

2009

Using grounded theory for studying business process management phenomena

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Recommended Citation

Frisk, Elisabeth and Ljungberg, Jan, "Using grounded theory for studying business process management phenomena" (2009). *ECIS 2009 Proceedings*. 137.

<http://aisel.aisnet.org/ecis2009/137>

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THE (MISSING?) VALUE OF IT IN PUBLIC ORGANIZATIONS - THE CASE OF THE SWEDISH FIRE RESCUE SERVICES

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Abstract

To actually gain organizational value from investments in Information technology (IT) is a widely known problem that many businesses today struggle with. This paper presents an interpretative case study of three public fire rescue service organizations in Sweden. The aim of the study is to investigate what problematic issues that could be raised in achieving organizational value of IT in public organizations. The study indicates that the absence of strategies and IT evaluation methods create fragmented, uncoordinated IT-investment activities, which in turn creates a frustration at all levels of the organization. The public sector invests heavy in IT, seemingly with poor management control. The consequences will be misuse of resources and unnecessary high IT costs. We argue that the use of formal evaluation methods would help the situation, but that economic methods are not enough as the sole solution. A combination of the economic and the Interpretative IT Evaluation approach seems more promising in order to capture both efficiency and effectiveness aspects.

Keywords: IT investments, IT value, IT management, Public sector, Evaluation.

1 INTRODUCTION

That IT investments not always deliver value or meet business and organizational goals is still a problem that concerns many businesses. An enquiry in Sweden 2006, answered by 307 IT managers within private and public sector concluded that 82% of all IT projects fail in delivering expected value, in 2005 the result was 72% (IT management, 2006). Furthermore, it is often not clear what the expected value is. This problem of achieving value of IT has in prior research been framed as the productivity paradox, originating from studies during the 1980s that found no connection between IT investments and the productivity (Solow, 1987; Brynjolfsson, 1993). Lately, the productivity paradox has been questioned, since there is also evidence that IT in fact provides positive impact on productivity (Dedrick et al. 2003). It has been argued that much of the uncertainty concerning the IT pay-off relates to weaknesses in measurement and evaluation in practice (Willcocks and Lester, 1996).

In this paper we report on an interpretative case study of the Swedish Fire Rescue Services where problematic issues are identified concerning organizational value of IT-investments among different stakeholder groups. We discuss what implications these findings will have on the concept of IT-value at firm level and on the evaluation of organizational value of IT. Thus, two questions are raised:

- What issues and problems are raised concerning organizational value of IT investments?
- What implications will these issues have on the organizational value of IT and how to assess it?

This study focuses on non-profit organizations in the public sector, from a management perspective, and a single IT investment. The research is conducted as an interpretative case study based on interviews in three Fire Rescue Service organizations. An IT investment is here defined as “any acquisition of hardware and software which is expected to expand or increase the business benefits of an organization IS and renders long-term benefits” (Apostolopoulos & Pramataris 1997).

The paper starts with a discussion of the concept of value and how it can be assessed. Then the research approach is outlined, followed by findings from the interviews. The findings are then used to further discuss the raised questions and finally a conclusion is given.

2 THE ORGANIZATIONAL VALUE OF IT

Since the role of IT initially, during the 1960s, was primarily to increase efficiency it is not strange that early evaluation methods (Hamilton and Chervany, 1981a, 1981b) mainly focused on measurable quantitative economic effects. Avgerou (2000) noted that since the role of IT has changed, the potential value of IT has also changed. The early computerization projects that substituted computer data processing for manual data processing had more or less clear efficiency objectives and intending to cause significant organizational change. These projects were assessed by using a cost-benefit analysis, and the value was related to an economic perspective. In the 1990s the value of IT was linked to the perception of IT as an enabler of organizational transformation, and assessing value of IT by a benefit-cost analysis seemed too limited (Symons 1991). Therefore in prior research economic methods based on economic theory has been criticized and instead evaluation methods based on the interpretative IT evaluation approaches have been suggested (Walsham 1999, Symons 1992, Jones and Huges 2001, Stockdale and Standing, 2006; Ward and Daniels 2006) Thus, the value of IT has moved from purely efficiency to an effectiveness enabler. But in practice management seems most concern about methods from an economic perspective (Ward and Daniel 2007).

2.1 Organizational value of IT as increased efficiency and effectiveness

The task of Management is according to Lewis et al. (2007) to “*adminstrating and coordinating resources effectively and efficiently in an effort to achieve the goals of the organization*”. Both effectiveness and efficiency are relevant measures to consider since the role of the involved organizations is to deliver services (pre-determined goals) to citizens in an efficient way. *Efficiency*

could be described as using the fewest inputs (people, material and money) to generate a given output and effectiveness concerns the degree to which goals are achieved (Lewis et al. 2007). Further Fitzgerald (1998) describes efficiency as doing things right. *Productivity* is a related concept that also has been widely discussed. According to Lewis et al. (2007) productivity is a measure of the efficiency with which the firm transforms inputs into goods and services. *Effectiveness* is a concept that can be seen as complementary to efficiency. Common to the different explanations is that effectiveness is related to the fulfilment of goals (Lewis et al. 2007) and doing the right things (Fitzgerald, 1998). These goals can be related to formal goals that have been stated in strategy documents, plans etc. (Modell and Grönlund 2006). One problem with this definition is that many organizations can survive long periods despite the fact that formal goals are not achieved. Within public organizations one common way to define effectiveness is whether formal goals are fulfilled or not. For a commercial organization, effectiveness may be judged by profitability, but for a public organization it would rather be judged by the fulfilment of mission and goals. But efficiency and effectiveness are often related to an economic perspective where efficiency includes measures such as productivity and effectiveness includes measures such as profitability (Lewis et al., 2007). Several researchers claim that an economic perspective is too narrow since the organizational value of IT by its nature is pluralistic (Guba and Lincoln 1990; Bannister 2001), multidimensional (Cronk and Fitzgerald 1999) and including a plethora of social issues.

2.2 Organizational value of IT as multi-dimensional and pluralistic

Value has been described by Guba and Lincoln (1990) as pluralistic and involves the view of different stakeholder groups. Cronk and Fitzgerald (1999), describe “IS business value” as the sustainable value added to the business by IS, either collectively or by individual systems, considered from an organizational perspective, relative to the resources required. Incorporating different stakeholders’ views, takes the organizational value of IT a step further compared to the pure economic focus.

Bannister (2001) argues that *value* of IT is multi-dimensional in its nature, encompassing economic, psychological, cultural and political aspects of value. According to Bannister (2001) we could distinguish three different concepts related to IT *value*: *Values* (with capital “V”, i.e. core values), *value* and *benefit*. *Values* are norms or modes of behavior that individuals, groups or organizations hold are right. They are visible in different cultural manifestations, in attitudes and beliefs, and in behavior. *Value* is then 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*” (Bannister 2001, p. 3). A corporation whose primary *Value* is to keep costs down and work in an efficient way, would *value* an IT-system that reduces head count. An organization like a fire rescue service, whose *Value* is to save life and property, may also value an IT-system supporting the operational work of fire fighters, i.e. increased quality. Benefits can then be seen as an operationalization of the *values*. “*Value is what we perceive, benefit is what we receive*” (ibid.).

Given this brief discussion of *value*, it becomes evident that different stakeholder groups related to one organization will have different views on IT-value. Berghout and Remenyi (2005) note that the interpretative IT evaluation approach, considering different stakeholders views, has received the widest attention in the IT evaluation research field. However, in practice the economic approach is still the most popular (Ward and Daniel 2006; Frisk and Plantén 2004).

2.3 Organizational value of IT as economic and social

The economic approach takes an objectivist perspective, i.e. one presumes that there exists an objective reality, and that there is a subject-object dualism that implies that the observer can distance him from the phenomenon studied (Serafeimides, 2001; Guba and Lincoln, 1990). Thus, multiple interpretations of value, ambiguity, or other than economical dimensions cannot be addressed. Value in the economic approach can consider efficiency in terms of reduced cost but also effectiveness in

terms of profitability. This implies that both efficiency and effectiveness can be considered but only from an economic perspective. Also, these methods are summative i.e. they are not reiterative. In the research field IT evaluation the economic approach has received a lot of criticism. Serafeimidis (2001) argues that the economic stream suffers from a number of deficiencies such as limited consideration of organizational context and neglect of human aspects of evaluation. Jones and Huges (2001) are of the opinion that evaluation is a complex, multifaceted, difficult, continuous and social process. Further, economic evaluation methods have not kept pace with the shift in use of IS (Symons, 1991).

Since IT-evaluation is a social process, with multiple potentially conflicting views on the value of IT related to a specific context the interpretative IT evaluation approach has been put forward (Jones and Huges, 2001; Symons, 1991; Stockdale and Standing, 2006). The interpretative IT evaluation approach has been applied in varying shapes and forms: interpretive evaluation (Walsham, 1999), situated hermeneutic evaluation (Jones and Huges, 2001), CCP (concept, context and process) frameworks (Symons 1991; Stockdale and Standing, 2006), Benefit management (Ward and Daniel, 2006; Bennington and Baccarini 2004 Ashurst and Doherty 2003; Thorp 2001; Remenyi and Sherwood-Smith 1999) critical approach to evaluation (Klecun and Conford, 2005), to mention a few. In contrast to the economic approach, these IT evaluation approaches have been sparsely adopted by practitioners (Serafeimidis, 2001). The starting point of interpretative IT evaluation approaches is different stakeholders' perception of reality (Walsham, 1995; Guba and Lincoln, 1990; Symons, 1991; Stockdale and Standing, 2006) and considers IT evaluation as a social process (Jones and Hughes, 2001) and value as an output from different stakeholders' perceptions.

3 RESEARCH APPROACH

3.1 Organizational Setting: The Fire Rescue Services

On the national level the Swedish Rescue Services Agency (SRSA) is a government authority with expertise in different fields, including fire prevention. On the municipal level, the Fire Rescue Service is responsible for providing the population with services such as prevention, preparation, and response. The Fire Rescue Service is structured either as a Fire Rescue Service (FRS) or as a Fire Rescue Alliance (FRA). The main difference between FRS and FRA is that the former involves only one municipality. The relationship can be described as the FRS works in collaboration with the municipality it which the FRS acts. A FRA involves the collaboration of several municipalities but is structured and acts as its own municipal community. The economic pre-condition for FRA is given by the confederation (Förbundsdirktion) that is composed of politicians from the different municipalities that are part of the collaboration. The political goals are implemented in the responsible government agency (SRSA), and further by the municipal fire rescue services (FRS or FRA) in terms of:

1. The Legislated National Vision: "There must be fewer deaths, fewer injuries and less destroyed properties (10 years)
2. Political Priority, plan of action for the municipalities: Strategies for Prevention, to prepare, to carry out and to follow up (4 years)
3. Balance Scorecard, The Fire Rescue Services, Indicators within the four perspectives (year of plan)

The organizations involved in this case study differ in several aspects, see table 2. Also, organization C has outsourced the operation of IT to the municipality.

Organization	Type	Employees	Fire Stations
A, FRA	Alliance with five municipalities'	1000	9
B, FRS	Large city	650	9
C, FRS	Middle sized municipality	150	3

Table 1. Characteristics of the involved organizations

The main focus in this study was to interview the respondents with experience from IT investments used in the operative work. One example is Deadalos/IKAROS includes different modules such as: object register, resource handling and operative performance. Another system is RIB, a decision support system that includes information such as: how to deal with an accident, how the work of prevention can be planned, the risks when an accident has happened, and where the teams are located. Most of this kind of system can be related to decision support systems.

IT investments can be initiated in the budget process or spontaneously by employees or outside the organizations. Once a year a budget process takes place and then requests can come from different departments in the organization. The requests can be anything from a running band to a new IT system. Initiatives inside can also come spontaneously during the year from employees. Initiatives outside can be a new law or a system suggested from SRSA. The decision-making on IT investments is decentralized, and are often taken on the departmental level. But, if the costs exceed a specific amount, the decisions are taken by the officer of the FRS. Before such decision, the relevance of the IT investment is often discussed by the board. If the IT investment costs exceed regular budget restrictions, it becomes a political issue and the decision will be taken by the local government committee, appointed by the local municipality. Factors supporting the decisions are benefits, cost and techniques. Benefits are mostly argued from the requester's perspective and not from an organizational point of view. The cost calculation consists mainly of costs for IT hardware, since costs for personnel are already a cost for the FRS/FRA. So, using the organizations own resources are not part of the cost calculation for an IT investment. Also, costs for running the system are seldom reflected upon.

3.2 Method

This is an interpretative case study (Walsham 1995) where data collection was done by semi-structured interviews and a workshop. Three organizations within the Fire Rescue Services in Sweden are involved. The study is based on the respondents' perceptions and then the interpretation of the researcher (Klein and Myers, 1999). The study took place in 2005 and 2006, during a period of six months. It involved six to seven people in each organization. Eighteen persons from different organizations, levels and with different roles were interviewed in total (see table 2). In addition, one of the researchers participated over three days with a fire crew. During this time the researcher talked and interviewed the team members, approximately 20 persons. Managers at the top level and functional level selected the respondents attending the workshops. The managers had awareness of who had the experience from IT investments or assessing IT investments. The study involved at each organization six to seven managers from different levels. Examples of different roles attending the study are: At top level, Chief Manager, Vice Chief Manager and IT Manager; at functional level, Managers of department; at the operative level, Managers of the operative work force. Here means management someone who has an overall responsibility for the organization, the department, or for a team alternative the turnout.

	Organization A	Organization B	Organization C
Strategic responsible	Development-responsible IT-responsible	Chief officer IT-strategist	Responsible for operational work
Functional responsible	Department- responsible Projects-responsible	Department- responsible	Department- responsible IT-responsible
Operational responsible	Front-line responsible Co-workers Firemen	Front-line responsible Co-workers	Front-line responsible Co-workers

Table 2. Different roles of the respondents participating in the interviews.

Each interview lasted for approximately two hours. The questions concerned their perceptions of the value of IT investments, how evaluation of IT investments is managed, why value of IT investments is

not achieved and how IT evaluation of IT investments might be improved. The interviews were recorded, transcribed, and finally analyzed. The analysis was performed by first reflecting upon the respondents' answers and then clustering these into similar themes. First the responses within an organization were compared and then the findings were compared between the different organizations. After that the results were reported back to each organization in the form of text reports that was emailed to all respondents. A follow-up meeting was arranged where the results were discussed. The purpose with the report was to create understanding for if the findings were correctly interpreted. The respondents agreed on the results. No coding tool has been used. Walsham (2006) notes that using a coding tool can take too much attention itself so it is not always a necessary tool.

4 FINDINGS: CHALLENGES IN ACHIEVING VALUE FROM IT

From the interviews we did find a set of issues that tended to come up in various forms. We have here clustered them in five themes.

4.1 Diversification of IT value at different organizational levels

The perception of value of IT seems to differ between different organizational levels. On a strategic management level, IT is described as a cost rather than delivering value:

"...even if you try to rationalize with IT, some other costs pop up and you do not get the expected value".

On a tactical level, IT is described as a valuable tool that gives information for better analyses. On an operational level, some respondents have difficulties in seeing the value of IT and one opinion is:

"you can't fight fires with computers".

However, several respondents also emphasize the importance of seeing value of IT from an organizational point of view and also related to the citizens. Today the perceptions were that IT value too often is seen from an individual point of view.

4.2 Narrow perspective on the value of IT

If IT investments are assessed from mainly a cost and a technical perspective and not from an organizational perspective, the risk is that decisions on IT investments are based on poor facts. It was considered important to pay attention to how the IT investment will affect the organization. Further, a "citizen perspective" is considered to be important in order to avoid only the internal focus, since most of the initiatives seem to have a cost, technical and/or a "gadget" focus:

"It is important to assess IT-projects initially if the IT-investment should benefit the organization and not only some individuals."

"The internal discussion often concerns techniques, technical platforms and systems, but questions should be raised such as, what needs should be fulfilled, what do we want to achieve, and how should we proceed?"

"When we talk about IT we should talk about what we really would like to achieve in the public sector and not only technique."

4.3 Lack of co-ordination

4.3.1 Lack of co-ordination on national level

NRSA do not give imperative guidelines to the Swedish Fire Rescue Service on what kind of IT, or how IT should be used in order to achieve legislation, national visions, or organizational goals. Instead

each FRS/FRA is responsible for its own choice of IT solution. This has been criticized in the interviews since the perceptions are that each FRS/FRA has their own ad-hoc development workshop, and that this is both expensive and ineffective. Some collaboration exists but it could, according to the respondents, be room for more.

4.3.2 Lack of co-ordination on municipality level

Also decisions on departmental level are taken without any organizational co-ordination. This has contributed to an ad-hoc development of IT systems since the same problem or possibility can be solved by different technical solutions. One opinion is:

“Unfortunately we give priority to individual desires instead of the total picture. We can’t, for example, agree on one brand for digital cameras or digital calendars”.

Also, historically, the FRS/FRA’s are not so constrained by money. This has contributed to an ad-hoc development of IT since there are limited demands to show the benefits and costs of IT-investments. The respondents’ perceptions are that decisions on new IT investments are in favor of: “those who shout the loudest”. This brought about a culture that permits individuals to demand IT investments for their own interests, resulting in limited co-ordination and no alignment with the need of the organization.

4.4 Absence of strategy

Respondents from all organizations perceived that their organizations are lacking a visible strategy for the organization as well as for IT. According to the respondents this is one important cause for not achieving value from IT investments. Instead they suggested that organizational goals should direct the choice and decisions of new IT investments. One respondent stated that:

“We don’t know the plans for the coming two years, which means that the persons who are most anxious for new information systems or information technology get their requests approved.”

The respondents are of the opinion that the lack of organizational strategies as well as IT strategies, have contributed to an ad-hoc development of IT. This in turn has led to a very difficult situation for the IT-department, since they need to be experts on many different systems. Also, the costs for IT operations are increasing fast.

Several of the respondents claimed that IT should contribute more to the organizational development by considering IT as a strategic resource. Today IT’s main function is to rationalize, and no discussion of IT’s strategic role is taking place.

4.5 IT evaluation issues

4.5.1 No consideration of the total costs

Actual cost for an IT investment should be further clarified. Costs for hardware and software were calculated, but seldom the cost for operational work, staff, education etc. Several respondents had observed that within their organizations there was a tendency to buy new IT instead of upgrading the old. The opinion was that a proper calculation of actual costs would gain a better understanding of the costs of used resources and give a better ground for comparing the benefits between investing in new IT or upgrade existing IT.

4.5.2 No follow-up of the IT investments

Today, IT investments are rarely followed-up and the perceptions are that there exist no guidelines for what criteria to consider, how to perform and when to evaluate. Some practical examples from buying IT systems that were not so successful, was when one of the organizations bought a Geographic

Information System, and a system called “Managing Risk and Analyses”. None of the systems are in use. The perceptions were that, despite a lot of good ideas, there were no process in place to take care of them:

“We had a lot of good technical ideas and solutions, but what do we do with it”?

Using a formal evaluation process were called for by several respondents:

“... not for catching the bad guys just to be able to tie up, to do a reflection and to learn.”

Another argument is to be able to do better priorities between the different IT investments and also between different kinds of IT investments.

4.5.3 *Too few stakeholders in the evaluation process*

The respondents perceive that no guideline that makes explicit who should be involved when evaluating IT investments exists. It was considered important to include the opinion of the users and the IT department in the evaluation process. The IT department will secure that the IT investment will fit into the infrastructure and existing systems, and also to eliminate the risk of unnecessary high operational costs for IT. A relevant question for several respondents were:

“Could the new system communicate with other systems or is it a different system which is built upon a different platform”.

Also, the respondents advocated that different stakeholders’ view should be involved in the evaluation process. Stakeholders’ meaning those who will be affected by the system, but also the “citizen perspective” is mentioned as an important perspective to consider.

4.6 IT affect power relations

Several respondents considered IT to be “charged”, i.e., IT gives people power. This could contribute to the development of IT on wrong grounds, being motivated by individual power interests instead of the need of the organization. The decisions-makers should be aware of these aspects, and therefore take an organizational view when evaluating new IT-investments, and not only a cost or technical perspective.

5 DISCUSSION: THE MISSING VALUE OF IT

We will now discuss the findings in terms of four themes: efficiency and effectiveness; the pluralistic nature of IT-value; the evaluation of IT-value; and IT-value in public organizations.

5.1 IT value as increased efficiency and effectiveness

One relevant question to ask is whether value of IT investments in terms of efficiency can be evaluated without any connections to the effectiveness i.e. overall goals and strategy of the organization?

Effectiveness has in overall been described as fulfilment of goals, doing the right things (Fitzgerald 1998). According to the respondents, effectiveness was not considered when evaluating value of IT investments. A risk when evaluating value of IT from only an individual perspective and neglecting the overall goal and context of the IT system, (Symons 1991; Jones and Huges, 2001; Stockdale and Standing 2006), is that the IT development becomes ad-hoc, which is a fact at particular one of the involved organizations. This ad-hoc development and lack of visible organizational goals could in turn contribute to transmission of resources (Modell and Grönlund 2006) and outputs that have no connection to the overall organizational goal and strategy. In the long run that give less valuable outcome, effects to the taxpaying citizen.

Organizational value of IT should include both a dimension of efficiency and a dimension of effectiveness i.e. do things right and do the right things. Also, since an IT investment affect different levels differently within the organization, such as the top-level, the tactical level and the operational level, and one level can receive benefits while another department or level can receive disadvantages, it is important to make the value visible for all levels. Another important factor to take into consideration is that a public organization cannot always dismiss resources, just allocate resources. Therefore effectiveness and efficiency need to interplay in the IT evaluation process, none should be considered by their own since the public organization is foremost driven by pre-determined political goals that should be achieved, and not by the “bottom-line”. Further efficiency should include both a economic and a qualitative dimension.

When respondents spoke about the need for organization they meant that IT investments should be related to overall organizational goals and strategy. But since no strategy was in place for the organizations, several respondents argued that IT investments have too much individual and internal focus instead of the mission for the citizen. When no strategy is in place there is a risk that IT investments mostly will be used for changing the use of resources’ and outputs without any connection to the organizations overall goal. Then, how is efficiency/productivity to be measured if the outputs are not related to the outcomes? This is an important question and in particular since there is a great uncertainty what could be consider as proper targets and measures in public sector (Modell and Grönlund, 2006). If no strategy is in place there may be a risk that core values may come in the background for individuals’ interest.

5.2 IT-value as pluralistic

The respondents describe value of IT from their own perspective and role in the organization. One exception was IT management, who related value to the overall goals and strategies of the organization i.e. effectiveness. On top level, the respondents (not IT management) relate IT-value to reduced costs, i.e. efficiency. On tactical level several respondents relate value of IT to better analysis of the organization and to improve the decision-making i.e. quality. On operational level first-line managers have difficulties to relate how IT has improved their work. Instead they perceive IT as time consuming since today the IT systems require more input of information than previous and the respondents were uncertain to what extent that information contributed of value to the organization. For example, the respondents have to give the same input to accident reports, irrespective of the size of the accident. Also the firemen seem more interested in investing in better vehicles that could contribute to both a more efficient and qualitative work. Most of the respondents also mention the citizen as an important stakeholder that should be considered in the IT evaluation process. But stakeholders such as government, politicians, community, union, suppliers, and other collaborators etc, received less attention when it comes to the value of IT investments. In the case of public sector organizations the pluralism of IT-value becomes especially complex due to the many stakeholders outside the organization The value or effects of an IT investment needs also to be visible for all levels in the organization since value (output alt outcome) and input and output value is not always acting together at the same organizational level. Potential conflicts of interests are inherent in this pluralism both among different levels and groups in the organization, and between the organization and the stakeholders outside it, as well as between management and other stakeholders.

5.3 Implications for IT-evaluation

The identified problems such as strategic match, coordination of resources, proper calculation of costs, involving different stakeholder groups in the IT evaluation approach indicates that both the economic and the interpretative IT evaluation approaches complement each other since efficiency and effectiveness needs to be considered from an economic and stakeholders view. In prior research the economic approach has received a lot of criticism, e.g. for limited consideration of organizational context and neglect of the social and human aspects of evaluation (Serafeimidis, 2001, Jones and

Huges 2001; Stockdale and Standing 2006) However, the economic approach should not be abandoned rather it should be complemented. The economic methods are tools that provide valuable economic information such as costs and cash flow that is existential for many companies. The purpose is not to regard the organization as a social process it is to consider economic information. These methods can indicate future costs, cash flow, and must, continually be updated as other information. So, evaluating IT investments from an economic perspective will continue to be an important perspective in the IT evaluation process if it is used properly. The danger to such methods is that they can manipulate the cost items and the user can choose what items to add. Therefore, an Interpretative IT evaluation approach can complement such approach and create understanding from different stakeholder groups increased understanding for the organizational value of the IT investment.

In order to create understanding for organizational value, the use of resources must be related to the output and the outcome. The output compared to the use of resources can be described in a cost and benefit analysis. But the value must also relate to the outcome of the organization i.e. the goals, mission and strategy of the organization. This could be done by using an interpretative IT evaluation framework like CCP (Context, Concept, Process). CCP focuses on explaining: why (context) this IT investment should be done; according to the stakeholders what (content) should be followed up; the IT evaluation process (Serafeimidis, 2001; Jones and Huges, 2001; Guba and Lincoln, 1999; Remeny and Sherwood-Smith, 1999). The interpretative IT evaluation approach could therefore improve evaluating organizational value of IT investments in the public sector since the approach considers the context (which relates to strategy and co-ordination), content (involves different stakeholders view) and an IT evaluation process that follow up the IT investment in use (Symons 1991; Jones and Huges, 2001; Stockdale and Standing 2006).

5.4 IT-value in public organizations

The question of organizational value of IT-investments is in much a question of communication: how could one demonstrate and articulate the value for money from IT investments? If it is not communicated, it does not exist. With regard to public sector this often becomes a question of value for taxpayer money. In UK for example, a legislation of Best Value (BV) was introduced in year 2000. BV states that all public sector organizations (e.g. the police and fire services) must ensure that their IT-systems perform well and that they are delivered in a cost efficient way. Efficiency and economic aspects as value for taxpayer money is however not the only important question. Too much focus on economic issues will potentially downplay other important dimension such as the strategic value of IT. In the context of a public organization this may be related to outcome, not just output. In the case of the fire rescue services an example of outcome is "*fewer deaths, fewer injuries, and less destroyed properties*". Relating national and regional visions to organizational value of IT is not a straightforward process, but without this discussion, the value of IT will remain unclear.

The general discussion of IT-value in public sector tends to be mainly focused on efficiency (do things right), and we have argued for a stronger orientation towards effectiveness (do the right things). However, if the value achieved is low in any of these two dimensions, the total value will be low as well. In order to create value for the public organization both internal and external factors needs to correlate since the organizations are driven by political goals. Output must correlate to outcome, strategy with the operational level. In summary it is important that IT-value is related to both the core operations (outcome) and to the operative work (output/efficiency) on different levels such as the top management, tactical and operational.

6 CONCLUSIONS

This paper has addressed issues in the achievement of the expected organizational value of IT, and what implications this may have for the assessment of that value.

Two points are important regarding IT value. *First*, to take the concept seriously, to problematize and define what is meant by IT value. *Secondly*, the usefulness of an IT-investment to the organizations should be in the foreground, not the value of technical features of the system. Furthermore, organizational value of IT should include a consideration of both efficiency and effectiveness. This is especially important in the public sector since it is driven by political goals and not by the “bottom line”.

Regarding IT-evaluation, the main point is that both economic and interpretative approaches are needed. Evaluating IT investments from an economic perspective with monetary items will continue to be an important perspective. The problem here is that the economic approaches are general, and not developed for specific use in IT-investments. The calculation of cost in these methods must be further developed. The interpretative IT evaluation approach could contribute positively to the IT evaluation process in the public sector since it considers strategic issues, co-ordination, stakeholders' involvement and views evaluation as a formative process. Thus, it relates to several of the problematic issues identified in the study. Another issue that needs attention is how to take care of power and politics in the IT evaluation process.

The findings described above are particularly important for the public sector since no traditional income statement will validate the choice of used resources to the outcome. In a profit organization the income statement will sooner or later give indications if business is on the wrong track. Who will have this insight in a public organization? If a public organization does not co-ordinate its output to the outcome there could be a redistribution of resources to non-productive output, i.e. output not related to the expected outcome of the public organization. This could in turn be a serious waste of tax money on wrong output. Thus, achieving value is not only an evaluation problem it also demands management to address issues such as strategy, co-ordination, and cost control.

References

- Avgerou (2000). Information systems: what sort of science is it? *Omega*, 28, 567-579.
- Apostolopoulos, T.K. and Pramataris, K.C. (1997). Information Technology Investment Evaluation: Investments in Telecommunication Infrastructure. *International Journal of Information Management*, 17, (4), 287-296.
- Ashurst, C. and Doherty, N.F. (2003). Towards the Formulation of a ‘Best Practice’ Framework for Benefits Realisation in IT Projects. *Electronic Journal of Information Systems Evaluation*, 6, (2), 1-10.
- Bannister, F. (2001). “Citizen Centricity: A Model of IS Value in Public Administration”, *Electronic Journal of Information systems Evaluation*, 5, (2).
- Bennington, P. and Baccarini, D. (2004). Project benefits management in IT projects – An Australian perspective. *Project Management Journal*, June.
- Berghout, E. and Remenyi, D. (2005). The elven years of European Conference on IT Evaluation: Retrospectives and Perspectives for Possible Future Research. *Electronic Journal of Information System Evaluation.*, 8, (2), 81-98.
- Brynjolfsson, E. (1993). The productivity paradox of information technology. *Communication of the ACM*, 36, (12).
- Cronk, M.C. & Fitzgerald, E. (1999). Understanding “IS Business value”: derivation of dimensions. *Logistics Information Management*. 12, 40-49.
- Dedrick, J, Gurbaxani, V and Kraemer, KL (2003). Information Technology and Economic Performance: A Critical Review of the Empirical Evidence, *ACM Computing Surveys*, 35, (1).

- Fitzgerald, G. (1998). Evaluating information systems projects: A multidimensional approach. *Journal of Information Technology*, 13, 15-27.
- Frisk, E. and Plantén A. (2004). IT Investment Evaluation: A Survey of perception among Managers in Sweden. In *Proceedings of European Conference on Information Technology Evaluation*.
- Guba, S. E. and Lincoln S. Y. (1990). *Fourth generation Evaluation*, Sage Publications.
- Hamilton, S. and Chervany, N. (1981a). Evaluating information systems effectiveness – Part 1. *MIS Quarterly*, 5, (3), 55-69.
- Hamilton, S. and Chervany, N. (1981b). Evaluating information systems effectiveness Part 2. *MIS Quarterly*, 5, (4), 79-86.
- IT management (2007). Ny undersökning: Andelen misslyckade it-projekt ökar. *IT-chefen Tidningen för IT-chefer och IT-strateger*, 3, 16.
- Jones, S. and Huges, J. (2001). Understanding IS evaluation as a complex social process: a case study of a UK local authority. *European Journal of Information Systems*, 10, 189-203.
- Klecun, E. and Cornford, T. (2005). A critical Approach to Evaluation. *European Journal of Information Systems*, Vol 14, (3), 229-243.
- Klein, K. H. and Myers, D. M. (1999). A set of principles for conducting and evaluating interpretative field studies in Information Systems. *MIS Quarterly*, 23, (1), 67-94.
- Lewis, S.P., Goodman, H.S., Fandt, M.P., Michlitsch, F.J. (2007). *Management Challenges for Tomorrow's Leaders*. Thomson South-Western.
- Modell, S. and Grönlund, A. (2006). *Effektivitet och styrning i statliga myndigheter*. Studentlitteratur.
- Remenyi, D. and Sherwood-Smith, M. (1999). Maximize information systems value by continuous participative evaluation. *Logistics Information Management*, 12, 14-31.
- Serafeimidis, V. (2001). A review of Research Issues in Evaluation of Information Systems. In Van Grembergen (Ed.) *Information Technology Evaluation Methods & Management*, Hershey, Pa. Idea Group publishing.
- Solow, R. (1987). We'd better watch out. *New York Times Book Review*. July 12.
- Stockdale, R and Standing, C (2006). An interpretive approach to evaluating information systems: A content, context, process framework. *European Journal of Operational Research* 173, (3), 1090-1102.
- Symons, V.J. (1991). A review of information systems evaluation: Content, Context and Process. *European Journal of Information Systems*, 1, (3), 205-212.
- Thorp, J. (2001). A benefits realization approach to IT investments. In Grembergen (Ed.) *Information technology evaluation methods & management*. Idea Group Publishing.
- Walsham, G. (1995). Interpretive case studies in IS research: nature and method. *European Journal of Information Systems*, 4, 74-81.
- Walsham, G. (1999). Interpretive Evaluation Design for Information Systems. In Willcocks and Lester (Eds.) *Beyond the Productivity Paradox*. London: John Wiley & Sons Ltd.
- Walsham, G. (2006). Doing Interpretive Research. *European Journal of Information System*. 15, 320-330.
- Ward, J. and Daniel, E. (2006). *Benefits Management, Delivering value from IS & IT Investments*. John Wiley & Sons, Ltd.
- Willcocks, L. P. and S. Lester (1996). Beyond the IT Productivity Paradox, *European Management Journal*, 14 (3), 279-290.