Goals, Values, and Effects in Computerization

The Politics of Information Systems

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Abstract. The objective of this paper is to briefly describe the author‘s planned doctoral work. The purpose of the planned study is to gain an understanding about why local governments decide to purchase and implement computer systems, and what the effects are. The research builds on a number of cases on implementation of a computer system within elderly care. The cases will be used as a ground for comparison and theory construction. The research strategy follows an interpretative approach.

Introduction

The belief in technology and technical development is strong in the human mind. That technology and technical development is something intrinsically good and worth to strive for is obvious in the ever-increasing speed of computerization. Different types of private and non-private organizations and companies, as well as many people favour the development of computers and computerization as a way of transforming social order and change organizations. Iacono and Kling even argue that *"…the rise of computer technologies and networking is due to collective action similar to that of other social movements…"* (1996:89). Companies have to implement computers and be on the Net, not only to increase the quality of the products and services or the efficiency, but also from fear of being left out. Sweden is, together with Finland, seen as one of the leading and most successful countries in the use of the Internet and computers and many other countries view Sweden as a positive example of the effects of computerization. Technology influence our lives and the construction of society (Latour, 1992), they are also intrinsically political (e.g. Winner, 1980).

Computers have made organisations more effective and efficient but more often than not is the politics of, as well as the cultural and social costs and values of computerization ignored (Iacono & Kling, 1996:87). One value-laded area that currently is undergoing a lot of change, partly due to computerization, is elderly care. One change connected to the use of computers is the change in work content for health-care professionals working with geriatric care. From being a foremost caring profession the staff involved in geriatric care work more and more with administration. The health-care sector is an area where it traditionally has been very hard to calculate economic payoffs, and since elderly care and specifically local government run elderly care rests on different values than purely economic we need to look more carefully into the non-economic dimensions of computerization. It is every citizen's right to have access to elderly care, no matter his or her ability to pay its costs. In elderly care, as in every other local government service, each citizen is to be treated as equal. Elderly care is in part regulated by laws. These issues together with the goal of cutting costs raise special questions about why local governments, and especially service in elderly care choose to computerize. As Kling says: *"The decisions to computerize are never merely economic"* (Kling, 1996:112). Elderly care is one of the last sectors to undergo computerization in Sweden and as such it is very interesting to see what effects the implementation of computers have on the work, organization and quality of elderly care.

Area of Research – Social Informatics

My area of interest is closely related to the developing body of research named social informatics, which Kling et.al. describe as *"…the interdisciplinary study of the design, uses and consequences of ICTs [information and communication technologies] that take into account their interaction with institutional and cultural contexts"*

(Kling et.al, 2000). Researchers in social informatics view computers and computer systems as sociotechnical networks with social, cultural, political, as well as economical properties that influence and shape the artefact, its deployment, and use.

Social informatics encompasses according to Kling (et.al., 2000) three main orientations: analytical, normative and critical. My future study addresses both the analytical and the critical tradition. The analytical orientation deals with studies with the purpose of developing theories, while the critical orientation of social informatics has as its main objective to examine *"…ICTs from perspectives that do not automatically and uncritically accept the goals and beliefs of the groups that commission, design, or implement specific ICTs"* (Kling, et.al., 2000:17).

Social informatics is very closely related to another, although a bit more heterogeneous area of study that I have been inspired by – the social construction of technology (e.g. Winner, 1980; Bijker, 1995; MacKenzi & Wajcman, 1999) and actor-network theory as presented by Latour (e.g. 1986; 1992; 1999). Even though the advocates of Social informatics not explicitly draw on, or relate themselves to this area, I feel that ask types of questions, and have the same perspective on the design and use of technology. Researchers working with the social construction of technology and actor-network try to unravel why and how some technologies become stabilised and used. The construction of technologies is not only a matter of the physical properties of a specific technology or artifact, but also an effect of its social, political and economical context.

Social Informatics, Local Governments, and Values

Information systems implemented in local governments have seldom drawn any public attention, although information systems, and not the least governmental information systems, are laden with political and social values (see e.g. Danziger et.al., 1982), which influence their design, use, and impact. Danziger et. al. call the computerization of organizations one of the most pervasive applications in a silent revolution (1982:1). This is very true also in the case of local governmental information systems, they are used on every level in order to help to make decisions, budget plans, as well as the more operative work.

Danziger et.al. (1982:11) mean that there are five types of interests or values that can be found in most local governments: personal, managerial, professional, technical, and public. Personal interests cover for instance career ambitions, status, reelection and advancement. Managerial interests and values focus on the maintenance and enhancement of organizational guidance and control. Professional interests and values are related to the maximisation of autonomy professional personnel. Technical values involve the maintenance and enhancement of technology, and finally, public values and interests are concerned with serving the community as a whole. There is, as can be seen from this short expose, theories as well as earlier studies to build on. The study by Danziger et.al. is very closely related to my planned doctoral work.

My Research Questions

The overall question I expect to answer is: "Why do Swedish local governments computerize, and which are the consequences?" More specifically the reasons for, and effects of computerization in local government organizations within elderly care using different stakeholders (relevant social groups (Bijker, 1995)) as an analytical frame. My study has thus two main focuses; 1) acknowledged and not acknowledged reasons for computerization (e.g. values and goals) and 2) expected as well as unexpected negative and positive effects of computerization.

Questions expected to be answered

The "Why" in the first part of the above question can refer to a number of things: reasons, objectives, goals or intentions accompanied with values and norms that influence the reason for acting in a certain way. These reasons, objectives and values etc. can be more or less explicit as well as acknowledged or not acknowledged. An explicit objective is an objective that has been expressed and clearly stated, while a non-explicit objective is a hidden reason that no one has spoken about. To acknowledge something means to "accept or admit the existence or truth of" (The New Oxford Dictionary of English, 1998). See table 1 below for an analysis on the relationship between acknowledged and explicit.

Reasons for computerization	**Explicit**	**Not Explicit**
Acknowledged	Open	Hidden
Not acknowledged	-	Unknown

Table 1: The relationship between acknowledged and explicit

Elderly care is in Sweden run by local governments and there are many relevant social groups influencing decisions about computerization: politicians, civil-servants, management, nurses, health-care professionals[1], consultants and system constructors, system administrators, constructors, care-takers, and care-takers's families. The study focuses on computer systems supporting administration of elderly care in home-help and nursing homes. The users of these systems are health-care professionals working with elderly in different nursing homes as well as in the elders' own homes. This is the core of geriatric care.

In order to answer the first part of the question: "*Why do Swedish local governments computerize elderly care*, and which are the consequences" the study will focus the decision- and implementation process for a specific system. I need to gather knowledge about:

1. Reasons for and values underlying decisions to buy or a construct a system,
2. the requirements specification phase, and
3. the implementation process, acts and decisions about adaptation and instalment.

These three areas cover the "why", "when", "what", "who" and "how". I need to know why computerization in elderly care has occurred, when this happened, what happened in what order, how, as well as who was involved. Following Yin (1994) I operationalize the research questions in a high degree in order to plan data collection and to facilitate analysis and comparison between the different cases.

The three areas covering "reasons for computerization" can be dived into a number of questions:

1. Reasons for and values underlying decisions to computerize:

- 1.1. Which are/were the open reasons (explicit and acknowledged or not explicit and acknowledged) to computerize?
- 1.2. Which are/were the hidden reasons (not explicit but acknowledged) to computerize?
- 1.3. Which are/were the unknown reasons (not explicit and not acknowledged) to computerize?
- 1.4. Which are the values influencing these decisions?
- 1.5. Which institutionalised norms influence decisions to computerize?
  - 1.5.1. Are there any explicit strategies to support organizational change and development?
  - 1.5.2. Are there any explicit strategies to support investment of information technology?
- 1.6. Who (which groups) are involved in the decision process.
- 1.7. Which are the real reasons, according to the nurse-takers, for the computerization?
- 1.8. Which formal decisions concerning computerization have been taken when by whom.

2. The requirements specification phase:

- *2.1.* In what way have the system's requirements been gathered?
  - *2.1.1.* Who has been involved?
  - *2.1.2.* How has the work been organised?
- *2.2.* What has influenced the requirements?
  - *2.2.1.* Which laws and regulations have influenced the requirements?
  - *2.2.2.* Which overall organisational goals influenced the requirements?
  - *2.2.3.* Which relevant social groups have influenced the requirements and in what degree?

3. The implementation process and acts and decisions about adaptation and instalment:

- 3.1. What type of system is decided upon?
  - 3.1.1. A standard system?
  - 3.1.2. An in-house project?
- 3.2. How is the system implemented?
  - 3.2.1. Who is involved in the implementation process?
- 3.3. What parts in the organisation will the system support?
- 3.4. What parts of the system is used (if a standardised system)?
- 3.5. When and in what order are the decisions made?
- 3.6. Which formal decisions concerning implementation have been taken when? (1. buy or construct? 2. which system? 3. what will the system support? 4. implementation)
- 3.7. Are there any explicit strategies to guide the implementation?
- 3.8. Who is involved in the implementation?

The second part of the research question "Why do Swedish local governments computerize elderly care and *which are the consequences*?" concerns consequences and effects of computerization. The focus here is on consequences in the work carried out by personnel employed in a specific nursing home. This involves health-care professionals and administrators work with elderly care. I am not interested in consequences for e.g. the

[1] Health-care professionals refer both to management and nursing personnel empolyed in a nursing home.

work of politicians or civil-servants or other work outside the nursing homes or at the homes of the elderly. This work involves health-care professionals work with e.g.:

- planning elderly care
- carrying out elderly care
- evaluation of performance
- administration around elderly care

The question about the effects of computerization needs also be divided into a number of sub-questions:

4. *Which are the effects of computerization on the work carried out by employed in a nursing home?*
   - 4.1. How did they work before the implementation of the system?
   - 4.2. How do they work after the system has been implemented?
     - 4.2.1. Have their work content changed after the implementation?
   - 4.3. Which are the positive effects of computerization?
   - 4.4. Which are the negative effects?
   - 4.5. Has computerization changed their roles?
   - 4.6. Has computerization changed how they view their work?

This study will be built up on a number of cases and in order to understand differences in outcomes there is also a need to gain knowledge about the local political system and the organization in general, as the local political system *"…can determine the nature and affect the impacts of the computer package in a local government"* (Danziger, et.al., 1982:10-11). Following Danziger et.al. (ibid.), the study should also cover background knowledge as:

- Organizational structure
- Professionalism of government personnel
- Administrative orientation of the government
- Centralisation of authority

My contribution will be both theoretical and critical. I hope to contribute to a theory on values, objectives, and effects concerning computerization in local governments, while I at the same time expect to unravel the power struggle the exist between different groups controlling the process of computerization.

Proposed Research Strategy

In order to answer the questions about reasons for computerization and its effects I will conduct four comparative case-studies in three different local governments. There are two cases at the fist (anonymous) local government, KIT and CareSys. The other local governments are Gothenburg and, Örebro. Comparisons within and between the different cases will help me to gain a deeper understanding about differences in objectives for computerization as well as its consequences. In the first case – KIT – I am, together with other researchers, management and health-care professionals in an elderly care unit constructing a computer system for elderly care. In the second case, CareSys, I study a system that has been in use for about two years. In Gothenburg they recently implemented a computer system within elderly care and in Örebro they are currently working with the requirements specification for a system in elderly care. Table 2 below very briefly compares the different cases on the following criteria: researcher's role, research strategy, time span for the effect's study, type of system, system domain, initiator and expressed initial reasons. Following my questions the cases will focus 1. the decision- and implementation process and 2. the health-care professionals work with home-help before and after implementation. For data collection and analysis I will use different relevant social groups as a starting point and analytical framework.

	Research-er's role	**Research strategy**	**Time span for the effect's study**	**Type of system**	**System domain**	**Initiator**	**Expressed initial reasons**
KIT	High degree of inter-vention	Following the process	Short-time (just after implementa-tion)	In-house	Health-care professionals' work (plann-ing, carrying out and follow up)	Researchers & health-care professionals in an elderly care unit	Support health-care professionals work
CareSys	Non-intervening	Reconstructing	Long-time (after 2-3 years of use)	Standar-dized	Debiting, planning and following up on different levels etc.	High-level managers	Replace an old system. Support de-biting, plan-ning and fol-

							low up on a high-management level
Örebro	Low degree of intervention	Following the process	Short-time (just after implementation)	Standardized	Debiting, invoicing, planning on different levels etc.	Technicians	Replace an old system. Implement a system for everyone working with elderly care
Gothenburg	Non-intervening	Reconstructing	Medium time (after 1 year of use)	In-house	Health-care professionals work – (planning and carrying out)	Mangers at an elderly care-unit	Improve care by improving information about the elderly

Table 2: Comparison between the different cases

As my interest is critical oriented and I want to develop an understanding about values, goals and effects, the strategy will mainly be qualitative and interpretative. I will, and have used, interviews, document analysis, and observations. Analysis of data will follow an interpretative approach (perhaps similar to grounded theory) where I use the different groups as the main layer of analysis. I will also structure and analyse goals, problems and activities according CA/SIMM (e.g. Goldkuhl, 1992; Goldkuhl & Röstlinger, 1993) for different stakeholders in the systems under study.

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