

Chapter 1

THE SOCIO-POLITICAL CONSTRUCTION OF CARESYS

How Interests and Values Influence Computerization

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Abstract The purpose of this paper is to describe an analytical framework, which can be used for comparing how different groups experience the value of IT. As the actors' interests and values are uncovered the framework illuminates the socio-political process of computerization. In order to validate the framework the paper exemplifies how it has been used in one case study involving the introduction of a new IT system in elderly care. For pedagogical reasons, the analysis is limited to comparing two actor groups' experiences of the introduction of the new system – the politicians, and the home-help assistants. The result also shows that non-action is very important as a way to influence the usage and construction of a new IT system.

Key words Evaluation, Computerization, Home-help, Actor sensitive evaluation, Negotiation

1. INTRODUCTION

This paper argues that computerization is a socio-political process (Danziger et al. 1982; Iacono et al. 1996) where the success or failure of a new technology is in the hand of the actors (Latour 1986), and that it is important to understand the interests and values that construct a technology in order to assess its impacts (Thomas 1999). The problem to identify and especially measure the consequences of computerization is a common theme in the evaluation literature (Willcocks 1992; Fitzgerald 1998; Walsham 1993; Bannister et al. 2001). The importance of acknowledging values as a

way of evaluating the impacts of computers is beginning to gain ground (Remenyi 2002).

This paper suggests an approach – actor sensitive evaluation – for assessing, and comparing, the values of computerization for different actor groups. The possibility to influence a technology is not equal among different groups of actors since some have more power than others. The purpose of this paper is to describe an analytical framework that can be used for assessing the value of IT for different actor groups by acknowledging the socio-political process (Walsham 1993) of computerization. Using a case study from Swedish home-help this paper validates the framework, although because of the limited form, and purpose, of this paper, the framework is illustrated by presenting how to analyse the values of only two actor groups – the politicians and the home-help assistants.

The paper is organised in nine sections. The following section describes the theory behind the work, and section three describes the research method. Section four gives a description of the case, while section five elaborates on the analytical framework of actor sensitive evaluation. Section six describes how to use the framework. The seventh section of the paper illustrates the framework in practice. The paper ends with a summary and conclusion.

2. THEORETICAL BACKGROUND

A workplace includes several conflicting ideologies where technology serves specific interests (Kling et al. 1980, p. 256), and in order to understand the effects of computerization we should study the computerization process' opposing forces as well as take a process view (Robey et al. 1999). Different actor groups have different interests and values (Danziger et al. 1982), which drive the organization as well as the process of computerization. Technology is a product of negotiation between various groups' interests, comprising to a higher or lesser degree various groups' desires and requirements (Latour 1991; Law 1992). A process of negotiation creates the artefact, and claims or facts are translated and strengthened or weakened through the enrolment of actors (humans or non-humans) (McMaster et al. 1998).

Actor groups, both within and outside the organization, perceive and influence the process of computerization according to their interests and values, and design and development of IT systems always involve moral value judgments (Klein et al. 2001, p. 81). This means that an IT system may not support all users. An artefact such as an IT system is inherently socio-technical, constructed by its sociological, economical, technical and political preconditions and surroundings. IT is not politically neutral (Winner 1999),

it comprises through its design certain values and in using a technology ‘[...]we may be opting for far more – economically, politically, even culturally, as well as technically – than appears at first sight’ (MacKenzie et al. 1999). It is important to use an actor’s perspective when trying to understand the impacts of computerization (Walsham 1993; Symons et al. 1988), as ideas play a performative role in the course of action (Latour 1996).

This work rests heavily on a social constructivist perspective in relation to technology (Latour 1987; Law 1992; Bijker 1995; Monteiro et al. 1995). The research objective for the technological constructivist 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). I feel that it is important, however, to acknowledge the consequences of IT systems, and analyse whether the introduction of a new technology supports the interests and values of certain groups on the expense of others. And 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.

3. RESEARCH METHOD

Considering the nature of the research objective, with its focus on different actors’ sense-making, and the underlying assumption that knowledge of reality is gained through social constructions, this study is classified as interpretive (Walsham 1993; Walsham 1995; Klein et al. 1999). 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 artifacts as IT-systems are analysed from multiple perspectives, and when the goals and beliefs of different groups are examined and critically analysed (ibid.).

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 vendor 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.

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.) Statements related to the 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, and avoid problems such as poor recall, hindsight bias, and rationalizations.

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

4. CARESYS – A SYSTEM FOR THE ADMINISTRATION OF ELDERLY CARE

This case is a reconstruction of a computerization process involving a standardized organizational wide IT system (henceforward called CareSys) for elderly care. CareSys was meant to replace as well as expand an earlier IT system, which mainly had been used for debiting purposes. Swedish local governments are responsible for providing high quality elderly care, 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, and 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.

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. 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.

The major official reason for purchasing a new IT system for elderly care was because the current administrating routines were deemed unsatisfactory, and a new IT system was seen as a way to solve problems of following-up

the economy and work (Project plan for implementing a new IT system for elderly care, 1996).

5. AN ANALYTICAL FRAMEWORK FOR ACTOR SENSITIVE EVALUATION

The analytical framework helps the analyser to focus on aspects that are important when we want to disclose, and analyse, the values that drive and is shaped by computerization. It shows how values are initiated, changed and created during the course of a change project. The framework helps identify and analyse the different actor groups' interests and values, thus acknowledging the power dimensions of social life. The framework consists of three parts: 1. computerization as a network with IT systems, work methods, and values and interests of different actor groups, 2. computerization as phases with intended and experienced effects, and 3. 'the due process model' that illustrates how enrolment and negotiation constructs an IT system.

5.1 From Idea to IT system

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, and the IT system is 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). Computerization includes the development, implementation, and use of IT systems (Iacono et al. 1996). The degree of materialization creates the shift 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 computerization 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 shared.

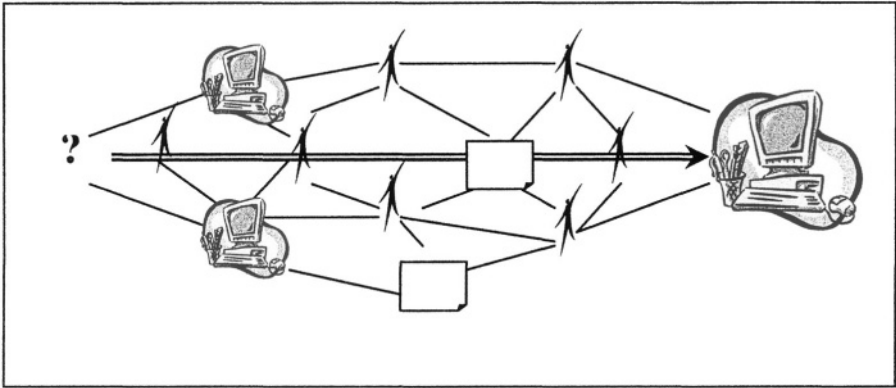


Figure 1. The Computerization Process as a Network

5.2 Intended and Experienced Effects

Benefits and effects are operationalizations of values. 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. Although values are abstract and fuzzy, they are manifested in what people say and do (Rescher 1969, p 24), thus giving opportunity for research. Values determine and guide actions, feelings and beliefs (Mumford 1981, p. 27), thus representing directions that advance an actor group's interest (Lyytinen et al. 1987). Benefits or effects, not values, are often mentioned within the area of information systems. They are closely linked as benefits and effects are what seems to be a result of the realization of a value (Rescher 1969, p. 16).

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).

The reasons for computerization are transformed into *intended effects* (see Figure 2), which usually are associated with the use of IT as it is the desired future effects of computer use that is the reason for wanting to introduce a new IT system. The intended effects can be planned in the beginning of the project or emerge during the process of computerization, 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 process, either from working in the project or from using IT.

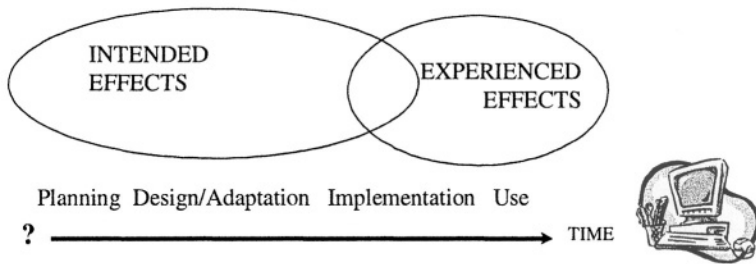


Figure 2. Reconstructed Computerization Process

Table 1 is an attempt to classify and analyse the experienced and intended effects of computerization. Focus for analysis is the realized and unrealized effects together with side effects.

The *unintended effects* are neither planned nor emergent, and effects that fail to be observed are named *effects not experienced*. Effects that are intended as well as experienced are the realized effects, and these can be either desirable or undesirable for a specific actor group (table 1). But the anticipated does not always happen, and so there are also unrealized effects. The unintended effects produce desired or undesired side effects. These effects are often related to other phases of computerization than computer use.

Table 1. A Framework for Analysing the Effects of Computerization

	Effects experienced	Effects not experienced
Intended effects (planned and emergent)	Realized effects - Desirable - Undesirable	Unrealized effects
Unintended effects	Experienced side effects - Desirable - Undesirable	

5.3 ‘The Due Process Model’

In an attempt to explain the realized and unrealized effects as well as describe the computerization process of CareSys I use a ‘due process model’ (Latour 1998, cited in McMaster, Vidgen & Wastell, 1998) that illustrates the process of how new ‘candidates for existence’ are, or fail to be,

developed into established facts and part of the institution (see Figure 3). This model helps to deconstruct the process of negotiation that constructs a new ‘candidate’ such as a claim, fact or technology. It describes how actors and other resources are enrolled in order to support the new candidate for existence. Realized effects illustrate when actors have managed to enrol other actors and resource in favour for a certain interest, while the unrealized effects illustrate when actors have failed to do so.

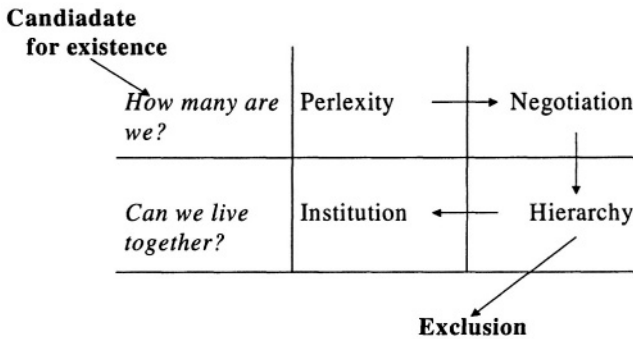


Figure 3. The Due Process Model (Latour 1998) (cited in McMaster, Vidgen & Wastell, 1998 and adapted by the author)

When a new claim, fact or technology enters the process, it increases the perplexity and confusion of the organization. The new ‘candidate’ is tested, probed, and negotiated by the organizational actors. It is assessed and valued by the different actors, who decide on exclusion or inclusion. Inclusion means that it becomes mutual – part of the institution – and made into an object, a fact, or technology different actors can agree on, whereas exclusion means that the ‘candidate’ is rejected. The excluded ‘candidate’ can later show up as a new ‘candidate’ for institutionalisation, adding to the continuation of the computerization process, and the establishment of e.g., a new IT system.

6. HOW TO CARRY OUT AN ACTOR SENSITIVE EVALUATION

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?

The second step 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 IT system supports. 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 units of analysis are the actor groups and their different value statements, actions, and non-actions. These can be identified through document analysis, interviews, or observations. The different actor groups are identified, and grouped together, by their work tasks and work related goals (in line with Bijker 1995, and his notion of ‘technological frames’). This illustrates the actor group’s organizational position and relation to IT.

After categorizing the computerization process and identifying actor groups, the next step is to use table 1 to identify and compare intended and experienced effects held by each group of actors. These statements are ordered according to the time frame of the computerization process and each actor group. The intended effects can be related to each pre-use phase of the computerization process, or the analyser 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, as well as through actors’ choices and actions, how values attributed to the IT system change over time. ‘The due process model’ is applied to the data in order to further analyse the makings of an IT system and explain the realized and unrealized effects.

7. ANALYSIS OF THE COMPUTERIZATION PROCESS OF CARESYS

In order to try and further develop this approach to evaluation, I analysed the introduction of a new IT system within 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 4) 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 IT 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 implemented during 1998.

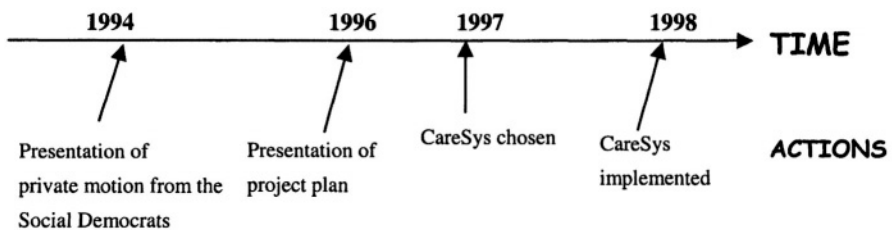


Figure 4. The Purchase of CareSys

This paper concentrates on two actor groups and how their interests and values have formed CareSys – the politicians and the home-help assistants. 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. The home-help assistants are included as they represent the users.

7.1 The Politicians

The politicians' goal is to guarantee that the citizens can influence decisions, and 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 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, the production committee, and the executive committee. Statements from the politicians are expressed in official documents, which 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. Figure 5 below lines politicians' different values attributed to CareSys in a time line. As can be seen from the figure, the values change over time, and that not all the intended effects were experienced.

The politicians initially focused on the future system's potentiality to improve administrative routines for time registration, debiting, and documentation (Summary of proposal submitted for consideration, 1996). It was also imperative to obtain a system that would facilitate following-up (Project plan for the implementation of a new IT system within elderly care, 1996), and support the work of the section managers (ibid.), as well as that the new system worked as an organizational wide IT support (e.g., Requirements specification, 1996). Later, when it was clear who the system vendor was going to be, more focus was put on the system as a support for section managers. The experienced effects shows that CareSys contributed to improved following-up and control, but failed to electronically integrate the elderly care organization. It also changed the section manager's responsibility concerning fees and rents.

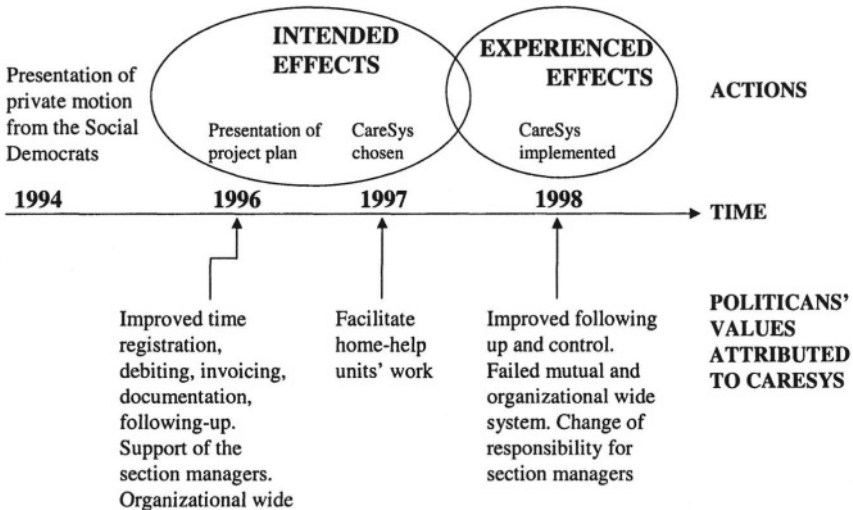


Figure 5. A Time Line Analysis of Values Attributed to CareSys

7.1.1 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, community care committee, 2001-12-13).

7.1.2 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). Another failure was the reluctance of the home-help professionals to use CareSys as an IT support for planning, and other care related activities (Interview, system owner, 2000).

7.1.3 Experienced Side Effects

During the implementation of CareSys in 1998, responsibility for fees and rents as well as subscription of leases changed. The section managers were now delegated this responsibility (Protocol meeting community care committee, 1998-02-19). Whether this 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.

7.2 The Home-Help Assistants

The home-help assistants deliver care and use CareSys mainly for registering information on new clients, as well as supply and enter information for debiting purposes. The home-help assistants did not take part in specifying the requirements, and had thus no intended effects relating to CareSys. Therefore there is no point in doing a time line analysis of values attributed to CareSys for the home-help assistants, as they did not participate in the initial phases of computerization. But they did, naturally experience many effects from using CareSys.

7.2.1 Realized Effects

Invoices to clients are now more correct than earlier, resulting in less time needed to correct inaccurate information and answer clients' questions about billing.

7.2.2 Unrealized Effects

The politicians had hopes that CareSys would offer 'appropriate work support' for the home-help professionals, but CareSys is not used to support e.g., the nursing assistants' core activities, which is to assist the elderly in their life and daily routines.

7.2.3 Side Effects

The implementation of CareSys has resulted in increased organizational vulnerability as there are only a few people in each home-help unit who can use the system, and if they are ill or on vacation, there is no one to register the necessary information in their place.

The nursing assistants who use CareSys feel that their knowledge regarding the organisation, and particularly the process of invoicing has increased. They are proud of their changed role and increased competence regarding computer use and organisational issues. The implementation of CareSys has contributed to strengthen and change their role as nursing assistance.

7.3 The Establishment of CareSys as Negotiation

The politicians had several goals with CareSys. Initially they wanted to purchase a new IT system in order to improve administrative routines for invoicing, debiting, following-ups, and payment for home-help units, as well as e.g., planning for the section managers. The politicians initiated with these claims the computerization process. The community care committee was in a sense 'prisoners of the past' as they experienced their need for a new system in the light of the old debiting system, which had not worked well. Their claims were made based on their experience of using the old system, which had been developed for the area of childcare, and was not adapted for the needs of elderly care.

The social welfare office did not to exercise their right to comment the proposal for consideration regarding the purchase of a new IT system within elderly care, and choose therefore to not act on this issue (Summary of proposal submitted for consideration, 1996). It is clear that the politicians

felt that it is very important that the new system should be used by, and integrate, everyone working with elderly care, including the social welfare office. They hoped that this would ‘simplify integration’, become more cost- and time efficient, as well as increase the quality of care (Project plan for the implementation of a new IT system within elderly care, 1996). Even though the politicians repeatedly stated, as well as decided, that the social welfare office should set up data communication with CareSys, nothing happened. This shows that the action, or rather non-action, had consequences for the further work. It also raises questions about where the power lies, with the politicians, who have the formal power, or with the users, who by refusing to obey changed the whole process and also the outcome. It is evident that it was imperative to establish a data connection with the social welfare office in order to establish CareSys as an organizational wide system.

Although there are statements related to the interests and values of the home-help professionals, especially the section managers, they are always written after goals about CareSys’ ability to support the needs of the community care committee, indicating that new IT system primarily was seen as an IT support for the community care committee. And it was also the community care committee’s interests and values that had strongest impact on the computerization process. The interests and values of the home-help assistants were not at all related to in the document I reviewed, which means that this group has had little or no impact on the process of computerization. The interests and values of the community care committee were also related to in the contract where the contracted adaptation of CareSys is almost solely devoted to matters related to the needs of the community care committee. This clearly illustrates that when users do not or cannot take part early in the computerization process, before the “idea” becomes an IT system, it is very difficult to exercise any genuine power or influence.

In 1997 the politicians restated that it was important that the new system facilitated the work of the home-help professionals, but as before this statement comes second after the needs of the community care committee’s:

The community care committee is primarily interested in CareSys in order to secure satisfactory routines for debiting of fees, basement for payment to care units, and following-ups of care carried out. The system will also include additional functions that offer the home-help professionals appropriate IT support, which in the long run should facilitate their work considerably. (Purchase of CareSys, 1997)

The above statement occurred at the same time as the system vendor entered the process, and the vendors tried to enrol the politicians by stating that CareSys also supported the work of the home-help professionals. But the home-help assistants only use the system for registering and entering

data, which is not surprising, as CareSys is not tailored after the interests and values of the home-help assistants.

8. SUMMARY

This paper presented a framework that can be used to analyse the values of the computerization process. In order to further illustrate its use and usability, I have applied the framework to a case study and the presentation in this paper focused two actor groups and how they by their actions, or non-actions, have contributed to the construction of CareSys.

The politicians' values and interests were embedded in the system development process through a number of actions. The politicians', e.g., the community care committee, 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 needs of the community care committee. CareSys is, thus, used mostly for debiting and invoicing. CareSys failed, unfortunately in more ways than one, to become the organizational wide system it was intended to be. One reason could be that the initiative to purchase CareSys was taken and driven by the community care committee, with not enough consideration to the interests and values of the system users. They also failed to include the social welfare office, who even chose not to comment on the proposal for consideration, thus trying to obstruct and hinder the purchase of CareSys.

The home-help assistants did not take part in the creation of CareSys, but experienced CareSys as a means for increasing their organisational knowledge. As the home-help assistants entered data using CareSys, information for debiting was more correct than earlier, thus decreasing the time needed for correcting invoices.

9. CONCLUSION

By disclosing the historical process of adaptation, is it possible to show how various actors influence and thus shape the IT system. The negotiation of constructing an IT system is in this way illustrated and made visible, showing how different actor groups' interests and values have shaped the process of computerization, and thus also the IT system *per. se*. This knowledge helps 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.

The analysis has shown that the initial interests and values that go into the process to a great extent decides how the IT system is used, and experienced. If a specific group shall use an IT system, their values and interests must early on influence the computerization process. But it has also shown that a refusal to act is a strong way to influence the computerization process, and that the power to use an IT system ultimately lies with the users. This conclusion challenges Danziger et al.'s statement that IT 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. 19). The analysis is also an illustration of how artefacts are socially constructed, and that technology does not have any power of their own, no inner inertia that disseminates the new technology. That it is the actors who, by their actions develop and disseminates the artefact. The analytical framework of actor sensitive evaluation, with the view on computerization as negotiation of different interests, clearly illustrates the importance to include users early in the design process, before the idea of an IT system has become the object "IT system", when it is much harder to influence and change the design. The users need to be part of the computerization process before the IT system has stabilized and become a "black box" (Bijker 1995; Latour 1986). A participatory design approach (Beck 2002) is therefore necessary in order to create an IT system appropriate for as many users as possible.

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