

Actor Sensitive eValuation – Who Benefits from IS?

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Abstract

The purpose of this paper is to describe an analytical tool that can be used for evaluating the value of IT by acknowledging the socio-political process of computerization. In order to validate the tool the paper exemplifies how the evaluation tool has been used in one case study. For pedagogical reasons, the analysis is limited to one actor group – the politicians. The analysis showed that the politicians mainly attributed future and current information system with public, managerial, and professional values.

Keywords: Evaluation, Values, Computerization, Elderly care, Impacts, Social construction of technology

1. Introduction

This paper suggests an approach to identify and analyse the values of computerization. The importance of acknowledging values as a way of evaluating the impacts of computers is beginning to gain ground. In the opening talk of ECITE 2002, Dan Remenyi stressed that it is crucial to work towards the organizational values when we want to implement as well as evaluate information systems (Remenyi 2002).

The problem to identify and especially measure the consequences of computerization is a common theme in the evaluation literature (Bannister et al. 2001; Fitzgerald 1998; Walsham 1993; Willcocks 1992). Fitzgerald (1998) states that the lack of precision in evaluations of information systems demonstrates the difficulty of evaluating the use of IT systems. There are nevertheless techniques and methods for assessing whether it is worth the cost of introducing information systems (Bannister et al. 2001; Remenyi et al. 1995; Symons et al. 1988; Willcocks 1992), or to evaluate the benefits (Dahlgren et al. 2000; Remenyi et al. 1995; Remenyi et al. 1997; Symons et al. 1988). The search for evaluation tools is really a search for control, which we believe can be achieved by knowledge (Rochlin 1997, p. 189). Organizations want to be able to predict change in order to bring order to the chaotic flux of reality, and obtain a feeling of safety.

This approach to evaluation helps us to identify values driving the computerization process, and thus also values supported and created by the introduction of new information systems. It is inspired by Walsham's (1993, p. 165) approach to evaluation as 'a dynamic socio-political process within multi-level social contexts'. The purpose of this paper is to describe an analytical tool that can be used for evaluating the value of IT by acknowledging the socio-political process of computerization. In order to validate the tool the paper also describes how the evaluation tool has been used in one case study, although because of the limited form, and purpose, of this paper, the tool is illustrated by presenting how to analyse the values of only one actor group – the politicians.

The paper is organised in six sections. The following section describes the theoretical grounding, section three describes the research method and gives a short introduction to the

case. Section four elaborates on the analytical tool. The fifth section of the paper illustrates the tool in practice by presenting which values a group of politicians attributed a new IT system. A short conclusion ends the paper.

2. Theoretical Grounding

One inspiration for this work is the work of Kling and his writings on organisational politics, where a workplace is seen as compromising several conflicting ideologies, and accepts that technology serves specific interests (Kling et al. 1980, p. 256). The study is also inspired by Robey's and Boudreau's (Robey et al. 1999) proposal, namely that we should study the computerization process' opposing forces and take a process view in order to understand the effects of computerization. Technology is thus a product of negotiation between various groups' interests, comprising to a higher or lesser degree various groups desires and requirements (Latour 1991; Law 1992). The possibility to influence a technology is not equal among different groups of actors since some have more power than others. Actor groups, both within and outside the organization, perceive and influence the process of computerization according to their interests and values. This means that an information system may not support all users. But an IS will hopefully contribute to the organizational values and as many users as possible.

The evaluation tool recognizes computerization as a political and social process (Danziger et al. 1982; Iacono et al. 1996) where the development, implementation, and use of computer systems take place (Iacono et al. 1996). An artefact such as an information system is inherently socio-technical, constructed by its sociological, economical, technical and political preconditions and surroundings. In order to evaluate the impacts of computerization and computer use and to value whether the impacts we perceive are good, we need to view the changes from the perspective of actors active during different phases of the computerization process. A technology such as an information system is not politically neutral, it comprises through its design certain values and in using a technology (Winner 1999), "we may be opting a far more – economically, politically, even culturally, as well as technically – than appears at first sight" (MacKenzie et al. 1999).

This work rests heavily on a social constructivist perspective in relation to technology (Bijker 1995; Latour 1987; Law 1992; Monteiro et al. 1995). The research objective for the technological constructivists is to describe technological development, not to be normative, offer value judgment, or determine whether a certain technology supports the interests of a specific group (Winner 1993). In my work, I feel that it is important to acknowledge the consequences of IT systems, and whether the introduction of a new technology supports the interests and values of certain groups on the expense of others. It is important not to remain neutral, but to offer insights and explanations that may help us understand how IT can be developed and used to support, not only the strong, but also the weaker actor groups. Design and development of IT systems always involve moral value judgments, and therefore should "practical advice concerning the design of information systems [...] address what is good or bad, or right or wrong in any particular application"(Klein et al. 2001, p. 81).

The analytical tool stresses that it is important to use an actor's perspective when trying to understand the impacts of computerization (Symons et al. 1988; Walsham 1993), as ideas play a performative role in the course of action (Latour 1996). The most central part, and point of departure, in this model of evaluation are different actor groups (Bijker 1995). An actor group is any group that takes part in the creation, and use of the new and anticipated computer system – they are the carriers of the process of computerization. Which actor groups to include in the analysis depend on the empirical data. A public organization as, e.g., elderly

care would typically include politicians on different levels, civil servants and managers on different levels, professionals in various areas (e.g., nursing assistants, administrators, nurses), and the public.

2.1 From effects to values

Values guide human behaviour and consequently the organizations where we work. Values shape and direct the process of computerization, and the technology we use shapes aspects of our individual and communal life (Nissenbaum 2000). Different actor groups have different interests and values (Danziger et al. 1982), which drive the organization as well as the process of computerization. Values determine and guide actions, feelings and beliefs (Mumford 1981, p. 27), as well as what counts as good reasons (Anderson 1979). Benefits or effects, not values, are often mentioned within the area of IS. Benefits, effects and values are closely linked, as benefits and effects are what seems to be a result of the realization of a value (Rescher 1969, p. 16). They are operationalizations of values. Benefits are the hoped for positive effects, while effects demonstrate the positive as well as negative impacts. By identifying actor groups' intended and experienced effects in relation to the introduction of an IT system, we can identify and analyse the values of computerization. Decisions about planning, requirements analysis, and design contain value statements manifested in design ideals (Klein et al. 2001).

Although values are abstract and fuzzy, they are manifested in what people say and do (Rescher 1969, p. 24), thus giving opportunity for research. Choices and value judgment can only be understood within an identifiable empirical context (Mumford 1981, p. 16). Values stem mainly from the interest various actor groups want to pursue, thus representing directions that advance an actor group's interest (Lyytinen et al. 1987). Earlier studies have shown that information systems may reinforce 'the power and influence of those actors and groups who already have the most resources and power in the organization' (Danziger et al. 1982, p. 18), and that: '[...] the values of top management were an important influence on the consequences of change' (Mumford 1981, p. 277).

Organizational values set the tone or in fact determine what is acceptable and not acceptable in the organization (Remenyi 2002). Remenyi defines organizational values as "a set of deeply held beliefs that govern and guide organisational behaviour in meeting objectives and in dealing with staff, customers, and other stakeholders" (p. x). They are a combination of intended (expressed by top management) and realised values (by staff). This can be compared with Willcocks' definition of IS value, which he says defines "the true economic impact of IT" (Willcocks 1992, p 264). Willcocks definition of IS value might be true for profit organization, but definitely not always for non-profit organizations as hospitals or local governments.

There are different ways to categorize values in relation to computerization (Mumford 1981; Danziger 1982), and depending on the standpoint, and type of organization, you may choose different grounds for classification. One categorization using the interests and values of different actor groups as a principle of classification, as well as focusing local governments, is done by Danziger et.al. (1982, p. 11). By studying computerization of American local governments they wanted to answer questions about impacts of computerization from a political perspective. They conclude that there are five different types of interests and values involved in computerization of local governments: personal, managerial, professional, technical, and public. Personal interests and values concern career ambitions, status, and reelection or advancement. Managerial interests and values relate to "maintaining and enhancing organiza-

tional guidance and control". Professional interests and values are concerned with maximizing autonomy and discretion of professional personnel. Technical values focus on maintenance and enhancement of the technology. Public values and interests are related to serving the community as a whole.

3. Empirical Grounding

This case is a reconstruction of a computerization process involving a standardized organizational wide IT system (henceforward be called CareSys) for elderly care. Swedish local governments are responsible for providing high quality home help, and the service is regulated by law since home help is an institutional right, and shall rest on values such as democracy, solidarity, emancipation, equality, individuals' right to autonomy and integrity (Bergstrand 2001). The discussion to computerize elderly care in the local government began in 1994, the decision was taken in 1995, and CareSys was chosen in November of 1996. CareSys was finally implemented during 1998.

3.1 CareSys – A System for the Administration of Home Help

CareSys is a software package with modules for planning, carrying out and following up home help. This system supports the home help's administrative routines. It does not directly support the home help assistant's work with the elderly. The available modules for the users at the home help unit are: "commission", "debiting", "living", "client", "others" and "staff". Every module is attached to a chain of sub-modules in a hierarchical fashion. A brochure issued by the company that distributes and develops CareSys describes the system in the following way (my translation):

[CareSys] is a system created for supporting the daily work of administrators and managers in local government care [...] But not only is [CareSys] a system that meets the needs of an organization's daily tasks. Managers on different levels can through the system get access to current data for following-ups and evaluations. This increases the possibility to take part in the development of the organization.

3.2 Research Method

Considering the nature of the research questions this study is classified as interpretive (Walsham, 1993; Walsham, 1995; Klein & Myers, 1999). The starting point is different actor groups' views of the computerization process. This is also a critical study as the objective is to disclose what has been hidden and taken for granted (Kling et.al. 2000). The critical comes into play when artefacts as IT-systems are analysed from multiple perspectives, and when the goals and beliefs of different groups are examined and critically analysed (ibid.).

3.2.1 Data Collection

The empirical data were collected through interviews, document analysis and observations. The following actor groups were interviewed: users (home help assistants and section managers), project leader for the IT/Change-project, system owner, IT system contractor and system administrator. The interviews focused questions such as reasons for computerization, the process of computerization, effects of computerization and the actors' roles in the process. Statements related to intended effects of computerization have in the analysis solely originated from documents, protocols dated from that time, since I wanted to minimize the time effect.

The second type of empirical data, which has been very important, is historical records such as protocols from different political board meetings (1996-2001), documents directly linked to

CareSys: contracts, system documentation, requirements specification, offers, etc. and reports from the IT/Change project. (For reasons of confidentiality the documental records will not be listed in the reference list. But is available on request.)

I have also tested and evaluated CareSys in order to gain an understanding of the system (Hedström et al. 2002).

4. A Tool for Actor Sensitive eValuation

The evaluation tool analyses the values that drive and is shaped by a change project as an IT project. It shows how values are initiated, changed and created during the course of a change project. The analytical model helps identify and analyse the different actor groups' interests and values, thus acknowledging the power dimensions of social life.

As the IT system is built, it changes from a project to an object (Latour 1996). The process of computerization is a process of negotiation, with the IT system as a product of compromises, and adaptations (Law 1992). Computerization is illustrated as a network consisting of actors, IT systems, texts, other types of artefacts, work methods, and system development methods etc. (see Figure 1). The degree of materialization creates the shift from project to object – from an idea (illustrated by a question mark) to an IT system (illustrated by a computer). In the beginning the new system is highly abstract, consisting of thoughts, sketchy ideas on paper, plans etc. During the course of the project these ideas are put into a more concrete form as high-fi and low-fi prototypes, system presentations, etc., and the various actors' different views of the IT system will become more and more mutual. The actor groups' values associated with the system will change from intended to experienced when the system is part of the normal working routines. The intended values will also change during this, sometimes lengthy, time. New values may emerge influenced by the change of degree in materialization.

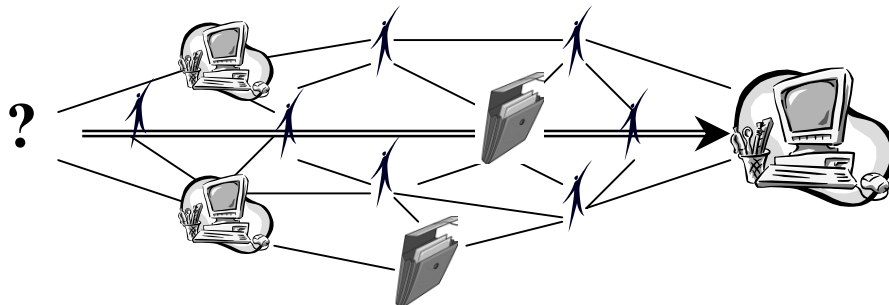


Figure 1: The Computerization Process as a network

An organizational change project as an IT project is usually initiated because there is a drive to change something to the better, or it can be based on an experience of some kind of problem. The reasons for computerization are transformed into *intended effects*, which usually are associated with the use of IT as it is the desired future effects of computer use, which is the reason for starting an IT project. The intended effects can be planned in the beginning of the project or emerge during the work on the IT project, due to experiences of working with the project, as well as due to changes in the organization and the environment. The *effects experienced* are effects that actor groups experience from the computerization, either from working in the project or from using IT. Table 1 is an attempt to classify and analyse the experienced and intended effects of computerization. *Unintended effects* are neither planned nor emergent. Effects that fail to be observed by actor groups are named *effects not experienced*.

Table 1: A framework for analysing the effects of computerization

	Effects experienced	Effects not experienced
Intended effects (planned and emergent)	Realized effects <ul style="list-style-type: none"> • Desirable • Undesirable 	Unrealized effects
Unintended effects	Experienced side effects <ul style="list-style-type: none"> • Desirable • Undesirable 	Unaware side effects <ul style="list-style-type: none"> • Desirable • Undesirable

Effects that are intended as well as experienced are realized, and these can be either desirable or undesirable for a specific actor group. But the anticipated does not always happen, and so there are also unrealized effects. The experience of realized effects will probably vary between different actor groups depending on their interests and position in the organization. The unintended effects produce side effects, desired or undesired. These effects are often related to other phases of computerization than computer use. One example of an unintended side effect is when the IT project forces the IT department to decide on plans for how their organization will be managed and organized in the future. Large IT projects often uncover and unleash hidden organizational and managerial problems that actors have failed to acknowledge or dealt with before. But in the light of a large scale IT project, questions about organization and future plans have to be solved in order to be able to continue with the process of computerization. Another example of an unintended, but sometimes intended and even planned for, consequence, is the patterns of dependency that computerization often create. An IT system can enforce a strict work routine, which hopefully supports, but at the same time may restrict and hinder work. Even the side effects – the unintended effects – can be overlooked. There might exist effects that neither was recognized during the IT project nor during the use of the IT system. These are the unaware side effects. They are not depicted by the actor groups, but might nevertheless exist. The units of analysis are, as can be seen from the presentation above, the realized and unrealized effects together with the side effects, and by focusing the effects we can get hold on the underlying values.

4.1 How to Use the Tool

The first step is to define the time frame of the computerization process. When should the analysis start and end? How long is the computerization process? Which actions are included? Which are the phases? Reconstruction of computerization can be done according to the phases planning, design, implementation, and use (see Figure 2), and it can be useful to use this delimitation for the evaluation process (Walsham, 1993, p. 176). Intended effects come into play before the computerized information systems is manifested into an object, and actually used as part of the normal working routines. Experienced effects are found when the system is used as part of the normal routine.

Data can be collected either by observing and following the process of computerization and the negotiation that takes place, or by reconstructing the history of adaptation and negotiation of an existing IT system. Irrespective of the chosen strategy, the focus of data collection and analysis are the actor groups and their different value statements and actions.

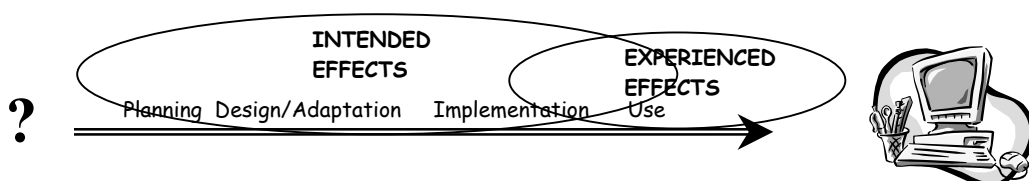


Figure 2: Reconstructed Computerization Process

The second step of the actor sensitive evaluation is to identify the actor groups – that is any group of actors that influence or is influenced by the new technology. This is very important, as the purpose is to identify who drives the computerization process, thus embedding their values and interests in the new technology, and whom the new computerized information system is meant to support. Units of analysis are actors' statements and actions. These can be identified through document analysis, interviews or observations.

The different actor groups are identified, and grouped together, by their work tasks, work related goals, reasons for computerization, and intended as well as experienced effects of computerization (this is in line with Bijker 1995, and his notion of “technological frames”). This illustrates the actor group's organizational role and relation to IT. The value of the categories of the technological frame is in some sense a summary of the result of the analysis from using the categories in Table 1. The analysis is therefore an iterative process.

After categorizing the computerization process and identifying actor groups, the next step is to identify and compare intended and experienced effects held by each group of actors. The intended effects can be related to each pre-use phase of the computerization process, or the evaluator can choose to merge the pre-use phases into one that addresses the intended effects (see Figure 2). This makes it possible to disclose how various actor groups' interests and values have influenced, and also constructed the technology we evaluate. We will also be able to see, through choices and actions, how different actor groups' values have changed over time. This is important as it is vital to understand the process through which the technology appears and constructs in order to understand why the identified impacts occur (Thomas 1999, p. 212).

The evaluation leaves us with a list of social actors and their intended and experienced effects. In order to be able to illustrate and the intended and experienced effects for a specific actor group, I have used and expended a technique for graphically illustrate two things: firstly how effects and sub-effects relates (Goldkuhl et al. 1988) and secondly compare actor groups' intended and experienced effects (see Figure 6). These effects are grouped together and classified using the classification of Danziger et. al. (Danziger et al. 1982) in section 2.1.

5. The Case of CareSys

In order to try and further develop this approach to evaluation, I analysed the computerization of elderly care in a Swedish local government. The computerization process resulted in the implementation of CareSys.

The computerization process can be said to begin in 1994 (see Figure 3) when the Social Democrats presented a private motion where they among other things suggested that “elderly care in our local government should be analysed in a thorough and scientific manner, thus resulting in ideas and action plans for care until the beginning of the 21st century” (Private motion for the development of elderly care, 1994). A project plan for purchasing a new computerized information system for elderly care was presented in 1996 (Project plan for implementing a new IT system for elderly care, 1996). In November 1996 it was decided that CareSys was going to be the new IT support for elderly care (Purchase of CareSys, 1997). A contract was entered between the system owner (also the community care committee) and the contractor. CareSys was finally implementing during 1998.

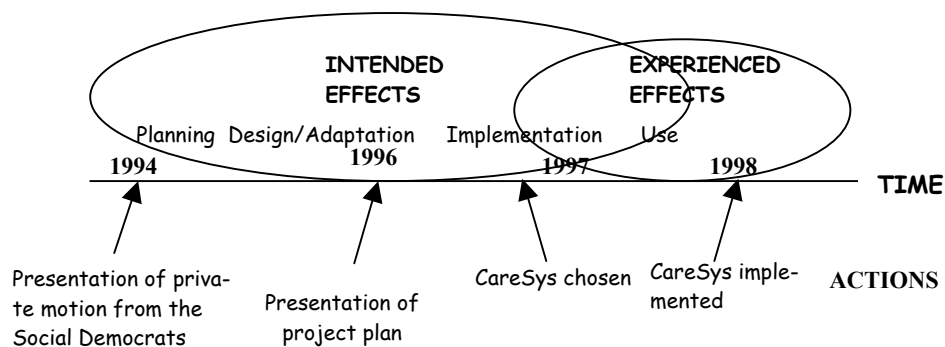


Figure 3: The computerization process of CareSys

I decided, based on the empirical data, which actor groups to include in the analysis. As it was such a lengthy project, the number and type of, actor groups and actors, changed over time. My analysis of CareSys identified seven actor groups: the project group responsible for purchasing and implementing CareSys, external consultants helping the project group with organizational analysis and later evaluating CareSys, politicians, the IT contractor, system owner, system administrator, and users. As can be seen in Figure 4, the various actor groups developed during different stages of the computerization process.

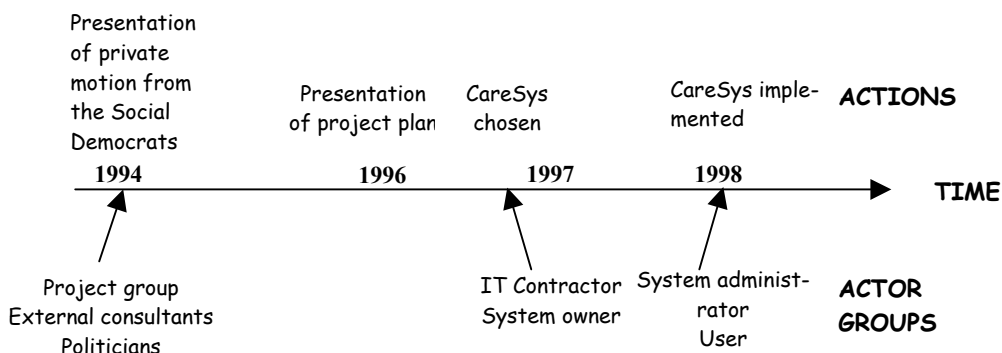


Figure 4: The computerization process of CareSys and the introduction of actor groups

This paper concentrates on one actor group – the politicians. The point is, however, that the evaluation tool can be used to analyse and compare different actor groups' views of the computerization process. The reason for choosing the politicians is that they are a rather stable group and have been active throughout the computerization process. They are also very important actors as they are legislators and the ultimate decision makers of elderly care. They are responsible for elderly care in the local government, thus framing norms, goals and allocating resources. The actor group of politicians includes the community of care committee, production committee, and the executive committee.

5.1 The Politicians – a Description

The politicians' goal is to make sure that the citizens can influence decisions, they work in order to advocate and secure equality as well as guarantee that citizens' wishes and needs concerning good service is fulfilled (Goal and budget 1997, p. 20-21). They mainly work with

setting up goals, allotting resources and evaluating performed work (ibid.). Elderly care needed a new IT system because the administrating routines were unsatisfactory (Project plan for implementing a new IT system for elderly care, 1996; Summary of proposal submitted for consideration, 1996). The experienced effects relate to the failure to create an organizational wide IT system and, improved following up of home help. Statements from the politicians are expressed in official documents. This might not be consistent with a single actor's values, but they do, however, illustrate what the politicians as a group have considered important enough to put in writing, and, in some instances view as a "correct" value statement.

Table 3: Summary of the politicians role in the organisation, and relation to CareSys

Descriptive categories	Politicians
Work related goals	Give the citizens the possibility to influence, to secure equality, and to guarantee the citizens' needs and wishes concerning good service (Goal and budget, 1997, p. 20-21).
Main work tasks	To "steer using established goals, allotted resources and evaluate the local government organization and work" (Goal and budget, 1997, p. 22).
Reasons for purchase	Routines for debiting, invoicing and payment for the delivery of care is not satisfactory.
Intended effects of IT use	Efficient and improved administration, more correct information. Mutual IT support for elderly care.
Experienced effects of computerization	Failures to deliver a mutual IT support. Improved following up of home help.

Intended effects

The intended effects are planned as well as emerged, and in the case of the politicians it is obvious that the intended effects changed during the course of time. The politicians initially focused on the future system's potentiality to improve administrative routines for debiting, invoicing, and payment to units who deliver care (Summary of proposal submitted for consideration, 1996). When they had decided to purchase CareSys they also included the units who deliver home help in the intended effects (see Figure 5). They wanted CareSys to function as an organizational IT support: "the system has additional functionality that offers the units who deliver home help appropriate work support, which should facilitate their work considerably in the long run" (Purchase of CareSys, 1997).

Realized effects

One realized effect is the possibility for the community care committee to improve their control regarding registered time for the deliverance of home help (Protocol meeting community care committee, 2001-12-13).

Unrealized effects

The failure to connect the social welfare office to CareSys was a big setback, and decreased the possibility to live up to hopes of increased efficiency. The executive committee requested as late as 2002-03-21 the social welfare office to "secure data communication with CareSys" (Protocol meeting executive committee, 2000-03-21). The dream of a mutual and organization wide IT system for elderly care was broken. Another set back, was the reluctance of home-helpers to use CareSys as an IT support for planning, and other care related activities (Interview, system owner, 2000).

Side effects

During the implementation of CareSys in 1998, the responsibility for fees and rents as well as the subscription of leases changed. The section managers were now delegated this responsibility (Protocol meeting community care committee, 1998-02-19). Whether this was change in responsibility was planned or not, is difficult to say, but it is clear that this change of responsibility coincides with the introduction of CareSys, and is not mentioned as an effect of the implementation of CareSys.

5.1 The Role of IT

A comparison of the different intended and experienced effects (Figure 5) illustrates that the politicians changed their view on the role of information technology in elderly care. The attribute somewhat different properties to CareSys 1996 compared to 1997. In 1996 they see IT as a tool to support the work of the community care committee concerning debiting, invoicing and registration. A year later, when they are presented with CareSys, they want the system to also support the work performed in the home help service units, such as planning. The experienced effects show that they have used CareSys as a tool for control and following up and perhaps as a way to change work content and responsibility of the section managers. They also acknowledge, recurrently, the failure to connect the social welfare office with CareSys, thus losing the ability to transfer information electronically between the social welfare office and the home help service units. This led to failure to realize effects of improved efficiency and perhaps more correct information.

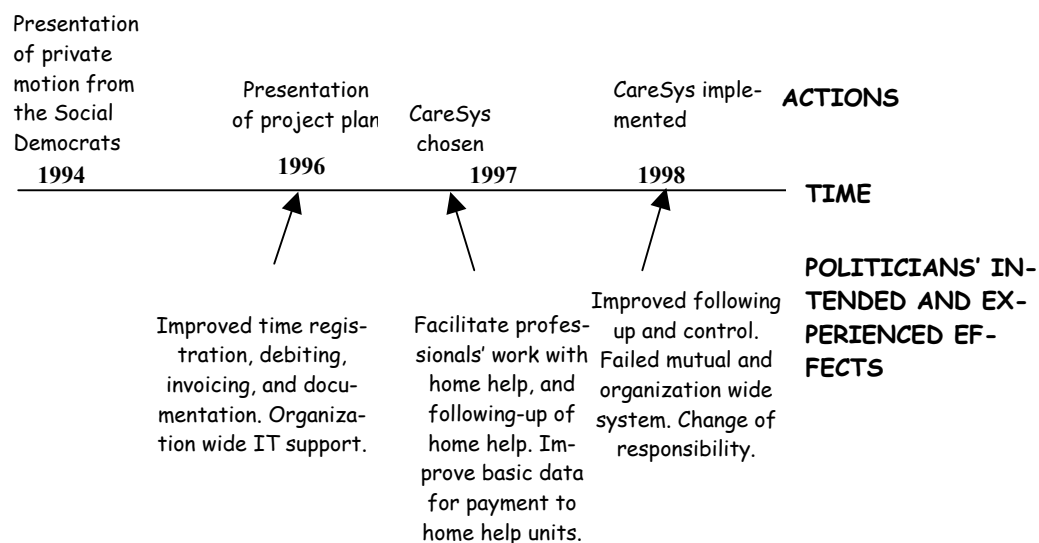


Figure 5: Politicians' intended and experienced effects

A comparison between before and after the implementation shows that only a few of the longed for effects occurred (see Figure 6 - The effects in the background are intended effects that failed to be realized, the effects depicted in the dark gray boxes are the realized effects, and the effect surrounded by a dotted line is a side effect). The diagram also shows that CareSys failed as "a mutual IT support appropriate for the home help units". The experienced effects are instead related to the entire computerization process, as for instance the side effect "change of responsibility".

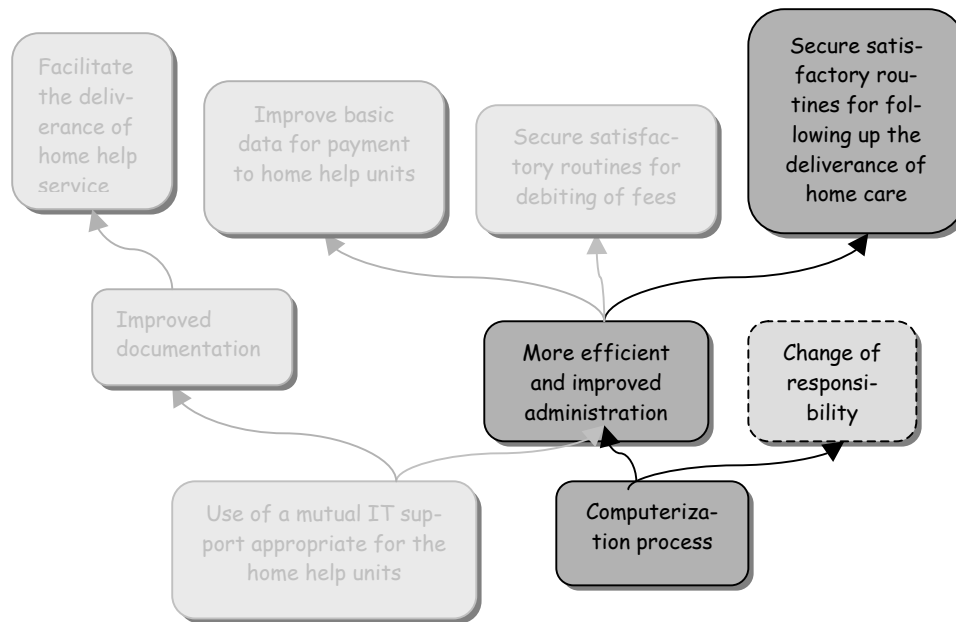


Figure 6: A goal comparison diagram showing unrealized and realized effects

5.1.1 IT – a tool for public, managerial, and professional values

One can say that the politicians in their role as representatives for the citizens determine the goals of home help in the local government. The organization's goal coincides in that sense with the politicians' goals of providing the citizens with the 'possibility to influence, to secure equality, and to guarantee the citizens' needs and wishes concerning good service'. CareSys should therefore support these goals if it is to be an appropriate IT system for the entire organization.

CareSys does in some sense contribute to this, by, for instance, improved and more efficient administration concerning the following up of registered time for home help, thus ensuring that the home help service units' compensation for delivered home help is correct. This gives the politicians greater control over home help, which hopefully will improve the service. It might also help to improve equality if the politicians can compare delivered home help between different home help service units in the organization. This is related to public values. It is surprising, though; that the politicians' not in a direct way refer to interests and values of the public. The effects attributed by the politicians are mostly related to managerial values. They also wanted the new system to contribute to professional values, by providing an organizational wide IT system that also supported the needs, and interests of the home-helpers.

6. Conclusion

The politicians' values and interests were embedded in the system development process through a number of actions. The politicians' initial goals had a strong impact on the whole systems development process, thus putting most focus and effort on making sure that administrative routines concerning debiting and invoicing worked and were adapted to the specific organization. CareSys is, thus, used mostly for debiting and invoicing. One major system goal was that the new IT system was meant to be organizational wide – this is evident in e.g. the requirements specification (Requirements specification, 1996). CareSys failed, unfortunately in more ways than one, to connect all actors to the system. One reason could be that the initiative to purchase CareSys was taken and driven by top management, with not enough consideration to the interests and values of the system users (interview, system user). The deci-

sion to computerize elderly care was initially driven by the interests and values of the community care committee. Somewhat later, they included interests and values from the home help service units (users), but these had never a real impact, probably because users' values and interests came late into the process. These values did not drive the process as much as the interests and values of the community care committee did.

This paper has presented an analytical tool that can be used to evaluate the values of the computerization process. In order to further illustrate its use and usability, I have applied the tool to a case study, where, the presentation in this paper has been limited to one actor group. The analysis showed that the politicians mainly attributed future and current information system public, managerial, and professional values. The politicians intended effects changed during the computerization process, but the initial values from 1996 strongly influenced the computerization process. Meaning that other values that came later into the process, were unable to have a real impact.

The foundation for an actor sensitive evaluation is the various actor groups that drive the computerization process. They attribute different meanings to the technology, thus contribute to the creation of the artefact. These differences are manifested in intended as well as experienced effects. The intended effects illustrate the actor groups' interests and values that have influenced the makings of the technology. It gives a hint about values embedded in the technology. It is possible to identify the underlying values by categorizing the intended and experienced effects, using for instance the value framework developed by Danziger et. al. (1982). This framework may be used to compare the properties different actor groups attribute the IT system, thus showing which group the IT system supports. By disclosing the historical process of adaptation, is it possible to show how various actors have influenced and thus shaped the IT system. This knowledge will help us understand and analyse actors' experienced effects, which makes it possible to learn from project to project. The actor sensitive evaluation, which acknowledges the social and political character of computerization, gives us an instrument that can help us critically examine the values of computerization, and uncover who benefits from the introduction of new computerized information systems.

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