2009

Revealing knowledge networks from computer mediated communication in organizations

Elisabeth Frisk
Gothenburg University, elisabeth.frisk@ituniv.se

From Business Case to Value Case -Assessing the Organizational Value of IT Investments

Frisk, Elisabeth Jane Applied Information Technology, Gothenburg University, Sweden, *elisabeth.frisk@ituniv.se*

Abstract

Managers continually invest in new information technology (IT) but the question of organizational value still seems vague. One explanation is poor evaluation. In practice the Business Case including Return on Investment (ROI) still dominate. Information System research has noted for a long time that the Economic Approach is not sufficient and instead the Interpretative IT Evaluation Approach has been put forward. However, the approach has reached limited acceptance in practice and it has been noted that what to evaluate is a far more complex process than might first appear. The aim of this study is to articulate factors and criteria that are important to consider when assessing the organizational value of IT investments. This study is part of a Collaborative Practice Research project that took place 2005-2008 at three public organizations. The findings indicate that it is time to take a step from a Business Case to a Value Case. The Value Case is a pluralistic, a formative and a formalized approach that includes factors and criteria that have its base in prior research and have been further discussed and analyzed by the respondents. The Value Case also put management's attention to effectiveness and efficiency, the task of management.

Keywords: IT assessment, IT investment, Management, Interpretative IT Evaluation

1. INTRODUCTION

IT investments are still high-risk projects. The newspapers repeatedly describe IT project failures costing the organizations millions of dollars. In Sweden, one organization in the health sector had to cancel one large IT project after the cost had exceeded the budget enormously (Järräng 2007). Also the regional social insurance office had giant runaway costs when implementing SAP (Järräng 2009). There have been similar findings in the UK public sector and the failures there have been related partly to insufficient management skills (Brown 2001). One explanation is the overreliance on financial business cases (Ward & Daniel 2006). Therefore, new knowledge is needed that can create increased understanding for other effects than the economic when introducing a new IT investment to the organization. Today the Business Case mostly including a Return on Investments is still the dominating approach when assessing the organizational value of an IT investment (Ward & Daniel 2006). Several researchers have criticized the economic approach due to that IT´s role has changed from automated processes to increased individual and group effectiveness, to organizational transformation and to collaborative partnership (Pearlson 2001). Instead interpretative IT evaluation, based on stakeholder groups´ perception of reality and a consideration of the context (why), content (what) and a process (how), has been put forward (Hamilton & Chervany 1981, Symons 1991, Walsham 1995, Jones & Huges 2001, Ward and Daniel 2006, Stockdale & Standing 2006). However, interpretative IT evaluation is rarely used and the reasons can be several. Stockdale and Standing (2006) note that; "*A decision on what is to be evaluated is a far more complex process than might first appear and is significantly influenced by the stakeholders and by the context of the organization"* (p. 1092). Due to lack of management skills and a complexity of what to evaluate it can be of interest to create increased understanding for what management perceives as useful to reflect upon, when assessing organizational value of IT investments. In the research field IT evaluation, methods and models based on economic and interpretative theory are the most discussed (Berghout and Remenyi 2005). The question is if these theories are sufficient or a step forward is needed. The aim of this study is to articulate factors and criteria that are important to consider when assessing the organizational value of IT investments. The goal is from a management perspective, to create increased understanding for different factors affecting organizational value of IT investments. The goal to IS research to develop an analyze tool that can support the content of IT evaluation in the interpretative IT evaluation approach. The following research question is raised: *When assessing the organizational value of an IT investment, what factors and criteria should be reflected upon from a management perspective?*

This study has a Collaborative Practice Research approach. It is based on managers' perception about what should be reflected upon when evaluating organizational value of IT investments. The managers involved have experience from decision support systems aiming to save time in the operative work, give information about how to handle chemical accidents and provide better analysis of the operative work etc. The main purpose of these IT systems is foremost to provide the organization with better information related to the operative work. Further, IT systems are considered as social systems and "*…has some recognized functionality but needs to be considered as a set of social objects. As a social object, its influence on organizational function and performance cannot be separated from expertise, jobs, processes or structures."* (Zammuto et al. 2007 p. 753).

This study involves three non-public organizations in Sweden. The organizations have a rather unique situation since the grant of money has its origin in a cost budget process that gives the frame for the approved costs. If one organization spends less money one year, they risk receiving fewer grants next year. In addition, the evaluation of IT investments in the public sector can be extra problematic since they work in collaboration with many different organizations, such as the police, ambulance, and health services.

In the next section, I will give a literature review. Then the organizational settings and research approach will be presented. Followed by the result of this study, a discussion, and a short conclusion.

2. ASSESSING THE VALUE OF IT INVESTMENTS

The problem of evaluating IT investments is framed as the productivity paradox. It originates from studies during the 1980s that found no connection between IT investments and productivity in the U.S economy. Productivity is a measure of efficiency, the use of resources (output, doing things right).The productivity paradox was originally stated by Solow and further developed and discussed by Brynjolfsson (Dedrick et al. 2003). Today there is evidence that IT provides positive impact on productivity and instead the attention has switched to IT and profitability (ibid). Profitability is described as the fulfillment of goals and measurement of effectiveness (outcome, doing the right things) (Lewis et al. 2007). The task of management is according to Lewis et al. (2007) to "*administrating and coordinating resources effectively and efficiently in an effort to achieve the goals of the organization"*. This is a rather rational view of the organization. However, both effectiveness (do the right things) and efficiency (do things right) are relevant measures to consider since the role of the involved organizations is described by Fire Rescue Agency as to deliver services (pre-determined goals) to citizens in an efficient way. Also, non- profit public organizations in Sweden have no traditional income and balance sheet that can evaluate the outcome of the organizations. It should be important to initially reflect upon the effectiveness (goals achievement, doing the right things) and the efficiency (use of resources, doing things right) before an IT investment is accepted. However, effectiveness and efficiency can include other factors than the economic since value is pluralistic (Guba & Lincoln 1990, Bannister 2001). This will be discussed in the next paragraph.

2.1 The Economic and the Interpretative Approach

The two most discussed IT evaluation approaches within the research field IT evaluation are the Economic and the Interpretative IT Evaluation Approach based on economic and interpretative theory (Berghout & Remenyi 2005). The Economic Approach is the most used method by management when assessing IT investments (Ward & Daniel 2006). There exists a plethora of different economic methods such as the capital budgeting methods: Pay Back, Internal Rate of Return (IRR) and Net Present Value (NPV). These methods is described as "*the process of analyzing potential capital expenditures and deciding which investments the firm should undertake".* (Brigham & Gapensti 1996). To use these methods requires a consideration of aspects such as estimating expected cash in- and outflows and calculating the sum of the present values of the expected cash flows. Different kinds of information is attained such as, how long it will take for the investment to return invested capital, and calculating the interest costs for not borrowed capital in order to give a more accurate result of the investment etc. The methods are summative and do not give guidelines how to follow-up an investments along its life cycle. Thus, evaluate organizational value of IT investments with economic methods only gives information about efficiency and effectiveness from an economic view.

The Interpretative IT Evaluation Approach sees IT systems as both technical and social entities (Walsham 1995) and as the starting point for evaluating organizational value is the stakeholders' perception of reality (Guba & Lincoln 1990, Symons 1991, Stockdale & Standing 2006). Examples of interpretative IT evaluation models are the CCP (content, context, process) framework and Benefit management (BM). The CCP framework focuses on the context (why), the content (what) and the process (how) (Symons 1991, Stockdale & Standing 2006). These concepts derive from Pettigrew's conceptualization of organizational change (Symons 1991). Stockdale and Standing (2006) have described the context as explaining why the IT system is of importance. The content is based on the stakeholders' perception of the value so their choice of criteria determines the content (ibid). The process is formative and follow up the IT investment along its life cycle. BM focuses on how to follow-up benefits in different steps along the IT investments life cycle. Thus, the Interpretative IT evaluation approach is contextual, the content is dependent on stakeholders' choice of criteria, and the process is formative. Next it would be of interest to find out what prior research has been put forward as important factors and criteria to be reflected upon when assessing IT investments.

2.2 Beyond the Economic and the Interpretative IT Evaluation Approaches

The research field IT evaluation can in overall be described as fragmentary (Berghout & Remenyi 2005). IT evaluation includes a plethora of different factors and criteria directed to IT evaluation of IT investments. A well-known multi-criteria method is Information Economics developed by Parker and Benson (Robson 1997). Information Economics focuses on the business and the technology domain and include factors such as strategic match, competitive advantage, competitive response and organizational or project risk. Other factors suggested to reflect upon is strategic match. Strategic match is important since it creates awareness of whether the IT investment matches the strategic context (Kefi 2002). In addition, Ballantine & Stray (1999) argue for strategic alignment i.e. the IT investment should align with the IT strategy that in turn should be aligned with the business strategy. If strategic match not is done the IT, investment could be waste of money in the end. In addition, the effect of IT investments inside and outside the organization is consider as valuable input to the discussion of the organizational value. For instance, when considering collaborative and inter-organizational systems the surroundings of the organization should be analyzed (McCalla et al. 2003). Stefanoue (2001) writes that, understanding of organizational impact and change is required if any benefits are to be realized, since poor fitting of the system to the organization relates to an inability to respond to changes. In addition, costs of organizational change are required if any benefits are to be realized (ibid). Benefits are described as hard and soft, costs as direct and indirect (Love et al. 2005). Indirect benefits can occur due to further IT investments. Indirect costs are difficult to see and examples of such costs are user resistance; personal training; external consultants; additional applications and system downtime (Stefanou 2001). In addition, optional theory and uncertainties are mentioned as input to IT evaluation (Toffolon 2001). Stakeholders' involvement gives a better understanding of benefits, value and suitability than traditional economic methods (Irani & Love 2001) and the functionality of the system (Khalifa et al. 2001). However, when it comes to stakeholders it is mainly the stakeholders of the system that are discussed and not the stakeholders of the organization. Still several IS researchers see the IT system primarily as a technical system and therefore the most important factor to consider (Gemmell and Pagano 2003, Choenni et al. 2003). Further, Clay et al. (2003) write that a project manager who has authority and experience will influence the outcome of an IT project in a positive way. Thus, prior research has provided knowledge about many factors and criteria that should be reflected upon when assessing IT investments.

3 RESEARCH APPROACH

3.1 Research site: The Fire Rescue Services

The Fire Rescue Service (FRS) is responsible for providing the population with services such as prevention, preparation, and response. The FRS is structured as a Fire Rescue Service (FRS) or as a Fire Rescue Alliance (FRA). The difference is that the former co-operates with the municipalities where it is situated. The latter consists of several FRS and acts as one municipality that assists the municipalities involved. The directorate of the confederation gives the economic pre-condition for FRS and FRA. The confederation is composed of politicians from one or several municipalities. The three involved organizations differ in structure and amount of employees. Organization A was a FRA, acted in a large city, included five municipalities, has 1000 employees, and 9 Fire Stations. Organization B was a FRS, acted in a large city, has 650 employees, and 9 Fire Stations. Organization C was a FRS, acted in a middle-sized municipality, has 100 employees, and 3 Fire Stations.

IT investments were initiated inside or outside the organizations. Initiatives outside could be initiated due to a new law or from the Rescue Services Agency, the government authority. Initiatives inside the organizations could come from anyone within the organization. In addition, initiatives come yearly when the budget process is running, all kind of requirements pop up, running track, IT system etc. Decisions on IT investments were decentralized, and were often taken on the departmental level. However, if the costs exceed a specific amount the Chief Manager of the FRS became responsible. Before such a decision, the board often discussed the IT investment and if it should be approved. If the

IT investment costs exceed regular budget restrictions, it becomes a political issue and the decision has to be supported by the local government committee, appointed by the local municipality. The individual decisions on IT investment were based on factors such as benefits, costs and technology. The benefits are often argumented from the requester view and not from an organizational view. The cost calculations included mainly costs for IT hardware and software since the costs for using the organizations own resources was consider already taken. Thus, the focus is on the IT system and its possibilities and not on the need of the organization. Historically the organizations have had good economy and that has created a culture where the organizational value is not always in focus. Times have changed and in one organization, large savings are needed. So, evaluating organizational value of IT investments were perceived to be more important in the future.

3.2 Collaborative Practice Research

The research project was performed from 2005 to June 2008. It was a well-known problem that initiatives on IT investments are based on personal interest and have a technique focus. Instead, the perception among several of the respondents was that it was time to put the need of the organization in focus. After the initial interviews were the problem area was appreciated it was evident that IT evaluation was a management, IT evaluation and a conceptual problem.

The next step was to investigate the content, what should be evaluated, and how should the process be accomplished. The research approach was Collaborative Practice Research (CPR). CPR tries to fulfill the dual objectives, improving practice and contributes to the body of knowledge within the research (Mathiassen et al. 2002). CPR is pluralistic since it is difficult to control the research process with only using action research (Mathiasson 2002). In addition, the researcher is dependent on how practice evolves and it is not easy to control the focus of the research outcome. Therefore, diverse activities support each other and give deeper understanding for the investigated phenomenon. The CPR-based process is developed by Mathiassen (2002) and is influenced by Susman and Evered, Checkland and McKay, and Marshall´s action research approach (ibid).The project has been done in collaboration between the researcher and management in the organizations involved. The CPR includes different stages, see table 1, and the stages of the research project are presented in the second column. This study focuses on point C in the second column.

Collaborative Practice Research	The research project at Fire Rescue Services
1. Appreciate the problem situation	A. Appreciate the problem situation (X 2006).
2. Study literature 3. Select approach	B. Study literature, and select a theoretical framework (X 2007
4. Develop framework	**C. Design a new evaluation framework (This study).**
5. Design process	D. Design evaluation process
6. Apply approach	E. Apply approach
7. Evaluate experience	F. Evaluate experience
8. Exit	G. Exit
9. Assess usefulness	H. Assess usefulness
10. Elicit research result	I. Elicit research result

Table 1. This research project, in comparison to Mathiassen et al. (2002) research project.

Thus, the findings are based on the respondents' perceptions of reality and the interpretation of the researcher. My role was an "outside researcher" and during the workshops and interviews, I did try not to influence the participants in any direction. In the workshops, findings from prior IT evaluation research were discussed. I also took part of several meetings and documents such as a project model, an activity plan, introducing a new IT project, information concerning Balance Score Card etc.

3.2.1 Data collection and Data analysis

In organization A and B the IT manager selected the respondents that should attend the workshops. In organization C it was the manager for the operative work. These 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. Managers attending the study were at top level: Chief Manager, Vice Chief Manager and IT Manager. At functional level, Managers of department were attending. At the operative level, Managers of the operative work force were involved. By management is meant someone who has an overall responsibility for the organization, the department, or for a team alternative the turnout.

The first workshop included two different meeting points. First, the findings from the interviews (see table 1, point A) were presented. Theses findings indicated that the missing value of IT investments was caused by lack of management control (lack of strategy and co-ordination), lack of understanding of the concept value (each stakeholders has his own perception), and lack of an appropriate formalized IT evaluation approach that consider context, content and a process. The findings were recognizable by the participants. Next, the IT evaluation, the economic and interpretative IT evaluation approach, and factors and criteria put forward by prior research were introduced. The presented factors and criteria were received in a positive way and were in accordance with management perceptions of what should be reflected upon when assessing the organizational value of IT investments. Along the discussion, I wrote down the factors and criteria that by the participants should to be part of an IT evaluation. It was also an agreement among the participants about the selected factors and criteria. I perceived that this exercise created learning to the participants and put structure on a complex issue. I finished the workshop by asking if they wanted to structure the selected factors and criteria in a word document, a power point presentation or in some other form. Two of the organizations wanted to structure the findings in a word document and the third organization wanted a power point presentation. The aim of the documents was to support the evaluation process of IT investments. In the second workshop, the respondents discussed the results from the first workshop. The workshop resulted to further development and modification of factors and criteria selected by the participants. I perceive that the modification occur due to that the respondents have had time to reflect upon the discussed factors and criteria and had developed an improved understanding for organizational value. Thus, the workshops trigger their own learning by reflecting upon factors and criteria related to organizational value. The last workshop was performed according to the second.

Each workshop and lasted approximately 2 hours. During the workshops, I took notes and after the workshop, I wrote down spontaneous reflections from the meetings. For the analysis, I used the notes from the paperboard and from my own reflections. For two of the organizations I summarized the chosen factors and criteria in a word document, called the Value Case. This Value Case was further modified during the workshops. For the third organization, the result was summarized in a power point presentation, named the Value Case. I also compared the results from all three organizations in order to analyze patterns of similarities and deviations. This analysis resulted in a Meta Value Case that included all factors and criteria suggested from the three organizations. Organization A and B wanted to learn from each other and took part of the Meta Value Case.

Care was taken to ensure that the findings were interpreted in accordance with the respondent's perception regarding what factors and criteria that should be included in the value case. In order to validate the findings, the Meta Value Case were also presented for top managers at two others Fire Rescue Services not involved in the study. The results were favorably received in both organizations. The managers perceive that the document could support the IT evaluation process and increase the understanding for the organizational value of an IT investment.

4 ASSESSMENT FACTORS GENERATED BY PRACTICE

Management has in literature been described as *"... the process of administrating and coordinating resources effectively and efficiently in an effort to achieve the goals of an organization*" (Lewis 2007, p. 5). Such management approach can be extra important in non-profit public organizations that are goal driven.

In order to increase the understanding of the relevance of these factors they have been categorized into effectiveness (do the right things) and efficiency (do things right). The respondents suggested that the selected factors and criteria should be evaluated in an iterative process along the IT investments, life cycle and give continuously feedback about the relevance of the IT system.

4.1 The Rationale for Effectiveness, doing the right things

The respondents considered *strategic match* vital since the lack of strategic match has contributed to an ad-hoc development of IT. Strategic match can give management increased understanding of the relevance of a new IT investment (doing the right thing). The respondents (functional and operational level) perceive that IT initiatives today are often based upon individual interests and not on the needs of the organization. "*We don't know the plans for the coming two years. This allows persons who are most anxious about new information systems or information technology to get their requests approved. The arguments are often based on personal interest and not on the needs of the organization" (Operational managers). "Unfortunately we give priority to individual desires instead of the total picture. We can´t agree on one brand of digital cameras or digital calendars" (IT manager).* In addition, to include strategic match as a factor can give management increased understanding of the need of explicit strategies for the organization in order to be able to govern the public sector towards its mission. By the time of the workshops none of the organizations had evident strategies for the business, organization, or for IS and IT. In one of the organizations the IT Manager was waiting for the organizational strategy while the Vice Chief Manager was waiting for the IS and IT strategy. In two of the organizations, the Balance Scorecard was on the agenda. I perceive that two of the organizations tried to agree on what perspectives to include in order being able to doing benchmarking, but this seems like a problematic process. To introduce a Balance Score Card could facilitate the strategic match of an IT investment. In one organization, the IT manager refused to take responsibility for the operations of new IT investments since IT was introduced into the organization without discussing or informing the IT department. Not coordinating IT will give increased cost for running IT and the burden of work becomes unmanageable for the IT department. In addition, the managers perceive that IT is power and IT decisions are a political act, and a focus on *strategic match* can reduce power situations since the need and the value of the organization will be in focus.

Today FRS collaborates with organizations such as the police, the ambulance and the municipality so *impact on the surroundings* is an essential factor to reflect upon. Also, the impact on the citizens are vital since FRS/FRA work for the citizens' best, but is often forgotten in the discussions about value (functional and operational level). Criteria such as politics, economy, society, and technology i.e. what is going on outside the organization should also be reflected upon in order to ensure that the organization would do the right things. The selected factors and criteria in the workshops concerning effectiveness are presented in table 2.

Effectiveness	Organization A	Organization B	Organization C
Strategic match to:	The Business, Organization and IS and IT. Support the Balance Scorecard. Safety and Health Act.	The Business, Organization and IS and IT	The Business, Organization and IS and IT If not, motivate WHY?
Impact on the surroundings:	Politics, Economy, Society, Technology (PEST), Citizens, Collaborative org. or other actors. Dependencies to other regulations or other projects.	Collaborative organizations or other actors.	Other Actors.

Table 2. Factors and criteria related to effectiveness.

4.2 The Rationale for Efficiency, doing things right.

Organizational impact is also essential since it opens up the understanding for the changes needed in the organization, and from that, quantitative and qualitative benefits could more easily be deduced. Also, a criterion like power is of interest since IT changes power structures. The respondents regarded

benefits to be difficult to make explicit and benefits should not only be an enumeration of quantitative and qualitative aspects but also be described with who receives the benefits. Managers perceive that the technology get to much attention: *"The internal discussion often concerns technology, technical platform and the IT system, but questions should be raised such as, what needs to be developed, what do we want to achieve, and how should we proceed?"(A manager at functional level).* Today cost calculations include costs of the hardware and software but not for the employee's involvement, education, maintenance, support, for the project etc. According to some of the managers this can explain why the decisions-makers seem to have a habit of buying new IT instead of upgrading (IT manager). Factors as risks are necessary and in particular risk for the project, the organization and the technology. Also not involving the stakeholders can make it worse instead of improving. The IT system and criteria such as security, architecture, support, flexibility etc. are important. In addition, the respondents added *project organizing* in order to increase the IT project chance of succeeding, since the IT project is dependent on right timing and the ability to involve the right persons. Selected factors and criteria related to efficiency are summarized in table 3.

Efficiency	Organization A	Organization B	Organization C
Impact on the organizations:	Structure, Processes, Technology, Employees', Power and Culture.	Structure, Processes, Technology, Employees', Power and Culture.	Other dep. Technology, Processes
Quantitative & qualitative Benefits for the:	Citizens, Employees', Economy (Cost reduction), Development, Infrastructure, External actors. Make clear who is responsible.	Municipalities, Citizens, Organization, Department and others? Per iodize the benefits. Make clear who is responsible.	Users, The organization, Third man, External actor.
Describe costs for the:	Project, Purchase, Implementing, Education, Required changes, Running costs and Negative effects.	Project, Purchase, Implementing, Education, Required changes, Running costs and Negative effects.	Purchase, Running costs, Education and Licenses.
Reflect over following risks:	The decision process not deep enough. Key persons in the project? Too much technique focus? New directive? New policy from the municipality? Software, Supplier, Security, Costs or other risk.	Dependencies to other projects, financiers, and suppliers. Technology. Operating the project. The organization. Environmental factors. Competence.	No risks were put forward by the organization.
The IT system:	What happen if we introduce this system and it stops? Is there any similar project going on? Functional demands. Information security? Integration to existing IT? Changeable? Demands from the operation running the system? Support? Other questions?		Security, Back-up and Demands for Upgrading.
Stakeholders opinion:	What are the opinions among the stakeholders? Is the pre-knowledge ok for this system? Will the system affect the use of resources?	What are the opinions among the stakeholders? Is the pre-knowledge ok for this system?	What are the opinions among the stakeholders?
Project organizing:	Describe the operating and the administration of the project.	Describe the operating of the project and resources needed?	Describe timetable and responsibilities.

Table 3. Factors and criteria related to efficiency.

5 DISCUSSION: TOWARDS A VALUE CASE

Lewis et al. (2007) have described the role of management as "*the process of administering and coordinating resources effectively and efficiently in an effort to achieve organizational goals*" (p.5). This is very much in accordance with the opinions of several of the managers, a demand for an IT

evaluation approach that could shift attention from a technique and personal interest focus to organizational value based on effectiveness (do the right things) and efficiency (do things right).

One way to support managers' consideration of effectiveness and efficiency in the IT evaluation process of IT investments is to introduce a Value Case. The Value Case takes one-step further from the Business Case and takes a formalized, pluralistic, contextual and formative view. The Value Case includes factors and criteria put forward by prior research and is further discussed by the involved managers.

5.1 Reflections on the Economic and Interpretative IT Evaluation Approach

The respondents argue as well as several researchers, Symmons (1991), Stockdale and Standing (2006), and Ward and Daniel (2006), that an economic perspective is not sufficient. However, the Interpretative IT Evaluation Approach was not sufficient either since the content needed support by pre-determined criteria that could increase the understanding of factors and criteria affecting effectiveness and efficiency i.e. the organizational value. Stockdale and Standing (2006) has also noted that what to evaluate is a far more complex process than first appear. It can be worth reflecting upon the consequences of using an Interpretative approach if the involved stakeholders lack experience and pre-knowledge of a new IT investment. Also, if pre-knowledge and experience of the IT system differ among the different stakeholder groups, how will that affect the discussions about organizational value. Since evaluating IT investments is described as a political process there is also a risk that the discussions of the organizational value of IT investments deal with individual interests from some stakeholders and other stakeholders lack arguments due to limited experience. A Value Case including a formalized, pluralistic, contextual and formative approach can support managers in a discussion of the organizational value and the appropriateness of the IT investment.

5.2 Towards a formalized, formative, contextual and a pluralistic Value Case

The involved managers argue that the understanding of organizational value can be improved by assessing factors and criteria related to both efficiency and effectiveness. The factors and criteria generated by the managers are presented and discussed in next section.

Effectiveness

- **Strategic match.** In accordance to Kefi (2002) the respondents said that before starting an IT project it is vital to match an IT-investment with the strategic context since it contributes to an increased awareness if the IT investment is "doing the right thing" for the organization. The respondents added criteria related to internal goals included in the Safety and Health Act.
- **Impact on the surroundings**. This factor was also considered important since the organizations cooperate with several other organizations such as the police, ambulance etc. McCalla et al. (2003) note that this can be particularly important when collaborative and inter-organizational systems are evaluated. The respondents also consider the traditional strategic criteria, politics, economy, society and technique relevant in order to create awareness of doing the right things.

Efficiency

- **Impact on the organization**. The respondents agree with Stefanoue (2001) that organizational impact must be considered if any benefits are to be realized. However, the respondents also emphasize the importance of analyzing the impact of an IT investment on the organization since that will facilitate the understanding of needed changes and in turn to whom the benefits relate.
- **Benefits.** In literature, several discussions concerned tangible, intangible, direct and indirect benefits (Love et al. 2005). The respondents were more interested in discussing quantitative and qualitative benefits and to whom the benefit was directed. The respondents said that it is important to consider the stakeholders of the organization in order to get a rich picture of who benefits from the new IT system. Due to individual interest of IT, it can be a risk of internal focus and the citizen perspective cast aside.

- **Costs.** Costs were of great interest since a better calculation could contribute to better understanding of total investment costs, running costs and for the selection between buying new or upgrading. The literature that discussed direct and indirect costs (Love et al. 2005) received less attention.
- **Risks.** The respondents discussed risks related to the organization, the IT project, the IT system, costs etc. Uncertainties and optional theory did not catch the respondents for further discussions.
- **The IT system**. Gemmell and Pagano (2003), and Choenni et al. (2003) have suggested some criteria, and those were received with recognition. Also, questions like, what will happen if the IT system breaks down and stop were discussed as important input to the value case.
- **Stakeholders' opinion.** Irani and Love (2001) noted that stakeholders´ involvement incorporates increased understanding of benefits, value and suitability. Khalifa et al. (2001) write that the functionality of the IT system will also be improved. These statements are very much in accordance with the opinions of the respondents. They argue that stakeholder groups´ affected by the new IT system should be involved and interviewed so they can give their view of the new IT system.
- **Project organizing.** This perspective was not so well discussed in the literature; Clay et al. (2003) note the importance of a project champion. The respondents said that it is central to involve the right people and have the right timing in the IT project, also to clarify dependencies on other IT projects.

Factors and criteria discussed by the respondents as valuable input to the evaluation process when assessing the organizational value of IT investments are presented in table 4.

The Value Case	
Effectiveness:	Doing the right things
Strategic match:	Business strategy, Organizational strategy, IS/IT strategy, Balance Scorecard, Safety and Health Act, Goals, Other.
Impact on the surroundings:	Politics, Economy, Society, Technology (PEST), Citizens, Collaborative organizations. Other actors, Dependencies to other organizations regulations or to other projects.
Efficiency:	Doing things right
Impact on the organization:	Structure, Processes, Technology, Employees, Politics ,Culture, Other departments
Benefits:	Describe the quantitative and qualitative benefits, for whom and who is responsible?
Costs:	State the costs for the: Project; Purchase; Implementing; Education; Required changes, Change-over, Licenses, Running costs, Negative effects,
Risks :	The decision process not deep enough. Key persons in the project? Too much technique focus? New directive? New policy from the municipality. Dependencies to: other projects; the financier and the suppliers. Risks related to technology, the organization and the environment.
The IT system:	What happen if we introduce this system and it stops? Is similar IT projects going on? Functional demands. Information security? Integration to existing IT? Changeable? Security, Back-up and Demands for Upgrading? Other?
Stakeholders´ opinion:	What are the opinions among the different stakeholder group affected by the system? The users pre-knowledge for this system? How will the use of resources will be affected.
Project organizing:	Describe the manning, required resources and the administration of the project. Describe the timetable and responsibilities.

Table 4. The Value Case

The empirical findings of this study indicate that only using an interpretative IT evaluation approach don´t match the need of management. A step forward is needed since methods or models based on economic or interpretative theory are not sufficient from a management view when evaluating IT investments. That economic methods are not sufficient has been known for a long time. Instead the interpretative IT evaluation approach has by prior research been suggested. However, the content, what to evaluate, in the interpretative IT evaluation approach is based on stakeholders' perception on reality. But if the managers lack experience or pre-knowledge of a new IT system, such approach can be limited. The risk is that factors related to efficiency and effectiveness, the task of managements is not on the agenda. In non-profit organizations in the public sector the consideration of efficiency and

effectiveness can be extra important since several of the organizations are foremost goal driven. The empirical findings showed that several managers lack understanding of what should be assessed in order to achieve organizational value. The Value Case gives managers a possibility to discuss and reflect upon important factors related to the organizational value of IT investments. Hopefully, a Value Case can support managers and reduce the risks to IT projects failures since increased understanding will be achieved about how the IT investments match the strategy, the effects on and outside the organization.

As Stockdale and Standing (2006) write; "*A decision on what is to be evaluated is a far more complex process than might first appear and is significantly influenced by the stakeholders and by the context of the organization"* (p. 1092). In future research, it would be of interest to continue to discuss the content of IT evaluation and hopefully provide an analyze tool. Such analyze tool can for managers increase the understanding of how an organization will be affected by a new IT investment, and essential factors and criteria to reflect upon when assessing organizational value of IT investments? It is time to take a step from an IT system focus, focusing on the stakeholders of the IT system, to a organizational focus and foremost create understanding for how they will interact.

6 CONCLUSION

Prior IS research has concluded that only an economic view is not sufficient when evaluating organizational value of the IT investments. Instead an interpretative IT evaluation approach has been put forward. The content is based on the stakeholders' perceptions on reality. But if the stakeholders lack experience or the strategic view and organizational goals are not evident, how will organizational value be evaluated? What to evaluate has by prior research been described as more complex than it might appear. The empirical findings show that the involved managers perceive that assessment of organizational value of an IT investment can be improved if the content of IT evaluation can be supported by pre-determined factors related to effectiveness and efficiency. Therefore, in this study a Value Case is developed that puts management´s attention to effectiveness (doing the right things) and efficiency (doing things right). The Value Case has a pluralistic, a formative and a formalized view. Gives managers a possibility to discuss and reflect upon factors related to how the IT investment will affect the organization and its surroundings and thereby create better understanding of the organizational value of the IT investments. The discussed factors are strategic match, impact on the organization and its surroundings, benefits, costs, risks, the IT system as such, the stakeholders´ view of the system, and project organizing. Hopefully future research will continue to discuss the content of IT evaluation and what should be reflected upon in order to facilitate for managers the assessing organizational value of IT investments.

References

Ballantine, J.A. and Stray, S.J. (1999). Information Systems and other Capital Investments: Evaluation Practices Compared In Logistics and Information Management (Irani Z, Ed), 78–93.

Bannister, F. (2001). Citizen Centricity: A Model of IS Value in Public Administration. Electronic Journal of Information systems Evaluation, (5), 2.

Berghout, W. E. and Remenyi, T. (2005). Ten years of the European Conference on IT Evaluation: Retrospectives and perspectives for possible future research". Electronic Journal of Information Systems Evaluation, (8), 2.

Brigham, T. and Gapensti, G. (1996). Intermediate financial management. Chicago, Dryden Press.

Brynjolfsson, E. (1993). The productivity paradox of information technology. Communication of the ACM, 12-27.

Brown, T. (2001). Modernisation or failure? IT development projects in the public sector. Financial Accountability & management, 17 (4) November 0267-4424, 363-381.

Clay, M. Edvards, M.H. and Maguire, J. (2003). Establishing the Strategic Context of IT Projects – A Case Study. Electronic Journal of Information System Evaluation, (6), 2.

Choenni, S. Bakker, R. and Baets, W. (2003) On the Evaluation of Workflow Systems in Business Processes. Electronic Journal of Information Systems Evaluation, (6), 2.
Dedrick, J. Gurbaxani, V. and Kraemer, K.L. (2003). Information Technology and Economic Performance: A Critical Review of the Empirical Evidence. ACM Computing Surveys, 1–28.
Gemmell, M. and Pagano, R. (2003). A Post-Implementation Evaluation of a Student IS in the UK Higher Education Sector. Electronic Journal of Information Systems Evaluation, (6) 2.
Guba, S. E. and Lincoln S.Y. (1990). Fourth Generation Evaluation. Sage Publications.
Gregor, S. (2006). The Nature of Theory in Information Systems. MIS Quarterly, 30 (3), 611-642.
Hamilton, S. and Chervany, N. (1991). Evaluating Information Systems Effectiveness Part 2". MIS Quarterly, 79-86.
Hevner, R.A., March, T.S., Park, J. and Ram, S. (2004). Design Science in Information Systems Research. MIS Quarterly, 28 (1), 75-105.
Irani, Z. and Love, P. (2001). Information systems evaluation: past, present and future. European Journal of Information Systems, 10, 183-188.
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, 189-203.
Järräng, M. (2007). Landstingets fiasko, Computer Sweden, (103), 4-5.
Järräng, M (2009). Försäkringskassans SAP-projekt hanger löst. http://computersweden.idg.se/2.2683/1.216118/forsakringskassans-sap-projekt-hanger-lost
Kefi, H. (2002). IS/IT Evaluation: A Context-Based and Process-Oriented Perspective". Electronic Journal of Information Systems Evaluation, (6), 1.
Khalifa, G., Irani, Z., Baldwin, P.L. and Jones, S. (2001). Evaluating Information Technology With You In Mind. Electronic Journal of Information Systems Evaluation, (4), 1.
Lewis, S.P., Goodman, H.S., Fandt, M.P., Michlitsch, F.J. (2007). Management Challenges for Tomorrow's Leaders, Thomson Sout-Western, 5ed.
Love, D., E., P., Irani, Z., Standing, C., Lin, C., and Burn, M., J. (2005). The enigma of evaluation: benefits, cost and risks of IT in Australian small-medium-sized enterprises. Information & Management, 42, 947-964.
Matthiassen, L. (2002). Collaborative Practice Research. Information Technology & People (15:4), 321-334.
McCalla, R. Ezingeard, J. and Money, K. (2003). Behavioural approach to CRM Systems Evaluation. Electronic Journal of Information Systems Evaluation, (6), 2.
Modell, S. and Grönlund, A. (2006). Effektivitet och styrning i statliga myndigheter. Studentlitteratur.
Pearlson, E., K. (2001). Managing and Using Information Systems. John Wiley & Sons, Inc.
Robson, W. (1997). Strategic management & Information Systems. Second Edition, Financial Times, Prentice hall. Pearson Education.
Stefanou, C.J. (2001). A framework for the ex-ante evaluation of ERP software". European Journal of Information Systems, (10), 204-215.
Stockdale, R and Standing, C. (2006). An Interpretive Approach to Evaluating Information Systems: A Content, Context, Process Framework. European Journal of Operational Research, 1090-1102.
Symons, V.J.A. (1991) Review of Information Systems Evaluation: Content, Context and Process," European Journal of Information Systems, 205-212.
Toffolon, C. (2001). Software Informative Prototyping Evaluation". Electronic Journal of Information Systems Evaluation, (5), 2.
Walsham, G. (1995). Interpretive case studies in IS research: nature and method. European Journal of Information Systems (14), 74-81.
Ward, J. and Daniel, E. (2006). Benefits Management, Delivering value from IS & IT Investments. John Wiley & Sons, Ltd.
Zammuto, F.R., Griffith, L.T., Majchrzak, A., Dougherty, J.D. and Faraj, S. (2007). Information Technology and the Changing Fabric of Organization. Organization Science (18:5), September-October, 749-762.