and find common ground for the next steps. Eventually, some level of shared perception between the IS and business leaders is required to adapt the organization’s approach to digital transformation. During the interviews, the facilitator presents the three dimensions and explains the categories in detail. Participants then explain their beliefs and interests in relation to each dimension and category in table 2, stating how they perceive the present situation as well as what they want to see changed. During this step, the facilitator constantly asks probing questions and suggests new ideas and alternatives to allow the participants to share their views and to explore new possibilities. Throughout, the facilitator carefully records the participants’ espoused beliefs and desired changes.

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| Steps and Purpose | Process | Questions |
| Step 1: InitiateIdentify views and interests | Facilitator arranges individual interviews with IS leader and group interview with business leaders.IS and business leaders present their views and interests. | What are the current views and interests? What are the desired changes?  |
| Step 2: AnalyzeAnalyze agreements and disagreements | Facilitator presents interview findings, highlighting agreements and disagreements.IS and business leaders analyze agreements and disagreements. | What are the agreements, disagreements and possible changes? |
| Step 3: Debate Debate consequences | IS and business leaders evaluate new insights based on data collection.Facilitator offers ideas and alternatives.IS and business leaders evaluate consequences of alternatives. | What are the consequences of possible changes in relationships and collaboration patterns? |
| Step 4: ActReposition strategy | IS and business leaders decide on strategy initiatives.Strategy initiatives are implemented, reassessed and changed as needed. | What actions are planned? What changes will be made? |

Table 6. The Participatory Process Model (Hansen et al. 2011)

### Step 2: Analyze

The purpose of the second step is to solicit and acknowledge participants’ views and interests in a joint IS and business leaders face-to-face meeting, so that all parties can explore and appreciate each other’s views. The participants are encouraged by the facilitator to identify both agreements and disagreements. Agreements can be used to make adjustments to existing approaches, while disagreements can fuel innovative thinking and be a source of energy for jointly exploring alternatives. The facilitator initially presentsthe findings from the interviews, and explains that disagreements should not be viewed as problems, but instead as a source of energy for jointly exploringalternatives. The facilitator acts as an integrating force by helping IS and business leaders make sense of the findings and helps IS and business leaders jointly analyze them. Moreover, the facilitator encourage the participants to correct misunderstandings, provide further explanations of individual views add more detail as necessary and ultimately identify what they consider the key points of agreement and disagreement.

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| Dimension | Categories | Characteristics |
| Value of IT | IT as a liability | Leaders are generally dissatisfied with IT performance, have difficulty translating stories of strategic use of IT to their own business domains and push IT planning and management into the background. |
| IT as an asset | Leaders believe the IS function is making important contributions, view stories of strategic use of IT as interesting and instructive, and believe IT enables business transformation through a few, highly prioritized initiatives. |
| Strategic orientation of IT | Support | Organizations are less dependent on IT; technology fundamentally supports employee’s activities and the main emphasis is on maintenance of existing systems. |
| Factory | Organizations are more dependent on IT, but unambitious about strategic options; they suffer immediate losses if systems fail, but are typically followers when it comes to adapting new technologies.  |
| Turnaround | Organizations expect IT will change their businesses; they have low need for reliability of existing systems, but new technologies promise major process and service improvements, cost reductions and new and stronger strategic positioning. |
| Strategic | Organizations require dependable systems as well as effective translation of emerging technologies; they constantly engage in strategic IT initiatives, and new technologies shape the way these organizations carry out daily operations. |
| IS leadership roles | IT mechanic | The IS leader rarely contributes to organizational performance and has low strategic effectiveness and limited decision-making authority. |
| IT laggard | The IS leader makes modest contribution to organizational performance, has relatively high level of decision-making authority but lacks the personal skills to capitalize on strategic authority.  |
| IT advisor | The IS leader has the ability to effectively advise the top management team on key IT issues, has highly developed leadership skills and considerable strategic knowledge, but has limited decision-making authority.  |
| IT orchestrator | The IS leader is an effective strategizer with a high level of freedom in strategic decision making and considerable strategic business knowledge and interpersonal skills. |

Table 2. Three dimensions on digital transformation (Hansen et al. 2011)

### Step 3: Debate

The purpose of the third step is to jointly evaluate and debate the consequences of specific options for repositioning the IT strategy. During the debate, the facilitator offers different perspectives, objective viewpoints, and pros and cons to consider based on personal experience and domain knowledge. The participants possess unique knowledge about the organization’s practices and how best to effect change in response to environmental shifts and organizational goals. The facilitator should therefore not offer specific diagnostic and prescriptive answers, but instead constantly encourage participants to reflect on and evaluate alternative options.

### Step 4: Intervene

In the final step, the participants decide on specific actions to adapt the organization’s approaches to digital transformation. The facilitator steps back to let participants manage this part of the process themselves. Possible options and their consequences are considered. They decide on which specific short-term and long-term strategy initiatives to implement and on the actions required for each. Even though only some initiatives are pursued, the experience and learning developed during the PPM process is recorded to inform future negotiations. In making decisions, the participants should pay particular attention to how best to respond to environmental changes in market demands, technology options, and government regulations.

# Two Cases

 In this section, we draw on Hansen et al. (2011) to describe how the PPM was used by the facilitator to guide discussions between top leaders within two Danish municipalities. The facilitation helped the involved leaders quickly adapt existing approaches in digital transformation in response to recent changes in demands and opportunities for IT innovation.

## Viborg Municipality

Viborg Municipality serves more than 93,000 citizens and has 7,100 employees. It has an annual budget of more than $870 million. In 2007, Viborg merged with five other municipalities as part of national public-sector reorganizations. During the merger process, the IS leader’s focus was on supporting operational capabilities and systems integration. When the PPM process was applied in 2010, the municipality faced new government directives that required it to explore new strategic objectives for delivering citizen services, including working out how to transform many of these into digital services. As a result, the municipality’s top leaders found they needed to critically rethink and adapt existing approaches to digitization. The PPM-based facilitation began in January 2010 and unfolded over a month. It included initial interviews by the facilitator (one of the authors) (step 1), a joint IS and business leaders face-to-face workshop (step 2 and 3), a decision session (step 4) and a follow-up interview with the IS leader. Table 3 summarizes the transformation of views of the IS and business leaders in Viborg Municipality resulting from the PPM facilitation and the dimensions and categories in table 2.

### IS leader’s views

In 2007, the IS leader had been successful in an IT advisor role – advising the business leaders on key issues and decision options related to the post-merger IT integration of six formerly independent municipalities. However, once the integration was successfully completed in late spring 2007, the IS leader slipped back into a more reactive role, responding to requests for input from the business leaders rather than proactively shaping the emerging IT agenda within the new municipality structure. When presented with his leadership roles shown in figure 2, the IS leader explained: “In recent years, I have just been waiting for the business leaders to tell me what to do, rather than taking proactive leadership. I have been an IT laggard without being aware of it.” Reflecting on this during the interview, the IS leader recognized he needed to adopt a more active role as IT orchestrator in response to the new government directives.

### Business leaders’ views

Some business leaders had traditionally viewed IT as IT as a liability, and some had viewed it as IT as an asset. Moreover, since there had been rather frequent changes in business leaders, the group interview was really the first time they had the opportunity to step back and explicitly look at approaches to digital transformation across business units.

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| IS leader views | Business leaders viewed IT as a liability. IS leader’s profile had changed from IT advisor to IT laggard only responding to requests for input from the business leaders and not proactively shaping the emerging IS agenda. |
| Business leader views | IS/IT was as a potential asset that could enable business transformation and contribute to the organization’s continued success.New collaboration practices with the IS leader were required to benefit more directly from his knowledge and leadership, and to move the orientation of IS into a Strategic orientation.  |
| Resulting shared views | IT was an asset within the organization.The most appropriate IS leadership role was that of an IT orchestrator.As result, the IS leader must be included in meetings when key strategic IS issues were discussed, IT governance structures needed to change, and new IS employees with both IS expertise and business process skills should be hired. |

Table 3. Transforming views in Viborg Municipality
(adapted from Hansen et al. 2011)

The business leaders were surprised to find that they had similar perceptions about the need for change given the recent government mandate. They also came to realize that – given the positive outcome of post-merger IT integration and the new challenges related to implementing the new IT directives – IT was a potential asset that could enable business transformation and contribute to the organization’s continued success. One business leader commented: “Now we’re able to collectively provide the IS leader a direction for the future. In previous years, this has sometimes been difficult because we did not share the same views.” The business leaders also recognized they needed to develop new collaboration practices with the IS leader so they could benefit more directly from his knowledge and leadership, and thus change the strategic orientation of IT from support to strategic. Without that shift, the organization would be unable to leverage IT into new practices across all business units.

### Resulting shared views

During the face-to-face workshop with all participants, they discovered discrepancies in their perceptions of the value of IT. The IS leader believed that the business leaders would view IT as a liability, pushing IT planning and management into the background and thus presenting considerable obstacles for him in implementing the new government directives. However, all the business leaders had come to see IT as an asset that would enable the necessary business transformations. As a result, the participants came to a joint understanding that the most appropriate IS leadership role would be that of an IT orchestrator. As one business leader explained to the IS leader: “In the future, it is of fundamental importance that our business practices and services are improved by IT. The only way we are able to do so is by changing your role into that of an orchestrator.” The business leaders also realized they had unwittingly reinforced a more passive IS leadership role following the successful post-merger integration of IT. In the future, they needed to more clearly explain the types of initiatives, input and collaboration patterns they expected from the IS leader.

During the last part of the joint face-to-face workshop, the focus was on debating which actions to take to change the IS leadership role into that of an IT orchestrator and on evaluating the consequences of implementing such actions. As the IS leader explained: “I find it really difficult to understand the different business leaders’ priorities and strategic planning. I cannot provide them with sufficient advice nor with new ideas for IT.” The IS and business leaders therefore debated ways to increase the IS leader’s strategic business knowledge about the newly consolidated municipality and its challenges. The facilitator suggested involving the IS leader in business unit meetings when strategic IT issues were discussed as a way to transform the IS leadership role into an IT orchestrator. The participants agreed this approach would increase the IS leader’s strategic business knowledge and foster a stronger partnership between him and the business leaders. In the past, the IS leader had met once a month with some units’ business leaders and successfully discussed how to leverage emerging technologies in the municipality’s service offerings to citizens. But he only met with the business leaders of other units once a year to discuss the need for new technology, mostly centred on hardware and infrastructure issues. In addition, the business leaders formalized the relationship by designating the IS leader responsible for IT strategy and IT applications for all business units.

### Outcome of PPM-based facilitation at Viborg Municipality

In the follow-up interview six months after the workshop, the participants reported that additional steps had been taken to improve the level of understanding among IS employees of how the business units conducted their operations. IS employees now had better knowledge of how services were delivered to citizens, and new employees with expertise in digital transformation of business processes were being hired.

The Viborg Municipality case illustrates how the engagement of the IS and business leaders in a facilitated participatory process led to rapid decisions about how to better adapt this organization to digital transformation. As a result, the municipality experienced a clear shift in the IS function: the IS leader became recognized as a strategic partner with considerable strategic knowledge and interpersonal skills able to support the business leaders. He had been given increased responsibilities for IT strategy decisions in support of each business unit, and was investing in hiring new employees with the necessary skills to digitally transform the municipality’s processes and service offerings.

## Hedensted Municipality

Hedensted Municipality serves more than 46,000 citizens and has 4,200 employees. It has an annual budget exceeding $450 million. Several years ago, the municipality had constantly engaged in strategic IT initiatives, aimed at shaping its services to fit citizens’ needs. However, once the municipality had achieved significant results, and was appointed in 2000 to “The Digital Municipalities Best Practices Association,” the IS and business leaders unwittingly shifted the focus from proactively using IT to transform municipal services to simply adopting the technologies that other municipalities were already using. By March 2010, the IS and business leaders had come to realize that the municipality had lost ground to other Danish municipalities, and had shifted the strategic orientation of IT to factory defined in table 2. To regain its position as a digital frontrunner, the leaders decided the municipality had to move back to strategic. The PPM-based facilitation that initiated this change began in April 2010 and took place over six weeks, with initial interviews (step 1), a joint IS and business leaders face-to-face workshop (step 2 and 3), a decision session (step 4) and a follow-up interview with the IS leader. Table 4 summarizes the initial views of the IS and business leaders as well as the shared views resulting from the PPM facilitation and the dimensions and categories in table 2.

### IS leader’s views

The IS leader recognized the municipality had to change the orientation from factory to strategic if it was to once again become a digital frontrunner. Reflecting on her leadership role, she concluded that unless she better leveraged her leadership skills, considerable strategic knowledge and the ability to effectively advise business leaders on key IT issues – in an IT advisor role – the municipality would unlikely improve service delivery to its citizens through digitization. She also realized that moving to such a role would be challenging: some business leaders viewed IT as IT as an asset and used their high level of IT strategic knowledge to push IT issues to the forefront. Others perceived it as IT as a liability and pushed IT issues into the background. In the words of the IS leader: “The business leaders perceive IT very differently. Those who think IT can create value are more likely to collaborate with me than those who consider it a mere cost.”

### Business leaders’ views

Although all the business leaders recognized the IS leader had not been given the authority to make strategic IT decisions, their views of her role differed. One argued: “I’ll characterize her as an IT advisor because she’s really good at advising me on how our services can be improved through the use of IT.” Others viewed her business knowledge as lower, and her focus to be on operational support and systems integration. One business leader explained: “She focuses on supporting rather than transforming our services. She does not seem to have strategic knowledge about business practices in my unit. Instead, I would characterize her as an IT mechanic.” As the business leaders shared their views during the group interview prior to joint discussions with the IS leader, they came to realize the IS leadership role had not been the same across the business units due to their different strategic IT orientations. In some units, the IT orientation was factory, while in others, it had a strategic.

### Resulting shared views

During the joint workshop with IS and business leaders, both similarities and discrepancies in views were explored. All participants believed that IT had to have a Strategic orientation within the organization, and that the IS leadership role needed to change into that of an IT advisor if the municipality were to regain its position as a digital frontrunner. They also agreed that this was a prerequisite for effectively leveraging IT in the municipality’s services to citizens. However, during the joint session they also provided different explanations as to why IS leadership differed across the business units. Some business leaders believed the differences reflected the IS leader’s level of strategic knowledge about each business domain – and the IS leader realized these business leaders were right: “I think you’ve got a point. I know a lot about the strategic directions of some business units, but I lack this knowledge about others.” Other business leaders suggested the IS leader’s lack of business knowledge was only part of the explanation; she might also believe that some business leaders saw IT as a liability and therefore were not interested in collaborating with her to digitally transform their units. As a result, the IS and business leaders concluded they needed to better study and learn from the units that had successfully engaged in digital transformations. Additionally, they needed coordinate IT initiatives better across organizational boundaries.

During the last part of the joint face-to-face meeting, the participants debated which actions to take. One proposal was to create an innovation board comprising the IS and business leaders as a formal structure in which to discuss issues on a regular basis. Several business leaders argued that such a board could provide an opportunity to explicitly consider approaches to digital transformation across business units and facilitate knowledge sharing, exploration of new alternatives and learning. One business leader explained: “Today, IS leadership is quite fragmented, and we have no idea of the IT initiatives taken across business units. By establishing an innovation board, we are not only able to coordinate all the initiatives, we may also share ideas.” But another business leader argued: “A disadvantage [of an innovation board] might be that some issues are only relevant to some of us. For example, IT issues related to technical and environmental services have little to do with IT issues related to social services such as day care and elderly care.”

An alternative proposal was to hire a dedicated IT coordinator to better manage IT initiatives. One business leader argued: “Instead of involving all business leaders in issues that might be irrelevant to some of us, this person could proactively contact the relevant members. Doing this, we may overcome some of the disadvantages of establishing an innovation board.”

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| IS leader views | * IS needed to change from Factory to a Strategic orientation.
* Some business leaders viewed IT as an asset, while others viewed IT as a liability.
 |
| Business leader views | * IT was an asset for the organization.
* IS leader played different roles across business units.
* IS played a Strategic role in some business units and a Factory role in others.
 |
| Resulting shared views | * The IS leadership profile and the orientation of IT must change into an IT Advisor and Strategic role, respectively.
* IT initiatives must be coordinated across business units.
* The organization must learn from business units that had successfully engaged in digital transformations.
* A dedicated IS coordinator must be hired to facilitate learning across organizational boundaries by sharing success stories.
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Table 4. Transforming views in Hedensted Municipality (adapted from
Hansen et al. 2011)

However, the discussions also revealed concerns that the activities of the IS leader and the IT coordinator would overlap. Finally, the IS leader proposed an internal marketing campaign to facilitate learning across organizational boundaries. Such a campaign would share success stories about how IT transformed practices and services in some business units with the intent of inspiring other units to explore similar new ideas. After discussing these proposals, the participants decided to create an IT coordinator position to coordinate IS initiatives, knowledge sharing, and learning across organizational boundaries. Their decision not to form an innovation board was based on past experience: several years earlier, the municipality had formed such a board and business leaders often had to endure discussions of IT initiatives that were unrelated to their business domains. The participants also decided to postpone the marketing campaign until the IT coordinator had achieved significant results.

### Outcome of PPM-based facilitation at Hedensted Municipality

In the follow-up interview, the IS leader explained that the newly appointed IT coordinator often faced challenges because business leaders in individual business units lacked incentives to collaborate with the IS organization. As a result, it was decided to launch a campaign to market success stories of how various units had transformed their practices through IT. The hope was that such stories might convince other unit leaders that they could also derive more value from IT by collaborating with the new IT coordinator.

The Hedensted Municipality case illustrates how engaging IS and business leaders in a facilitated participatory process rapidly transformed the organization’s approach to IT and digital transformation. During the PPM process, the participants realized their efforts were stagnating in part because of diverse IS leadership practices across business units. This approach no longer worked in an environment with high levels of IT complexity and uncertainty. Instead, the IS and business leaders needed to coordinate initiatives and share ideas across the entire organization. To achieve this, they developed a new integrated approach to digital transformation.

# Discussion

Leaders must solve problems creatively and adapt quickly in today’s increasingly highly dynamic environments characterized by frequent changes in the business environment (Heifetz and Laurie 1997). Such adaptive leaders constantly envision issues within their organization that require new learning, innovation, or new patterns of behaviour to address emerging challenges (Uhl-Bein and Marion 2009). As the two cases demonstrate, facilitation based on the PPM helped the involved leaders provide such adaptive leadership to stimulate rapid digital transformation. At the same time, the cases show that it is relatively inexpensive to implement such facilitation. The process typically unfolds over a one-month period, with a total of one day of engagement for each participant and 1–2 weeks of effort for the facilitator. Yet, even with such limited investment of resources in the two cases, facilitation actually helped IS and business leaders provide adaptive leadership and overcome the challenge of mobilizing their organization to transform its existing practices in response to changing environments.

Although one of the authors, an academic researcher, acted as the facilitator in both of the two cases, there are other options such as mentors from other organizations; trained internal process facilitators working in an organization development or HR role; or external consultants. One fundamental premise is that the facilitator is an unbiased third-party. As mentioned above, such a person can provide different perspectives, objective viewpoints, and new insights into the consequences of changing established relationships and collaboration patterns. As a result, they can help stimulate reflection on current practices and bring new ideas and alternative perspectives to the table (Schein 1987, Weinberg 1985). Another premise is that the facilitator does not play a dominant role and provide expert answers. Rather, the facilitator helps the participants understand the current situation and arrive at possible actions that best fit the specific organization. In both cases, the facilitator acknowledged that the participants possessed unique knowledge about the organization’s practices and how to best affect change in response to environmental shifts and organizational goals. As a result, she let the participants jointly define goals and actions to arrive at their own conclusions on how to improve the situation. Moreover, the facilitator did not offer specific diagnostic and prescriptive answers, but instead constantly engaged the IS and business leaders in joint exploration of new options by asking probing questions and suggesting new ideas and alternatives. As suggested by Schein, this premise has to be emphasised strongly to avoid falling into the trap of believing *“*I’ll take care of it for you”, rather than communicating the message: “It’s your problem, but I’ll help you work on it and help you to solve it” (Schein 1987).

In fact, in the two cases the facilitator constantly encouraged the participants to consider the status quo and its underlying assumptions and stimulated reflection by offering new ideas and alternative perspectives and asking the participants to identify which dimensions on digital transformation to improve and how to most effectively intervene. This open and engaging approach allowed participants to leverage their unique knowledge about the organization and its environment. Moreover, by passing on the generic skills needed to identify issues, develop desired scenarios, and launch effective interventions, the facilitator helped IS and business leaders understand the situation and develop their ability to be providing adaptive leadership (Schein 1987). As emphasised by Schein, this ability to continuously adapt current practices is important since “The nature of life in organizations is such that there is no correct solution to problems that will last forever. Conditions will change, requiring new diagnoses and solutions” (Schein 1987). As a result, the use of facilitation “to pass on problem-solving skills then becomes one of its most important developmental aspects, guaranteeing future problem-solving capacity” (Schein 1987).

In conclusion, the experiences from the two cases offer relevant lessons for using facilitation in other organizations. Table 5 summarizes these lessons as presented in (Hansen et al. 2011).

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| **Lesson 1: Engage IS and business leaders**By actively reflecting on current practices and debating possible actions, participants in the PPM process will more likely understand the need for change and recognize incentives for taking action. |
| **Lesson 2: Address perceived digitization challenges** Both IS and business leaders must address digitization challenges as a catalyst for rethinking their relationships and collaboration patterns. |
| **Lesson 3: Jointly explore digitization options**The participants must jointly explore and test digitization options through an incremental implementation process. This approach helps them quickly learn which options would work and what their effects would be. |
| **Lesson 4: Leverage divergent views on digital transformation**Often, disagreement and conflicts in organizations are seen as expressions of resistance to change. However, if properly handled, disagreements can also fuel inno­vation and learning. |
| **Lesson 5: Ensure participants take ownership**Ultimately, it is the participants in the PPM process who know what is possible and what will work. To support effective implementation of actions, participants must therefore take ownership of the process and results. |

Table 5. Lessons for facilitation of adaptive leadership (Hansen et al. 2011)

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