

# **SOCIAL CHALLENGES WHEN IMPLEMENTING INFORMATION SYSTEMS IN A SWEDISH HEALTHCARE ORGANIZATION**

Lina Nilsson

Blekinge Institute of Technology  
Doctoral Dissertation Series No. 2014:14  
Department of Health



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Doctoral Dissertation in  
Applied Health Technology



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BLEKINGE TEKNISKA HÖGSKOLA

Social Challenges when Implementing  
Information Systems in a Swedish  
Healthcare Organization

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**Lina Nilsson**



*To my family, your support is like a light in the window on a dark night.*



*'Technologies are created not by lone inventors or geniuses working in a social vacuum, but by a combination of social forces and processes...'*

(Mackay and Gillespie, 1992 p.688)

## Abstract

When the Swedish National IT Strategy for Health and Social Care was introduced in 2006, intensive work started in implementing Information Systems (IS) in Swedish healthcare organizations. To follow up on the requests for more research with a combined socio-technical focus on challenges, the overall aim of this thesis was to identify social challenges when implementing IS in a Swedish healthcare organization. Furthermore, the aim was to understand the impact of identified social challenges when implementing IS in this context by putting them in an interdisciplinary Applied Health Technology theoretical framework. Institutional ethnography and phenomenological hermeneutics influenced the study design. **Study 1** aimed to investigate different meanings of accessibility when implementing Health Information Technology in everyday work practice. The results indicate that accessibility depends on working routines, social structures and patient relationship. When an IT strategy and interaction in everyday work use the same word in different ways there will be consequences. **Study 2** sets out to describe experience-based reflections on discharge planning as narrated by nursing staff in primary healthcare, along with their concerns about how the introduction of video conferencing might influence the discharge planning situation. It was found that there is a need for improvement in communication and understanding between nursing staff at the hospital and in primary healthcare. The aim of **study 3** was to explore social challenges when implementing IS in everyday work in a nursing context. Power (changing the existing hierarchy, alienation), Professional identity (calling on hold, expert becomes novice, changed routines), and Encounter (ignorant introductions, preconceived notions) were categories presented in the findings. The aim of **study 4** was to explore and obtain a deeper understanding of how identified social challenges have an influence on the implementation process of IS, based on healthcare staff's experiences on micro, meso and macro levels of Swedish Healthcare organizations. It was found that the challenges were related to the steps of putting into practice, making IS a part of everyday work routine and establishing an identity in the implementation process. In the thesis's discussion, social challenges when implementing IS in Swedish healthcare organizations and how they might be met and dealt with constructively are further reflected upon in relation to the interdisciplinary theoretical framework and as possible consequences of the modernity-era. This thesis contributes to the starting up of a discussion of how ingrained professional characteristics are important to feel secure of *being* part of an established profession. If the characteristics are questioned, the whole professional performance is threatened. One

consequence of this insight is the reinforcement of the realization that a basic understanding of IS and IS implementation processes in healthcare organizations needs to be integrated in to the construction of professional identity of nurses already from the start in nursing education.

**Key words:** Applied Health Technology, Health Informatics, Healthcare Organizations, Information Systems, Implementation, Institutional ethnography

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## List of publications

Nilsson, L., Hofflander, M., Eriksén, S., and Borg, C. (2012). The importance of interaction in the implementation of information technology in health care: A Symbolic Interactionism study on the meaning of accessibility. *Informatics for Health and Social Care*, 37(4), 277-290.

Hofflander, M., Nilsson, L., Eriksén, S., and Borg, C. (2013). Discharge planning: Narrated by nursing staff in primary healthcare and their concerns about using video conferencing in the planning session – An interview study. *Journal of Nursing Education and Practice* 3(1), 88-98.

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Nilsson, L., Hofflander, M., Eriksén, S., and Borg, C. (2010). From Twitter to data based patient record. Newly graduated nurses’ experiences on IT in a traditional profession. Conference article, *Information System Research Seminar in Scandinavia 33*, August 2010, Aalborg/Bakker, Denmark.

Nilsson, L., Hofflander, M., Eriksén, S., and Borg, C. (2010). PD 3.1 to the rescue. Challenges for participatory design in a health care context. Conference article and poster, *Participatory Design Conference*, November/December, 2010, Sydney, Australia.

Hofflander, M., Nilsson, L., Eriksén, S., and Borg, C. (2014). Video conference as a tool to enable participation in discharge planning – Experiences from implementers about the implementation process conference article, *Hawaii International Conference on System Science 47*, January, 2014, Waikoloa Hawaii, USA.

Eriksén, S., Georgsson, M., Hofflander, M., Nilsson, L., and Lundberg, J. (2014). Health in Hand - Putting mHealth design in context. Workshop paper, *Second International Workshop on Usability and Accessibility focused Requirements Engineering, UsaRE 2014*, August 2014, Karlskrona, Sweden.

Eriksén, S., Hofflander, M., Nilsson, L., Borg, C., Georgsson, M., and Lundberg, J. (2014). Transforming healthcare delivery: ICT Design for self-care of type 2 diabetes. Workshop paper, *NordiCHI 2014 Designing Self-care for Everyday Life Workshop*, November 2014, Helsinki, Finland.



## Foreword

Perhaps you are wondering why anyone would wish to study the rather tricky question of implementation of Information Systems (IS) in Swedish healthcare without having any experience of nursing or any in-depth knowledge about technology? Would not it be more suitable to study, let us say, social inequities or gender if you are a Sociologist? Or perhaps it would be more proper to study organizational practice of Lean, if you have a Degree in Quality Management? Well, of course it would have been more proper and suitable, but sometimes you need to take up gauntlets that come in your way. This thesis is the result of my taking up the gauntlet that came in my way.

My interest concerning the implementation of IS in Swedish healthcare was awakened in 2007. At that time, I was a research administrator at Blekinge Institute of Technology. I got the opportunity to become a part of a project that was about using existing IT tools in order to improve Swedish healthcare. In the midst of it all, the Swedish Government published a strategy on how healthcare could become safer and more accessible with IT tools. One year later, I wrote my Master's thesis in Sociology about what accessibility means in an organization with sharp dividing lines between organizational units and between levels of the hierarchy and with overconfidence among management that IT would solve any accessibility issues. My Master's thesis study showed otherwise; IT in itself does not create accessibility. It is the people in IT-reliant work systems in the health sector that make healthcare safe and accessible. In the thesis, I used my 'sociological eyes' to see obvious things in Swedish healthcare from another perspective. Everyone knew about the dividing lines between organizational units and between levels of the hierarchy, but what influence did they have on a common strategy focusing on accessibility? A lot of influence I would say. I have tried to keep these eyes sharp all through my postgraduate studies looking at things we are doing and things we are saying from another perspective. Or as Bauman (2001) might have expressed it, I have tried to look at well-known activities in everyday life as though they were strange to me. For instance, when we say we do not have time, hurriedly moving on to the next task- then if you look at it with 'sociological eyes', perhaps time does not mean an exact number of hours and/or minutes that are lacking at the precise moment in relation to the daily work schedule and/or the specific situation at hand.

This thesis is written within the research area of Applied Health Technology. Of course the main focus is on Health Technology, but at the same time my scientific backgrounds is in

Sociology and Quality management. Given this background and my interest in socio-technical systems, combined with a focus on health technology and with the gauntlet (spelled IMPLEMENTING IS IN SWEDISH HEALTHCARE) that has come in my way and which I have chosen to pick up, I invite you to come along on a journey that will take us to a place where IS sometimes have revolutionized the work system but at the same time broken many promises. The journey will take us to a place where, one might say, IT IS complicated. Throughout my postgraduate studies, I have written an ethnographical research diary. As an introduction to every chapter you will get a glimpse of these notes. Enjoy the thesis- Bon Voyage!

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## **ABBREVIATION LIST**

**EHR:** Electronic Health Record

**HIT:** Health Information Technology

**IS:** Information Systems

**IT:** Information Technology

**R & D:** Research and Development

## **GLOSSARY**

Concepts may be seen as the starting point for research, like a label of a thing or a part of society that reminds you of what is to be further investigated in research. In other words, a concept indicates connectedness to a categorization of organized ideas and experiences (Bryman, 2012).

Below is a glossary of frequently used concepts in the thesis.

**CONTEXT:** socially framed situation where individuals have found and maintain their social identity (Goffman, 1990).

**EVERYDAY WORK:** routines, standardizations, cooperation, and activities that assist organized individuals to reach their goals at work (Hartswood et al., 2003).

**EXPERIENCE:** An individual interpretation, perception, and understanding of the context, based on former interpretation, perception, and understanding of lived through interplays (Lee, 2004).

**IDENTITY:** how an individual sees herself or himself related to how other individuals see her or him. An identity is looked upon as a social construction: it is constructed in interaction in a certain context (Kinnvall, 2003).

**IMPLEMENTATION:** planned processes and systematic introductions that synthesize knowledge in a complex context with the aim of achieving benefits of innovations for individuals through improved health, effective systems, and a strengthened healthcare organizations (Eccles et al., 2009, Grol et al., 2005).

**INFORMATION SYSTEMS:** networks used by individuals and organizations in order to process and distribute data to be able to create information for defined purposes. Information is data (e.g. numbers, figures, and text) in its context. The overall aim of an Information System is to give individuals and organizations knowledge of the context (Stair and Reynolds, 2011).

**INFORMATION TECHNOLOGY:** technologies that make use of and retrieve data and store information (Rockart et al., 1996). IT is interpreted as being the computer network in Swedish healthcare organizations, assisting IS in creating knowledge.

**INNOVATION:** an object, idea, or practice that is apprehended as new by its users (Rogers, 2003).

**IT-RELIANT WORK SYSTEMS:** *“IT-reliant work systems are work systems whose efficient and/or effective operation depends on the use of IT”* (Alter, 2003 p.367).

**KNOWLEDGE:** When individuals construct reality, the origin of knowledge and its relation to reality is with the subject (Wallén, 1993, Sohlberg and Sohlberg, 2008). Interaction and the constructions of reality that are included in interaction are in focus in this thesis. This thesis treats reality as something that is dependent on individuals’ perceptions and notions: the reality about healthcare everyday work and knowledge about it is created in interaction between staff members and with patients etc.

**ORGANIZATION:** According to Hatch (2012) and Ahrne (1996) et al., an organization is a group of individuals that have organized themselves with the aim of achieving certain goals. Organizations may vary in size and features, but they always have goals, coordinated activities and collected actions, and they are structured so that they fit the surrounding context. Often, an organization culture is developed (ibid.).

**RESPONDENT:** the interviewee: the individual who shares experiences with the interviewer during interviews (Kvale and Brinkmann, 2009).

**SOCIAL CHALLENGE:** a critical (Sittig et al., 2008, Sittig, 1994), or significant barrier (Anderson, 2007) in relation to people, values, norms, culture, and goals in an organization (Westbrook, 2007).

**STRATEGY:** preparations or guidelines that determine future decisions: the strategy is the foundation for the behavioral pattern decisions need to have in order to reach certain goals (Mintzberg, 1978, Ward et al., 2002). According to Mintzberg (2003 p.10), a strategy is *‘The pattern or plan that integrates an organization’s major goals, policies, and action sequences into a cohesive whole. A well-formulated strategy helps to marshal and allocate an organization’s resources into a unique and viable posture based on its relative internal competencies and shortcomings, anticipated changes in the environment and contingent moves by intelligent opponents’*.

**UNDERSTANDING:** In qualitative research understanding refers to deepening insight into a social context (Creswell, 1998).

**WORK SYSTEM:** *“A work system is a system in which human participants and/or machines perform work using information, technology, and other resources to produce products and/or services for internal or external customers”* (Alter, 2003 p.368). The concept has been used since the 1970:s by researchers who have been interested in studying and developing



knowledge about socio-technical systems rather than focusing solely on IT artifacts (Alter, 2003). In this context, “customers” should be understood in a broad sense – in healthcare it could include patients, their next of kin, healthcare staff and other relevant stakeholders in relation to the specific work system being studied. In this thesis, Swedish healthcare organizations are viewed as consisting of multiple work systems which are interconnected and interrelated to varying degrees.

## **Research diary: Introduction**

*It is autumn and there is a drizzle outside. There are still some leaves on the trees, but they are all yellowish. Any day now they will all fall off. It is really cold outside, I had to put on an extra jumper on my way to the hospital today. Yes, today is my first day at the hospital.*

*Finally my research studies can start somewhat for real. I have been waiting a long time for this day to come. When I'm writing this, I am sitting in the corridor on an orange vinyl-coated sofa just outside the hospital ward where I'm going to do my first research observations. I am alone. The white painted corridor seems endless. It smells sterile: you know when there are no scents at all? I look at my wristwatch, it is 2 minutes to eight in the morning. I and the ward manager are supposed to meet here at eight o'clock. Ah, 2 minutes left, this is a perfect moment for going through my notes and aim of my research. On the first page of my research note pad I have written **Implementation of Information Systems in healthcare** in bold blue letters. This is the core of my research; this is what I need to focus on during my observations and during five years as a PhD student. It sounds difficult. I'm getting a bit uncertain if I can pull this off. I hardly know anything about Information Systems and implementation... Oh, suddenly I do not remember anything! Perhaps I should do something else instead... is this research thing really for me? Oh, yes it is. You have been struggling for such a long time now Lina to be at this point right now.*

*Outside the rain is coming down in buckets. The wind is rising: it looks like the poor leaves are keeping a firm hold of the trees. My hands are a bit sweaty. Suddenly I hear the elevator, someone is coming. I mop the sweat off my hands; I sit up straight and take a deep breath. You will pull this off, Lina! The elevator doors are opening. Yes, there is the manager. I have to go now, talk to you later.*

*1, 2, 3 let us do this now! Here we go!*

## INTRODUCTION

This is a thesis about complications when Information Systems (IS) and Information Technology (IT) are to be implemented in a Swedish healthcare organization. IT IS complicated one might say, especially when it comes to implementation. The focus in this thesis is an important but unfortunately somewhat neglected perspective (Koch, 2006, Azad and Faraj, 2011) on why Swedish healthcare organizations still after several decades are struggling with implementation of Information Systems (IS) in everyday work. The slow implementation process of IS and IT in healthcare has been explained in technical terms (CeHis, 2012) and with problems concerning usability (Scandurra, 2013a). This thesis is based on empirically identified challenges deeply rooted in routines, interaction, and norms in a Swedish healthcare organization. Also, this thesis will try to deepen the reader's understanding of why these challenges are powerful. But let us start from the beginning, from that autumn day in 2008 when there was a drizzle outside the hospital window.

That autumn (2008), my supervisors and I sat down in a meeting with a county council in the south of Sweden. At this time, the Swedish Government had published a strategy about how Information Technology (IT) needed to be implemented in Swedish healthcare organizations in order to provide safe and accessible care (Socialstyrelsen, 2006). The strategy invited local initiatives in implementing IT as a kind of link between healthcare institutions and the patients. I remember we were quite creative about how this link might look like in order to assist safe and accessible care. For instance, six months later together with my supervisors patients, and healthcare staff we had together created a healthcare TV channel where patients and staff could interact face-to-face. Unfortunately, this project was a small pilot project which did not result in an actual solution being launched in the healthcare organization. Just as many other IT projects in healthcare at that time, the healthcare channel was a success when it was a pilot project. However, when it was time for implementation in Swedish healthcare something happened (Or rather, *nothing* happened). Of course, financial support almost always is an issue when projects are to be implemented in everyday work. But there was *something* besides the financial part that made it difficult to establish it. I think you might recognize this as a feeling of hopelessness that the IT project somehow at some point always seems to reach a blind alley? For five years, I have tried to identify what it is that causes the blind alley effect. What are the bricks in the wall that are blocking the way in the blind alley? In my research I call them social challenges when implementing Information Systems (IS) in Swedish healthcare.

The thesis was carried out in the research area of Applied Health Technology at Blekinge Institute of Technology. It was mainly written within the framework of the project ‘*Syster Gudruns Fullskalelabb i Blekinge för IT i vård och omsorg*’ (English translation: ‘*Nurse Gudrun’s Full-Scale Lab in Blekinge for IT in Nursing and Caring*’)<sup>1</sup>. The thesis was supposed to be a part of the research studies in the project with a focus on development of a healthcare channel. When the healthcare channel part of the project was closed down, the thesis ended up in a blind alley. It was then I started to think about social challenges when implementing IT or IS in healthcare. The road to the blind alley started in **study 1** where I was talking to healthcare staff about the health care channel. We talked about it, but we talked even more about the recently published IT strategy. The respondents in **study 1** did not recognize themselves when the strategy was talking about accessible healthcare: the way the strategy was talking about accessibility did not fit with how the word was used in their work context. In my research diary, I wrote a lot of notes about different interpretations of words and how they may affect the interaction. At the same time, I worked together with my colleague and my supervisors on **study 2**. In this study it became evident that IT alone cannot provide safe and accessible healthcare. The true resources are the individuals using (or not using) IT. With my notes and our discovery, I felt confident in searching for social challenges when implementing IS in healthcare organizations. My confidence was confirmed by reports from Socialstyrelsen (2011) and CeHis (2012) on recurring delays in the implementation process of IT in Swedish healthcare. The reports introduced plans of actions on how to use IT in order to provide safe and accessible care in Sweden within a few years. I see this thesis as a compliment to the plans of actions where the plans are perhaps more explicit concerning goals and how Swedish healthcare may reach them. This thesis looks more at how things we do and what we say often are connected to social structures. That is, people are socially organized in certain ways to fit ruling relations in society. If the organization does not fit with ruling relations or vice versa, there will be blind alleys or serious social challenges to consider in the implementation process of IS in Swedish healthcare.

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<sup>1</sup> This project was collaboration between Blekinge Institute of Technology and Blekinge county council. The aim of the project was to use existing IT tools (Information & Communication, Information System) to improve safety and accessibility in Swedish Healthcare.

## **Thesis outline**

This thesis is a synthesized framework based on four research studies. Chapter one (*Introduction*) includes an introduction to why this research was conducted. Chapter two (*Background*) presents the background explaining why this research is needed. It also introduces Applied Health Technology as an interdisciplinary research area. In chapter two the overall aim of this thesis is presented. Finally, related concepts are discussed in relations to the aim of the study. Chapter three (*Theoretical framework*) presents the theoretical starting point of the thesis. In chapter four (*Methodology and strategy of inquiry*) the methodology is described: it introduces the ontological, epistemological and methodological basis of the thesis. Ethical considerations are discussed in this chapter. Chapter five (*Findings*) presents a summary of the results of **studies 1-4** and also a synthesis of the findings. Chapter six (*Discussion*) is divided in two parts: the first part includes discussions of the findings of this thesis while the second part includes methodological considerations. The last chapter (*Conclusion and future work*) includes concluded remarks and suggestions of future research. It also presents the contributions this thesis may make to Applied Health Technology and to practical everyday work in healthcare organizations.

## **Research diary: Background**

*Today I attended a conference about Information technology in healthcare. The conference was great and I met a lot of interesting people. They presented many valuable projects in Sweden all about implementing different kinds of IT or IS in healthcare contexts. Almost all of them began their presentations with a happy smile and a story about how useful their specific IT or IS project was to Swedish healthcare. But on the last page of every PowerPoint presentation there was a slide about all the difficulties in implementing their project and an excuse about the project being delayed. I recognize the almost dejected feeling one get when it is time to implement a useful IT tool in healthcare. I do not know what it is, but for sure there is something there that disrupts the implementation process. Often this happens anyway! Today I have had mixed feelings about this aha reaction (about all the difficulties): it feels good to know that I'm not alone with difficulties in implementing the project I am involved in, but at the same time it is sad that IT projects almost always are delayed. I mean, a delay must be bad for IT's reputation in healthcare, must it not? Ah, someone ought to look deeper into these difficulties! I have just started my research, but just off the top of my head I would say that the structure of the organization for sure affects the implementation process. Perhaps this question is the beginning of my research? The project I am in will not continue, so maybe it is I who will try to answer the question: why are IT projects in Swedish healthcare always delayed?*

## BACKGROUND

In this chapter, the central concepts Information Systems and implementation are defined. Also, a brief historical overview of implementation of IS in Swedish healthcare from 2006-2012 is presented. Interdisciplinary research and Applied Health Technology are introduced. Rationale and overall aim are also included in this chapter.

### Defining Information Systems

Information Systems (IS) are interpreted as networks used by individuals and organizations in order to process and distribute data to be able to create information for defined purposes. Information is data (e.g., numbers, figures, and text) in its proper context. The overall aim of an Information System is to give individuals and organizations knowledge of the context (Stair and Reynolds, 2011). Also, the definition of IS includes how individuals and organizations are interacting with the technology to support everyday work processes and routines (Kroenke et al., 2010). In this thesis this means that IS are networks used in everyday work in Swedish healthcare organizations with the overall aim to create knowledge of for instance patients and organizational routines. Clinical Information systems like Electronic Health Records (EHR) and decision support systems are included in the interpretation of IS (Gaylin et al., 2011). In this thesis, and in included research articles, IS are used in the plural: interviewed staff members defined IS in the plural and narrated their experiences from the definition (see chapters Method and Methodological considerations). Information Technology (IT) is critical for IS: for instance, it is IT that makes use of and retrieves data and stores information (Rockart et al., 1996). IT is interpreted as being the computer network in Swedish healthcare organizations, assisting IS in supporting knowledge creation in the organization. In **study 2**, IT is used as a key word when describing how activities in everyday work are supposed to change with new working tools (IT). In **study 1**, Health Information Technology (HIT) is used as a central concept. According to Chaudhry et al (2006), HIT includes studies in health information in IT systems. HIT is used in a broad definition when describing for instance access to healthcare and how to increase productivity and security in healthcare. Decision support systems and EHR are examples of HIT (ibid.). In this thesis HIT is ranked in the same category as IS: they include the same functions and purposes. Due to varieties in predominant discourses, terminologies, and paradigms in research during my PhD studentship, the concept HIT is used in study 1 and the concept IS are used in **study 3** and **4**. Later on in this thesis, the concept of eHealth will be mentioned. eHealth is often used as a broad definition when describing healthcare that is supported by electronic or digital

processes (Della Mea, 2001). The concept includes systems that embrace healthcare and IT, for instance EHR and support systems (Fingberg et al., 2006).

In this thesis, eHealth is interpreted as the area where healthcare organizations and IT meet: it is within this area that HIT/IS are shaped to create information in order to give support for knowledge sharing and knowledge creation to individuals and organization.

### **Defining Implementation**

There is no one single agreed-upon and shared definition of implementation in healthcare research: different research areas and geographic regions within the healthcare research area use their own definitions (Bhattacharyya et al., 2009). For instance, when reporting the same kind of research, Europe refers to implementation when Canada refers to knowledge transfer (Foy et al., 2002). However, trying to define implementation, the concept includes planned processes and systematic introductions that synthesize research findings into routine practice in a complex context with the aim of capturing benefits of innovations for individuals through improved health, effective systems, and a strengthened healthcare organization (Eccles et al., 2009, Grol et al., 2005). Innovation is an object, idea, or practice that is apprehended by users as new (Rogers, 2003). This means that IS are interpreted as being innovations whose benefits need to be captured in order to improve Swedish healthcare organizations. IS need to be able to support the synthesizing of knowledge in everyday work to make healthcare more safe and accessible. In this thesis, implementation is used in reference to the efforts that are made after the decision is made about an innovation being introduced. Note that in this interpretation the innovation does not need to be brand-new, it only needs to be apprehended as new by its users.

Implementation may be seen as a step in an action programme with the aim of making the innovation a tool in everyday work. The programme starts with a knowledge phase where the user needs to get knowledge about the innovation. In the next phase, the user needs to be convinced about the value of the innovation. In the third phase, the user decides to use the innovation. Then it is time to implement it in everyday work or life: the user finds a use for the innovation. The last phase is about confirmation: the user decides to fully use the innovation or if the innovation should fall into disuse (Rogers, 2003). This thesis focuses on the implementation phase in Rogers' (2003) action programme: it is about when healthcare staff find or do not find a use for IS in everyday work in the healthcare organization.

Implementation is seen as a process in this thesis. According to Davenport (2013), a process is



interrelated undertakings that have been initiated to reach a specific result. In this thesis, and in the included articles, this means that the process is the activities where healthcare staff find or do not find a use for IS. Eccles et al. (2009) indicate that implementation research ought to be a part in a plan of changing a certain behavior. This kind of research often presents different barriers that need to be faced in order to prepare the plan. The barriers can be related to individuals' performances or organizational structures or culture (ibid.). The title of this thesis implies that a certain kind of barriers have been studied in implementation of IS in a healthcare organization. They are not called barriers in the text, but are explained as barriers (see chapter *Challenges that have been overlooked in research*). The reason why they are called challenges is a kind of scientific play on words. Challenges should be seen as obstacles that are not impossible to face and overcome in order to prepare the plan Eccles et al. (2009) is referring to: a challenge may be interpreted as something you wish to take on, while a barrier may be seen as an obstacle with feet of clay.

In Sweden, implementation research has several different kinds of focus and perspectives. The top-down perspective investigates how management decisions reproduce in the organization, the bottom-up perspective investigates the way everyday work decisions are developed and how they are implemented in the organization. The plan or project the research is a part of, determines the focus of the research (Olsson and Sörensen, 2011, Engström, 2005). Implementation research in Swedish healthcare organizations has become a hot potato: research results have to be implemented at a rapid pace to be of use as soon as possible to patients and staff. At the same time, implementation of research, tools, or ways of working are not necessarily in real use just because they are implemented per se. Therefore, Swedish implementation research highlights the importance of studying everyday work or practical action combined with studying the implementation process (Nilsen, 2010). In Human Service organizations such as the healthcare organizations, the combination of implementation and everyday work in studies is highly important due to that implementation never can be looked upon as a straight process when human services are involved in the process (Hasenfeld, 1983). This thesis focuses on a top- down perspective when a national strategy is urging Swedish healthcare organizations to implement IS in order to provide safe and accessible healthcare. It combines implementation with everyday work in discussions and included studies to present one perspective of real use of IS in Swedish healthcare. Research in this topic is done globally. For instance, Garpenby et al (2007) report barriers in communication and generalization when National guidelines for cardiac care were to be

implemented: there were no opportunities for dialogue nor for considering individual needs when the guidelines were implemented. Sandström et al. (2013) indicate that top-level management is of importance when national guidelines are to be implemented: if top-level managers are ignorant of guidelines, this will affect the implementation. The examples highlight that barriers, as Eccles et al. (2009) indicate, can be related to individuals' performances or organizational structures or culture.

### **Implementation of IS in Swedish healthcare organizations**

In 2006, *Nationell IT-strategi för vård och omsorg* (English translation: the National IT Strategy for Health and Social Care) was introduced. It verified that with an increasing population, rising needs for personalized caring solutions, and ageing population, Swedish healthcare organizations needed to use IT in everyday work in order to face new prerequisites for treating more patients in more efficient ways. The strategy declared that Swedish healthcare organizations needed to use IT support and tools (IS) in everyday work to provide for safe and accessible healthcare for everyone (Socialstyrelsen, 2006). The strategy was established two times, each for three years at a time: the aim was that in 2012 the strategy would be implemented and IS would be an everyday work supporting tool in Swedish healthcare organizations in order to provide safe and accessible care (CeHis, 2012). A strategy is to be interpreted as preparations or guidelines that determine future decisions: the strategy is the foundation for the behavioral pattern decisions need to have in order to reach certain goals (Mintzberg, 1978, Mintzberg, 2003, Ward et al., 2002). The National IT Strategy for Health and Social Care is interpreted as guidelines that need to be followed and integrated in everyday work in order to provide safe and accessible healthcare.

After the strategy was published an intensive work period started in Sweden on local, regional, and national levels. For instance, on the national level, laws and regulations were updated to fit the strategy (Socialstyrelsen, 2006), on the regional level, Region Skåne implemented a common EHR system in 2012 after some major delays (RegionSkåne, 2013). On local level, "*Syster Gudruns Fullskalelabb i Blekinge för IT i vård och omsorg*" is one of many ambitious projects that were initiated and carried through. Despite ambitious projects and contributions, follow up reports presented delays in implementation of IT projects on national, regional, and local levels. Sometimes the projects have not resulted in implemented IT at all after their project time (Scandurra, 2013a, RegionSkåne, 2013). Of course, financial support was the major issue when IT projects were to result in IT being implemented in everyday work, but project reports also highlighted other challenges when implementing IT,

like difficulties for staff members in seeing the needs and possibilities for IT in everyday work (Landstinget Blekinge, 2011). In Sweden, many studies have reported on failures and success stories when implementing IS in healthcare organization. For instance, Lundström et al. (2014) highlighted the importance of elucidating facilitation in implementation models. Nilsson et al. (2010) emphasized experiences of IS being a facilitator when they were once implemented in everyday working routines. Melin and Karlsson (2014) state that the implementation process is complex. It results in failures when many interpretations meet. At the same time they report successes in effectiveness and collaboration (ibid.). Nordmark et al. (2014) stated that nurses experienced IS being difficult to include in everyday working routines like discharge planning processes. Carlfjord et al. (2010a) agreed on this statement: their study showed that although IS were experienced as being useful tools, they were difficult to include in everyday working routines. Axelsson et al. (2011) reported that successful implementation of IS may be partially explained with the importance of key persons' commitment and organizational understanding. Scandurra et al. (2013b) emphasized the importance of using health informatics specialists as a kind of key person in the implementation process in order to ensure positive impact on everyday practice in the healthcare organization. To sum up, IS projects may be success stories but still several of the reported studies discussed the national eHealth strategy and the difficulties that arose when the strategy was to be implemented into everyday work in Swedish healthcare organization. Reported studies also mentioned that there are challenges that need to be explored in the implementation of IS.

By 2012, the strategy was still not fully implemented: challenges on every plan caused delays in the implementation work. The Swedish national Audit Office highlighted in their report (2011) that the strategy had failed in encouraging Swedish healthcare organizations in implementing IT as support and as a tool to provide safe and accessible healthcare. The same report talked about difficulties in working together across organizational borders when IT was to be implemented as a cross-organizational tool (ibid.). A plan of action (CeHis, 2012) was presented the same year: the aim is that before 2018, Swedish healthcare need to provide safe and accessible healthcare for everyone. Information and infrastructure should be based on IT tools in order to create an efficient workflow (ibid.). To sum up, implementation of IT as support and as a tool in Swedish healthcare organization has been delayed. When the implementation of IT was not finished in 2012, a plan of action was presented that postponed the vision of IT being the hub for healthcare and efficient workflow until 2018. When the plan

of action was presented, voices were raised about the reasons behind the delay. In 2013, members of professional societies in healthcare (e.g., Swedish Society of Nursing and Swedish Society of Medicine) initiated an investigation on the use of eHealth systems/ IT in Swedish healthcare. The investigation resulted in a summary report (Scandurra, 2013a) on eHealth research groups in Sweden and their research on eHealth. Blekinge Institute of Technology took part in the investigation: a research group in Applied Health Technology was interviewed in 2013 about their research projects. The report suggested 10 starting points that needed to be prioritized in making eHealth systems/IT more usable. For instance, eHealth systems need to be optimized constantly in relation to usability. Education of staff in eHealth and technical infrastructure are also mentioned as important starting points (ibid.).

This thesis was written during this rather intense period in Swedish healthcare: to implement IT has been a lengthy process that has been evaluated in different reports. Where Scandurra's (2013a) report focuses on designing eHealth and making systems usable, this thesis emphasizes different kind of challenges when implementing IS in healthcare organizations. Thus, both texts focus on systems and computer networks for providing individuals and healthcare organizations knowledge-sharing and knowledge-creation of the healthcare context. Challenges discussed here derive from the difficulties local projects reported (Landstinget Blekinge, 2011): the things that happened in everyday work when something new (e.g., IS) is introduced and supposed to become an integrated part of traditions, context, and practices.

Swedish healthcare organization is divided and spread across 20 county councils. Every county council is responsible for that patients get safe and excellent care. They have divided their care organization (in a basic outline) in primary health care and hospital care. The Swedish Government is responsible for overall decisions in Swedish healthcare organizations and may also make certain inputs concerning how healthcare may become more safe and accessible. Local authorities in Swedish municipalities are responsible for elderly care (Swedish Government, 2013). This thesis and the included studies were framed and carried out in a county council in the south of Sweden during 2008-2014. The county council is divided in five divisions. Every division is divided into subdivisions or clinical departments. The thesis and the included studies were conducted in two of the divisions: the hospital division and the primary healthcare division. In all, approximately 5000 individuals are permanently employed by the county council. About 1500 of them work as registered nurses (SKL, 2014). When this thesis refers to a healthcare organization it means this organization

(county council). According to Hatch (2012) and Ahrne et al. (1996), an organization is a group of individuals who have organized themselves with the aim of achieving certain goals. Organizations may vary in size and features, but they always have goals, coordinated activities and collected actions, and they are definitely structured so that they fit the surrounded context. Often, an organization culture is developed (ibid.). Individuals in an organization do not interact in a vacuum, but interact with other individuals in the organization and beyond. Norms, values, and meanings become the foundation of the culture: they are learned and taught in and through the interaction within the organization. Symbols and cultural artifacts, such as IS and practices in healthcare, and individuals cooperate in order to mediate the context they are a part of (Kaptelinin and Nardi, 2006). In this thesis, everyday work is used as a central concept. This concept should be understood as routines, standardizations, cooperation, and activities that assist organized individuals to reach their goals at work (Hartswood et al., 2003). So, a healthcare organization is interpreted as organized individuals with the aim to provide safe and accessible healthcare in Sweden. IS are artifacts in the organization that should assist organized individuals in their everyday work activities to mediate the world. In this thesis, Swedish healthcare organization is seen as a whole: the thesis does not consider different divisions or specializations (e.g., primary health care and hospital care) due to their overall common aim of providing healthcare. In working towards this common goal, some challenges have been encountered. Understanding more about these challenges is the main focus of this thesis.

### **Focus in earlier research**

Earlier research reports several organizational benefits when implementing IS in healthcare: administration and information flow have become more efficient and effective (Schoen et al., 2006). Also, IS have supported the provision of holistic overviews of care processes: user centered design of IS supports organizational cooperation in seeing the patient as a whole (Vimarlund et al., 2008). Earlier research emphasizes the importance of maintaining a relation between needs and healthcare innovation solutions: if there are insufficiencies in interoperability and usability of healthcare innovations, there will be obstacles encountered when using them (Larsson, 2013). Several case studies report the importance of letting healthcare staff and patients be involved in the development of IS or IT prototypes (Mahmud et al., 2013, Åhlfeldt et al., 2013, Koch et al., 2014). At the same time as reported case studies emphasize benefits with IS or IT, they often call attention to organizational and technical challenges in the implementation processes. Challenges such as lack of user involvement and

cross-organizational cooperation (Åhlfeldt et al., 2013) are reported as well as challenges in system frame works (Alter, 2002) and in informatics-supported collaborative work (Koch et al., 2014). The challenges counteract the overall aim with IS implementation: there have been difficulties in distributing information in order to support knowledge sharing and knowledge creation among healthcare staff and within the healthcare organization (Baraldi and Memmola, 2006). Consequently, healthcare staff have been skeptical to the implementation and value of IS (Gagnon et al., 2006). Although attention has been called to both organizational and technical challenges when implementing IS in healthcare, technical issues in the implementation process have been in focus in research (Alter, 2002). Prototypes, IS frame works, and efficacy have been in the spotlight when implementation of IS in healthcare organization has been reported (Alter, 2002, Jamal et al., 2009). With this focus, organizational challenges may be diminished and be somewhat forgotten when talking about implementation of IS in healthcare organizations (Westbrook et al., 2009). We need to be reminded of that healthcare organization is always influenced by the implementation at the same time as it has an influence on the process (Berg, 2001). To highlight organizational challenges, interdisciplinary research with a focus on IS in relation to interpersonal activities in the organization is requested (Koch, 2010). This thesis aims at meeting this request: by creating a balance between technical and organizational challenges and combining them in the thesis, a complicated activity such as implementation of IS in a healthcare organization may be understood more deeply than before.

#### *Challenges that have been overlooked in research*

Although Bostrom and Heinen (1977) indicated more than 35 years ago that there were social issues when implemented IS in organizations, their findings have been overshadowed by other issues and challenges. However, recently challenges that arise in the relationship between IS and interpersonal activities, have been requested to be highlighted in research about implementation of IS in healthcare organization (Koch, 2010). Koch (2008) highlights that there will be challenges when IS are introduced to individuals as a new tool of communication in Swedish healthcare organizations (ibid.). Research has been reporting these kinds of challenges: for instance by using concepts such as user-driven design, participation, and usability (Larsson, 2013, Mahmud et al., 2013, Scandurra, 2013a). In their systematic review, Gagnon et al. (2006) reported individual factors and organizational environment as challenges when implementing IS in healthcare organizations: time consuming factors as well as workload affected the implementation process. Nilsson et al. (2008), Nordmark et al. (2014),

and Åhlfeldt (2008) highlight challenges in the organizations in the processes of letting information become knowledge. This is particularly difficult if information needs to move across organizational borders in order to be common and shared knowledge in Swedish healthcare (ibid.). Ngwenyama and Nielsen (2013) call attention to that organizations are affected by IS implementation: in order to implement IS, organizational influencing theory is necessary to use in the analysis to understand a complex process such as implementation. The research article suggests that there is a need for implementation teams in order to achieve process success (ibid.). Ward (2008), Axelsson et al. (2011), Azad and Faraj (2011), and Ayatollahi (2013), report staff attitudes and roles as major challenges in implementing IS in healthcare organizations: the way we think things are seems to affect the way we approach them. Thus, if staff are skeptical of IS before the implementation, there may be a risk that the skepticism influences the use of IS in healthcare organizations.

The request for doing research concerning challenges that arise in the relationship between IS and interpersonal activities has been responded to: time, attitudes, information barriers, and the need for use-oriented and user-driven design are only a few of the reported challenges. Despite reported research on the challenges in the relationship between IS and interpersonal activities, Azad and Faraj (2011) highlight the lack of social focus in the reported research. To follow up on the requests for more research with a combined socio-technical focus on challenges in this context, this thesis aims to explore empirically identified social challenges in the relationship between IS and interpersonal activities. In this thesis they are put in an interdisciplinary theoretical framework in order to address them more constructively. The challenges are called *social challenges* in this thesis. A social challenge is defined as a critical (Sittig et al., 2008, Sittig, 1994), or significant barrier (Anderson, 2007) in relation to people, values, norms, culture, and goals in an organization (Westbrook, 2007). Hence, a social challenge is a barrier in the relationship between IS and the things that keep staff together in the organization: the things that glue them together as a group. Nyberg (2008) states that technologies (e.g., IS) are a part of social practices and should therefore be explored from the perspective of social strategies and social interaction. The challenges presented in this thesis are therefore called social: they present barriers explored from the individuals' shared perspective. However, as these social challenges are impacting the socio-technological construction of IS in use in healthcare organizations – which are becoming more and more IT-reliant work systems (Alter, 2002) - this research is highly relevant for the interdisciplinary

research area of Applied Health Technology (which is presented in the next section) as well as for the implementation of IS in healthcare organizations.

### **Scientific outline: Interdisciplinary research and Applied Health Technology**

This thesis was carried out within the interdisciplinary research area of Applied Health Technology. The area is defined as the interface between health and technology: how health may be related to impact, consequences, and implementation of technology in a healthcare context (BTH, 2008) (Figure 1). Currently, interdisciplinarity in research is a burning issue (Öberg, 2008) as it encourages a number of research disciplines to study complex research questions from different perspectives (Metzger and Zare, 1999). Rarely can phenomena in society be explained or understood from the perspective of one single research discipline (Aboelela et al., 2007). There are requests for a more distinct focus on theoretical pluralism in research (Ahrne et al., 1996). With several different perspectives being combined in interdisciplinary research, complex questions may get nuanced answers (Choi and Pak, 2006, Aboelela et al., 2007). Although interdisciplinary research is claimed to have many advantages when studying complex phenomena in society, different interpretations and research traditions meet in the interdisciplinary research area. Being there, interpretations and traditions may not agree on the purpose and interdisciplinary advantages of interdisciplinary research. Hence, one discipline may get the majority in deciding the rules of the area (Atkinson and Crowe, 2006). In Applied Health Technology, many disciplines are trying to contribute to finding nuanced answers to complex research questions: informatics, interaction design, nursing, public health, and social sciences are only a few of the research disciplines that are gathered in this interdisciplinary research area. Despite good intentions and many advantages in the interdisciplinary collaboration within Applied Health Technology, it has been too easy to fall back on one's own scientific background in interdisciplinary discussions. As a logical consequence of this fall back, the discussions sometimes have not become interdisciplinary. Öberg (2008) points out that an interdisciplinary area is not just two scientific disciplines put together, it is a synthesis of them that brings the common answer to a complex research question to a nuanced and coordinated level. The synthesis needs to be founded in at least two research disciplines (Atkinson and Crowe, 2006), using scientific theories and methodology known to all disciplines included in the interdisciplinary research (Aboelela et al., 2007). Although perspectives from different disciplines are necessary to achieve a nuanced answer, the answer should not be just a combination of answers coming from different disciplines. It should be more like a fusion of the included disciplines'



perspectives (Öberg, 2008). The fusion integrates knowledge into new knowledge, processes and terms (Atkinson and Crowe, 2006, Nissani, 1997). Even with a focus on fusion, researchers in interdisciplinary areas need to be aware of the risk of wishing to include everything in a nuanced answer. If everything is included, the answer will become too holistic and a bit flattened out (Öberg, 2008). Therefore it is important that interdisciplinary research areas allow themselves to understand the different disciplines, integrate them, and analyze the power structure between them (Campbell, 2005).

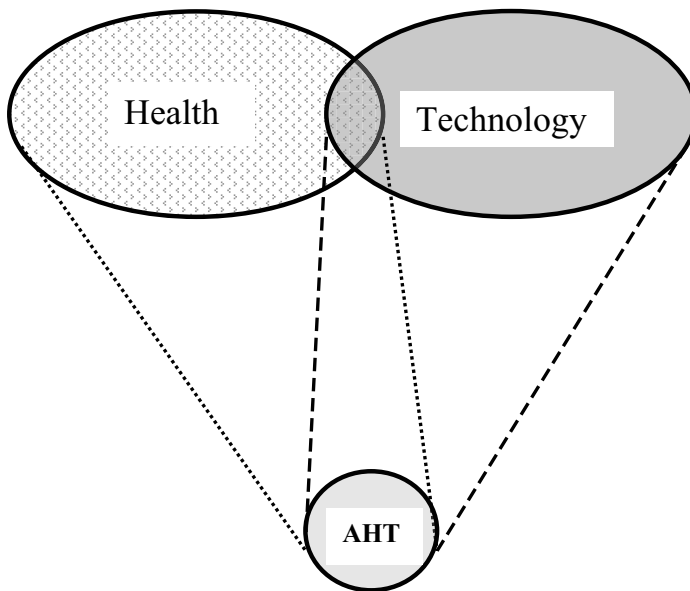


Figure 1: An outline of the relationship between the research areas Health, Technology and Applied Health Technology (AHT) at Blekinge Institute of Technology. The new research area Applied Health Technology provides space for research that deliberately integrates health and technology research. [From PM Bo Helgeson 20090210, with the overlap between Health and Technology added in dialogue]

In this thesis, Applied Health Technology is interpreted as an interdisciplinary research area that includes studies on how healthcare contexts are influenced by the intensified interface between health and technology: how healthcare staff in healthcare organizations are trying to find equilibrium in a new working situation where everyday work is becoming more and more computerized and the work system they are part of thus is becoming more and more IT-reliant (Alter, 2002). According to Nissani (1997), disciplines ought to be interpreted as self – controlled, isolated expert domains of human experience. Interdisciplinarity brings at least two domains together in order to reduce the risk of research falling between two stools of

expert domains (ibid.). In my interpretation of my own research experience within the area of Applied Health Technology, it has been difficult not to fall back on my scientific background. To reduce this risk to a minimum, I have tried to keep my studies and the overall aim of this thesis in focus. Although my scientific background has inspired me, it has not become the main center of attention. To grasp the fusion of perspectives Öberg (2008) is referring to, I will present the theoretical framework in this thesis based on keywords in my research. This will, hopefully, provide a strong foundation in order to reach and present nuanced answers as well as a fusion. Also, the foundation built on keywords will allow this thesis to integrate and analyze power structures between perspectives: by making perspectives agree on the theory behind every keyword, they need to get along in order to keep this thesis together. Trying to agree on common keywords may be a way to work constructively within the interdisciplinary in Applied Health Technology, with the aim of grasping the fusion of disciplines. Barr (1997) suggests that areas in interdisciplinary research need to show willingness to share knowledge and give up previously legitimated prides: with an openness, included areas may meet research questions or inquiries with new perspectives that end up in perhaps more effective or valuable answers. Doing that, as mentioned before, my interpretation of Applied Health Technology includes everyday working situation in a healthcare organization, technology, and healthcare staff. In order to meet my interpretation of the interdisciplinary research area, Social informatics, Sociotechnology, Sociology, and Nursing Science are framing Applied Health Technology (figure 2). According to Kling (2007) and Sawyer and Eschenfelder (2002), Social informatics includes studies about the social aspects of computerized contexts: how culture and institutions need to be in keeping with information technologies that are implemented in the context (ibid.). To emphasize the importance in understanding the relation between individuals and their technologies when designing IS, Sociotechnology is included (Petrina, 2003). Giddens and Sutton (2013) introduce Sociology as studies of human actions, identities, organizations and institutions: human relations are studied as social processes at macro, meso and micro level of societies (ibid.). Nursing Science is a scientific perspective defined in many different ways with different co-existing paradigms (Parse, 1987). In this thesis, nursing is defined as using knowledge of unitary healthcare professionals who are in mutual process with their context for supporting the well-being of individuals (Barrett, 2002). According to Parse (1987), nursing is a human science that provides knowledge in order to serve patients and individuals in being and becoming health (Parse uses being and becoming to emphasize the open ongoing process of health). Meleis (1990) states that health is the lens by which nursing is looking at its interventions. Health becomes somewhat the goal for

nursing assessments and interventions (ibid.). With perspectives that introduce computerized contexts, social processes, and work conditions, the interpretation of Applied Health Technology and the keywords of the thesis can be explained in an interdisciplinary way in order to build up new knowledge, processes and terms in a rather new, and previously undiscovered interdisciplinary research area with burning issues. It should be stated that this interpretation of Applied Health Technology is mine and should not be seen as the only interpretation of the research area. To make this clear, I have illustrated (figure 2) that this is only one of many possible interpretations of which disciplines one may bring together in strengthening the interdisciplinarity of Applied Health Technology. My interpretation of Applied Health Technology (figure 2) is to be used as a perspective when this thesis refers to an interdisciplinary framework.

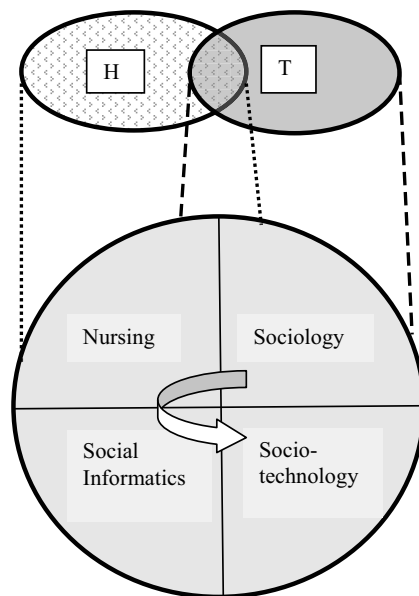


Figure 2. The interpretation applied in this thesis of the interdisciplinary research area of Applied Health Technology

## Rationale of the thesis

Implementation of IS in Swedish healthcare organizations in order to provide safe and accessible healthcare is a complex, drawn-out process. It requires interdisciplinary research in order to grasp the multidimensional challenges that the process has been, and still is facing. Studying implementation of IS in a Swedish healthcare organization, involves taking into account influencing factors. The aims of **studies 1-4** were elaborated from the findings of the previous studies (figure 3). Firstly, experiences from a pilot study to the project “*System Gudruns Fullskalelabb i Blekinge för IT i vård och omsorg*” were evaluated. They as well as a systematic review were included in my Master thesis in Sociology (Lund University, 2008). The thesis raised many questions about the importance of interaction in healthcare organization: in interaction staff members learn meanings of words and how everyday work should be done. **Study 1** and **2** were carried out to explore the interface between IS and healthcare organization: how IS were implemented and experienced in the healthcare organization. The findings in **study 1** and **2** made it plain that there were challenges in implementing IS in the healthcare organization. The organization was aware of some challenges, but they were at the same time talking about delays in implementation that they could not control. These thoughts led to **study 3** and the identification of social challenges when implementing IS in a healthcare organization. The challenges were then problematized further in **study 4**: different levels in a healthcare organization discussed the challenges and what to do about them.

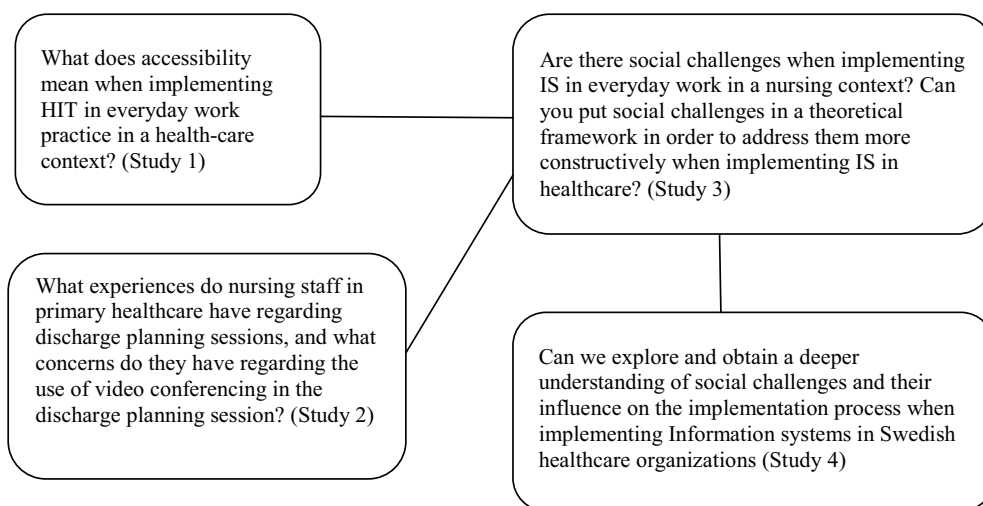


Figure 3. Research questions addressed in the studies included in the thesis

## **Research Issue**

To improve safety and accessibility in Swedish healthcare organizations, the Swedish government is urgently requested to implement IS in everyday work. Despite the request, the implementation has become a drawn out process. Delays in implementation have caused new rescheduled deadlines of IS projects on national, regional, and local levels. A plan of action was introduced in 2012 that stated that by 2018, Sweden is compelled to implement IS in everyday work in healthcare in order to take care of a growing and ageing population. At the same time profession societies raised questions about the reasons behind the delays in IS implementation. A summary report about the delays was introduced in 2013 (Scandurra, 2013a). The report presented 10 starting points in making IS more usable in order to implement IS as a working tool in everyday work. Research studies on usability, user-driven design and participation are examples of presented challenges in the interrelationship between IS and individuals. Due to earlier main focus on technical issues in implementation challenges, the interrelationships need to be highlighted even more in research. Therefore, this thesis is about empirically identified social challenges when implementing IS in a Swedish healthcare organization. With an interdisciplinary understanding of what happens with interpersonal activities when IS are implemented, a more nuanced answer may be given to what caused the delays in the implementation of IS.

This thesis has a focus on filling the gap of knowledge concerning challenges when implementing IS in a Swedish healthcare organization. Instead of focusing of one keyword (e.g., usability, participation), this thesis introduces empirically identified challenges. In order to understand their impact in a rather complicated context, they are put in an interdisciplinary theoretical framework. Knowledge about the social challenges in implementation is necessary if IS are to become an efficient and effective tool in everyday work in Swedish healthcare in 2018.

## **Overall aim**

The overall aim of this study was to identify social challenges when implementing IS in a Swedish healthcare organization. Furthermore, the overall aim was to understand the impact of identified social challenges when implementing IS in a Swedish healthcare organization, by putting them in an interpretation of an interdisciplinary theoretical framework.

The aims of the individual studies (**1-4**) in the thesis were as follows:

- The aim of **study 1** was to investigate different meanings of accessibility when implementing HIT in everyday work practice in a healthcare context.
- The aim of **study 2** was to highlight the experience of nursing staff in primary healthcare regarding discharge planning sessions and to pick up on their concerns regarding the use of video conferencing in the discharge planning session.
- The aim of **study 3** was to explore social challenges when implementing IS in everyday work in a nursing context. Moreover, this study aimed at putting perceived social challenges in a theoretical framework in order to address them more constructively when implementing IS in healthcare.
- The aim of **study 4** was to explore and obtain a deeper understanding of social challenges and their influence on the implementation process when implementing Information systems in a Swedish healthcare organization.

## **Research diary: Theory**

*Today it is Friday and I am working from home. It is spring outside, tulips and daffodils are in bloom in our garden. A pair of house sparrows has nested at the roof ridge; I can see mama and papa sparrow bringing sprigs to their new home from where I am sitting in my working room. I started early this morning; finally I have read all the transcribed interviews. It is a lot of text, right now it is hard to see if the interviews have something in common. During the last hour all I have seen is letters, not what may be underneath them. I am taking a sip from my coffee cup. There must be something in the text, something that I can relate to what other researchers have told us about everyday life. I am looking at one of the bookshelves; there are lots of books there about sociological theory. One of them is about the importance of using your sociological eye when you study the world around you. My sociological eye... How can I use it when I am thinking about my research, Applied Health Technology and the real world outside my untidy working room? I am looking at all the pages of text again, at the house sparrows (now only one sparrow is fetching sprigs while the other one is arranging them. It seems like they know exactly what they are doing and what is expected of them) and I finish my coffee. Let us see, what do all the respondents talk about and what did I see during the observations? I am swinging on my chair. Suddenly I see a little yellow book in the bookshelf and then it hits me. Of course, this is how it is! This is the connecting thought in the interviews and observations! It is almost like the sparrows! Sorry, but I really have to go now. I have to write down what my sociological eye is telling me before I forget it. Talk to you soon again!*

## THEORETICAL FRAMEWORK

This chapter introduces the role that theory plays in the thesis. Also, the theoretical framework that has been applied on the empirical findings is included in this chapter.

### **The role theory plays in this thesis**

The theories presented in this chapter ought to be seen together with the empirical findings, as a way to meet the aim of the thesis. The theoretical framework that is used is a way to address empirically identified social challenges when implementing IS in healthcare organizations more constructively: according to Calhoun et al. (2012), interpretations of the social worlds become more useful and somewhat more organized if they are analyzed from a theoretical framework. Theory may assist in the interpretation of what has been going on in the past related to what is going on right now (Corvellec, 2013, Aspers, 2011). That is to say, there was a need to use a theoretical framework in order to meet the aim of this thesis. The framework assists in understanding the impact social challenges have on implementation of IS. The understanding rests upon that theory is the *explanandum* of social challenges. Bijker et al. (2012) call attention to that theory in the interdisciplinary meeting of sociology and technology is to be used to enable understanding of why certain things happen or exist. That means, to look at theory as the explanandum of this thesis is to see it as a focus rather on the question: ‘Why are there social challenges?’ rather than on ‘what’- questions (e.g., ‘What kind of social challenge is most powerful?’).

As stated before, this thesis rest upon an interpretation of an interdisciplinary theoretical framework: Sociotechnology, Social informatics, Sociology, and Nursing are the framework’s cornerstones. The framework took shape as the empirical studies were developed and carried out. Calhoun et al. (2012) indicate that this may be one way to use theory in scholarly texts: it becomes a kind of guideline when thinking and giving nuanced answers about how social life works and how things fit together. A common feature in the interpreted interdisciplinary theoretical framework is interaction. Interaction has become one of the key concepts when disciplines were attempting to grasp the fusion of interdisciplinary research. Blumer (1969) indicates that individuals are not isolated islands, in everyday life they interact with other individuals in society. Interaction is the foundation for the meaning of individuals and things and how individuals act towards them. If meanings are to be modified, the modification arises from individuals’ interpretation of the situation. The intertwining between interaction, actions, and interpretations provides the fundamentals for groups and societies (ibid.). This thesis is about challenges that occur in relation to people, norms, and values. To understand the



challenges, and reach an explanandum, interaction is the common feature: it is in the interaction and in interpretation that individuals form and modify their actions towards things such as IS.

In this chapter, social challenges will be put in relation to implementation, IS, and healthcare organization in an interdisciplinary theoretical framework with a focus on interaction. Theory is used as a guideline to, what Bijker et al. (2012) call attention to, in order to understand why there social challenges when implementing IS in a healthcare organization.

### **Social challenges and implementation**

In this thesis, implementation is interpreted as the efforts that are made after the decision is made about an innovation being introduced: it is about when healthcare staff find or do not find a use for IS in everyday work in healthcare organizations. The innovation (e.g. IS) does not need to be brand-new, it only needs to be apprehended as new by its users (Rogers, 2003). Kling (2007) calls attention to that IS ought to be seen as socio-technical systems: every system is a complex interdependent organism comprised of individuals and their different roles, technology, and information structures. To survive, a system needs technical and social access at the same time. That is, technical equipment and its software have to be meaningful and need individuals' know-how to become a part of everyday work routines (ibid.). This thesis interprets IS as complex interdependent organisms. In order to be used every day, technology and individuals need to act together. Also, individuals such as healthcare staff need to find a meaning in using IS. Davis (1989) indicates that when Information System is to be implemented in healthcare organizations, the individuals who use the system decide on if, how or when to use it. The decision relies on perceived usefulness and perceived ease of use: the degrees of how much an individual believes a system will enhance work performance and how much the system will ease work load, will guide the decision-making (ibid.). If healthcare staff do not believe the technology will influence work routines, they may not find a use for IS. To emphasize that the decision is based on perceived usefulness and perceived ease of use also in mandatory work, Venkatesh and Davis (2000) updated the theory to include organizational and social factors such as norms, the relevance of work skills, and work experience to influence the perceived usefulness. Terrizzi et al. (2013) add trust and accessibility of information to the theory when used in studies about implementation in healthcare organizations. In this thesis this means that although everyday work in healthcare organization is mandatory, decisions about using IS are influenced by norms and values of the organization, by the importance of work routines, and by professional experiences. Also

healthcare staff have to trust each other in everyday work and also have accessible information if they are to find a use for IS. According to Ajzen (1991), decisions about implementation confirm the findings of that norms and values have an influence on using IS: the use of equipment such as IS, is founded in individuals' beliefs about actions connected to the use of the equipment. Blumer (1969) states that norms, values, and beliefs are founded in relations and in interaction with others: it is in social interaction individuals form meanings together. Things that are included in interaction (e.g., sounds, actions or objects) are seen as symbols when they mean something else to individuals than just being a thing. Symbols are created and used in social interaction as a way of motivating individuals. Meaning and symbols encourage and control actions and interaction and are handled by individuals through interpretation (ibid.). This means that beliefs about things like IS are founded in the meaning they have in interaction: IS have become a certain symbol in interaction that assist healthcare staff to create a common interpretation of their use in everyday work. Riehl's (1996) research on the importance of interaction in nursing (e.g., between nurse and patient and between healthcare staff) confirm the assumption. Charon and Hall (2009) indicate that individuals define the situations they are in. The definitions of situations are founded in interaction, the cause of individuals' actions are outcomes of how they are define the situations they find themselves in. Situations from the past are to some extent important for the definition of current situations: individuals think about the past when they are defining ongoing situations (ibid.). Orlikowski and Gash (1994) call attention to difficulties in reframing situations when individuals in interaction have created common frames about how to define situations. That is to say, implementation of IS will be defined as a certain kind of situation in a healthcare organization. The definition is influenced on how healthcare staff remember and relate to former implementation processes of IS. The definition of the implementation as a situation will affect staff's actions.

To sum up, implementation of IS in healthcare may be interpreted as implementation of the interdependent organism of IS that require technical and social access to a healthcare organization. The decision to use or not use IS that are to be implemented, depends on how they affect work routines and if IS are useful or not to healthcare staff. The decision is founded in interaction: norms, values, and what staff members include in the symbolic meaning of IS will affect how they will define the implementation situation. Hence, implementation of IS in a healthcare organization is just as much a social process as it is technical: if there are challenges in interaction, symbol shaping, framing, or defining

situations you might call them social challenges. They will, however, affect how technology is applied or not applied in everyday work practice.

### **Social challenges and Information Systems**

In this thesis, IS are interpreted as networks used by individuals and organizations in order to process and distribute data to be able to create information for defined purposes. The overall aim of an Information System is to give individuals and organizations knowledge of the context (Stair and Reynolds, 2011). Individuals and organizations interact with the technology to support everyday work processes and routines (Kroenke et al., 2010), this means that IS are networks used in everyday work in Swedish healthcare organizations with the overall aim to support knowledge sharing and knowledge creation concerning, for instance, patients and organizational routines. IS are interpreted as being the innovation the benefits of which need to be captured in order to improve Swedish healthcare organizations: IS need to be able to support the synthesis of knowledge in everyday work to make healthcare more safe and accessible. Kling (2007) refers to IS as being tools in a socio-technical work system: even if IS are complex, they are still dependent on individuals' role patterns and administrative routines. According to Kling (2007), IS need social action to really work as useful objects within a socio-technical system. Kling's (2007) statements may be understood as that IS are reliant on healthcare staff in order to be a part of everyday work within the healthcare organization. Although EHRs' or decisions systems' may be technically advanced, they need to fit with roles and routines to work in an organization in a useful way. In healthcare organizations, different professions need to work cross-organizationally with IS: different professions need to cooperate in the use and sometimes development of IS (Åhlfeldt et al., 2013). Many times, the aims of implementing IS are to share information and unite healthcare organizations (Socialstyrelsen, SKL., 2011). Therefore IS may be interpreted as being boundary objects. Star and Griesemer (1989) state that a boundary object is physical or mental material (e.g., tangible items or ideas) with the aim of creating a common identity. It may be interpreted differently in different contexts it runs through; nevertheless the boundary object needs to keep its coherence despite different interpretations in different parts of the organization (ibid.). If IS are supposed to be boundary objects with the aim of uniting Swedish healthcare organizations, they need to be logical to all healthcare staff members even if they in their ward or in their profession have an interpretation of IS' usability in everyday work. Orlikowski and Gash (1994) indicate that to make technology logical, staff members need to interact with it and make sense of it. In the sense-making process, staff members such

as healthcare staff together build up expectations and knowledge that will function as the foundation for future actions towards the technology. In interaction using taken-for-granted notions, staff members together form their relationship to technology. Again, together they are framing technology. Different groups or professions may have different frames that will affect the cross-organizational work in IS (ibid.). For instance, Orlikowski and Gash (1994) state that staff members such as nurses, managers, and developers of IS have different interpretations or frames of technology. The frame is important to structure nursing: Kim (1987) indicates that in interaction with client domains, the client-nurse domains, and practice domains shape scientific knowledge. That is, the interplay between frames, clients, nurses, and practices organize everyday work. The frame may be of physical, social or of symbolic nature (ibid.), that means that nurses' interpretations of technology are based on things, appointments, interaction, norms, and values. With this background, IS in healthcare organizations interact with the users in sense-making processes. In order to make sense of IS and make them useful tools in everyday work, staff members such as nurses use notions they understand the meaning of. The place where the sense-making take place is of importance for staff members (e.g., nurses): this place forms their profession and their work in the organization. Goffman (1990) confirms this statement: individuals (Goffman calls them the 'actors') are engaged everyday in practices performed together with other individuals on what Goffman calls a stage. The stage (the place) becomes a region where individuals interact in order to make sense of situations and of things to keep their performance trustworthy on stage. The equipment and setting on stage assist individuals to perform and to intensify their roles (ibid.). Again, places, spaces, and equipment (e.g., IS) are of importance when individuals are performing trustworthy performances in front of each other in everyday life to make sense of things and situations, like implementation of IS in healthcare organizations. Accordingly, IS are interpreted as networks that ought to produce knowledge in cross-organizational processes. Although IS are technical equipment, they are dependent on the social system they are intended to be a part of: individuals in interaction make sense of IS and define them with words known to their reality. The sense-making and definition need to fit with their acting to keep the performance trustworthy and functional. Consequently, IS are dependent on the social frame, place or stage in healthcare organizations and may therefore be influenced by it.

## **Social challenges and Healthcare organizations**

In this thesis, an organization is interpreted as a group of individuals that have organized themselves with the aim of achieving certain goals. Organizations may vary in size and features, but they always have goals, coordinated activities, and they are structured so that they fit the surrounding context. Often, an organization culture is developed (Hatch, 2012). Individuals in an organization do not interact in a vacuum, but interact with other individuals in the organization and beyond. Norms, values, and meanings become the foundation of the culture: they are learned and taught in the interaction within the organization. Symbols, and cultural artifacts, such as IS and practices in healthcare, and individuals cooperate in order to mediate the context they are a part of (Kaptelinin and Nardi, 2006). Swedish healthcare organizations are interpreted as being work systems where staff members and machines perform work using information, technology, and other resources to produce products and/or services for internal or external customers (Alter, 2003). In this thesis, Swedish healthcare organizations are viewed as consisting of multiple work systems which are interlinked and interrelated to varying degrees. Chen et al. (2013) and Kling (2007) indicate that IS may be interpreted as supporting the systems in coordinating communication in boundary contexts: with coordinated communication, research and development (R & D) and innovation processes may be activated. To Dutton et al. (1994), boundaries in an organization are dividing lines in the organizational, social structure. For instance, boundaries have an influence on activities and how they ought to be done in the organization in order to be included in the social structure (ibid.). Santos and Eisenhardt (2005) state that boundaries of an organization are the dividing lines between the organization and its environment, where efficiency, power, competence, and identity are common vertical and horizontal boundaries in an organization (ibid.). In this thesis, this means that when individuals in a healthcare organization organize themselves, they interact: staff try to create a unity using IS as a supporting system. In the organizing of healthcare, dividing lines are shaped that influence how healthcare organizations fit the surrounding context: the lines are affected by how the healthcare organizations interact and interpret efficiency, power, competence, and identity. Giddens (1984) and Orlikowski and Gash (1994) state that by using stories, metaphors, interaction, and symbols, individuals become socialized into an organizational behavior that frames definitions and understanding of everyday work. The socialization shapes roles that will guide individuals to make sense of why they need to be an organized unity to achieve certain goals (ibid.). Goffman (1990) argues that individuals are engaged in performances in order to make sense of situations (e.g. everyday work): the performance needs to convey the

idea to patients and society (Goffman calls them the ‘audiences’) that the cast trusts each other’s role interpretations. According to Benner (1982), role interpretations are developed through education and experiences: nurses go from novices to experts step by step by being given entry to real situations. In the beginning of a role interpretation, the nurses are taught about situations in terms of objective attributes like temperature and blood pressure. When the nurse is an expert in her role, the nurse has an intuitive grasp of the situation (ibid.). That is to say, healthcare staff (e.g., nurses) are socialized, by using stories and symbols, into their part of the casting that is performing healthcare in front of patients and (in this case) Swedish society. Step by step, in order for a healthcare organization to fully trust the staffs’ performances to be a part of the organized unity, staff are trained for the roles they play. Orlikowski and Gash (1994) and Bolman and Deal (1991) state that organizational socialization is a way of sharing frames in order to stick to unity. The known and practiced frames may prevent the organization from looking at new goals in new ways: with deeply rooted frames it may be difficult to reframe in order to adjust to new instructions. Orlikowski and Gash (1994) call attention to incongruencies in technological frames of an organization: using old frames with new technology, there may be differences in interpretation or expectations in how to use technology or what goals are to be reached with technology. With old frames, technology might be interpreted as a tool for both controlling everyday work and also for speeding up work routines (ibid.). In this thesis, this means that training for roles and in healthcare performances has met with new goals: technology is expected to make healthcare safer and more accessible. If healthcare organizations are using old frames when teaching staff and in their performance, there might be difficulties in making technology a congruent frame and in assisting healthcare staff in reframing their performances by using different, or updated stories, symbols, and interaction. Old frames and new technology may be compared to Scheel (1995) and Scheel et al.’s (2008) discussion on Interactional nursing: focusing on the inside and outside of nursing as a profession, nursing theories, methods, and ethics are the inside foundation for a professional identity. The inside needs to be related to the outside society and its structures and conditions. Therefore, nursing always needs to be related to the social progress due to its insertion to a societal context. Scheel (1995) and Scheel et al. (2008) refer to knowledge problems when the inside of the profession does not fit outside conditions. In order to harmonize the inside and the outside of the nursing profession, practical interactional nursing highlights the importance of preventing the outside world from colonizing inside theories, methods, and ethics (ibid.). Relating Interactional nursing to this thesis, technology, IT, and IS development as well as strategies about them are seen as the

outside societal context. It is difficult for the inside foundation of nursing to keep up with the rapid development. The disharmony between the inside and outside of the profession may cause healthcare organizations to use old frames as well as causing nurses to experience perplexity concerning the inside foundations of nursing in relation to technology, IT, and IS. According to Giddens (1991), the late modernity era trusts abstract systems: everyday activities are based on many expert systems working together. In their cooperation, time and place are no longer important. The individual does not ever meet the experts, but still he or she has to trust them in the late modernity era. Abstract systems, including organizations in society, affect how individuals understand their identities (Giddens calls this self reflexivity), norms, values, and traditions. Although individuals have self reflexivity, they might feel lost in forming their identities when they have to put all their trust into systems they cannot see. Giddens (1991) calls attention to that technology runs riot in society when it pushes development and progress forward at a high speed. The runaway society comes with a lot of risks, for instance it makes it difficult to keep an ontological security: when forming their identity, individuals need continuity, trust, and order in activities to be able to know them. Continuity, trust, and order are reproduced in interaction. Trust and risk need to be in equilibrium on every level in society: for instance the global economy needs to be stable as well as relations and traditions at micro level for individuals to form themselves (ibid.). Giddens' reflections on the late modernity era are interpreted in this thesis as an on-going change for Swedish healthcare organizations where norms and values based on traditions are of importance for the unity of the organizations. Now, invisible expert systems based on technology (e.g. IS) are setting the prerequisites of everyday work in the organization. Using old frames, the staff might find it difficult to trust expert systems and also find it difficult to reformulate themselves in their professional identity when the perceived risks are impending. To sum up, an organization is formed by its members. Symbols, norms, and values assist the individuals in feeling united on their way to achieving certain goals: these symbols, norms, and values become the foundation of the inside of a profession. It is in and through interaction that rules, roles, casting, and performance are created, shaped and controlled. Individuals are trained into forms of interaction and into the unity. When new goals are set up, perhaps even implying a new era, the staff in the organization needs to develop trust in the new situation, but also shape their performance to fit the runaway outside societal conditions. Thus, the organization is based on social interaction. If there are challenges in implementing IS in a healthcare organization you might call some of them social challenges.

## **Research diary: Methodology**

*Ethnography. A few months ago, I thought this meant that you had to stay in the depths of the Amazon jungle for several years or do ocean voyages like Heyerdahl. But I was wrong. Ethnography is so much more. Today was the first day of a PhD course in Ethnography at Linneaus University I will attend. I, other students and the professor talked about different kinds of ethnography. We also talked about ethnographers and their difficult and interesting work. Why it is interesting? Well, with ethnographic research design you'll get close to individuals and the way they interpret everyday things. I can really long for getting that aha-moment when you see how everyday things are connected and mean something to individuals that are a part of your study. Please, let this day come! On the train on my way back home from the university, I started thinking about me as an ethnographer. During observations at the hospital, I will be wearing a blue blouse and white trousers like staff members to fit to the context, I will do observations, take notes, do interviews, and try to interpret social processes, patterns, and structures. Looking at it from my seat in the train, it seems easy. But I've realized today that doing it is far more difficult. To become an ethnographer you have to eat, sleep and think ethnography all day, every day. Like Fielding did with that political party or like Jahoda, Lazarfeld and Zeisels did in Marienthal. Next week I will go back to the University for a class about case studies. I cannot wait! I had better start reading about it right now so there will be time to write down reflections and prepare for discussions. I look at the time table. There is still an hour before I have to get off the train. I open the course book. It smells new and fresh. I start to read the first sentences: 'This book examines the way in which everyday life in the modern metropolis is continually eroded, distorted, overpowered by, and subordinated to institutional forces that seem beyond human control.'*

*Everyday life and institutional forces... Exactly what I have been thinking about in my research! Perhaps I'm an Ethnographer after all...Sorry, have to go on reading. Talk to you later!*



## METHODOLOGY AND STRATEGY OF INQUIRY

This chapter introduces the methodological design of the thesis. Also, sample, context, methods and analysis are included in this chapter.

### **An ontology of the social<sup>2</sup>**

Almost every scientific study starts with an ontological and epistemological discussion: to know what to search for, the study needs to discuss how the world and things in it are constituted. A statement is recommendable about how knowledge is looked upon and how research may get knowledge about the world and things in it. With an ontological and epistemological basis, the scientific study makes a declaration about its position in relation to theory of science and current research paradigms (Månson, 2006, Sohlberg and Sohlberg, 2008). According to Smith (2005), an ontology for the social must ensure the subjectivity of the people: they need to be seen as the ‘knowers’ of what Institutional ethnography finds out. The researcher may not sit outside reality as a universal knower, representing people as objects. In Institutional ethnography, the individual’s actions or doings are in focus: the ontology of the social is a theory about how individual actions are coordinated in everyday life. The coordination of actions is in focus, not the individual uniqueness. Smith (2005) takes for granted that individuals are unique in their own special ways in experiences, feelings, needs, and desires. It is Institutional ethnography’s aim to learn and trace unique individual experiences and explore how they are connected in coordination: everyday actions and doings may be seen as caught up in social relations that can be related to ruling relations of society (ibid.). Wallén (1993) and Sohlberg and Sohlberg (2008) state that the ontology of the social states that individuals construct their existing reality using their perceptions and notions. Interaction and the constructions of reality that are included in interaction are in focus of the research. When individuals construct reality, the origin of knowledge and its relation to reality is with the subject (ibid.). In this thesis, the doings in a Swedish healthcare organization are in focus: the thesis aims to explore how coordinated actions were influenced by the implementation of IS in everyday work. The coordination of actions was then looked at with a focus on how the on-going coordination of actions was intertwined with ruling relations of society. This thesis treats reality as something that is dependent on individuals’ perceptions and notions: the reality of healthcare everyday work and knowledge about it is created in interaction between staff members. The foundation of this thesis is healthcare staff members’ perceptions and notions about implementation of IS in their organization. Knowledge about

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<sup>2</sup> Smith (2005) uses this expression when she discusses ontology and epistemology in Institutional ethnography.

coordination of everyday work when IS are implemented and the on-going coordination work's relation to ruling forces, is to be sought for in individuals' interactions with other. Referring to reality as being socially constructed, it needs to be clarified that Institutional ethnography (Smith, 2005) focuses on the coordinated organization of reality instead of on the construction of it.

### **Study design**

To achieve the overall aim of this study, an ethnographic research design was used. Aspers (2011) states that ethnography may be used as a research design when interaction and interpersonal relationships are the foundation for empirical studies, and when individuals are to be studied in their natural environment. In ethnography, interpretations, and experiences of everyday life are in focus (ibid.). In this thesis, social challenges when implementing IS in a Swedish healthcare organization are in focus. Social challenges are formed in interaction. Therefore, interaction becomes a key concept through out the studies and the thesis. When identifying social challenges, staff members such as nurses needed to be studied in their everyday work environment.

As study design, ethnography is used in many different ways with different focuses and approaches (Emerson et al., 2011, Hammersley and Atkinson, 2007), and no consensus of the epistemological foundations (Savage, 2000). Although there are differences in approaches, ethnography can be described as texts representing experiences of cultures originating from researchers having participated in everyday life for an amount of time (Van Manen, 1990, Hammersley and Atkinson, 2007). To enable understanding for individuals within the culture (Atkinson et al., 2001), ethnography needs to map out the complexity in social interactions and relations that form culture (Jeffrey and Troman, 2004). Geertz (1994) and Smith (2005) call attention to ethnography's aim of describing the structures or relations that are meaningful for individuals within the culture in ethnographic research texts: how actions are interpreted and interacted needs to be described as actions are experienced. Savage (2000) emphasizes the importance of reflexivity in ethnography: when ethnographic studies are made the researcher needs to reflect on his or her role as a researcher when taking part in everyday life in a culture. In ethnographical studies, Geertz (1994) distinguishes two ways of presenting experienced actions: the text can be close to the culture, using rich descriptions in order to enable understanding for individuals within and outside the culture. The other way of presenting actions in ethnographic studies is to describe them in a philosophical, theoretical way in order to promote understanding of actions in a culture in scientific ways (ibid.). To

describe experienced actions, an ethnographer participates in everyday life of the culture being studied for a period of time: by watching, listening, writing, and asking, the ethnographer may gain and enable a richer understanding concerning experienced actions. Ethnographic work includes studying actions, gathering data from several different sources in a rather unstructured way, and focusing on a few small-scale cases. In ethnographic work, the data analysis involves interpretation of meanings and consequences of actions for the culture or in a wider perspective (Hammersley and Atkinson, 2007). In this study, ethnography is understood as an attitude and research design used when the focus of inquiry is to gain a richer understanding of experienced actions in culture and the meaning of the coordination of actions. Its ontological and epistemological starting points are defined in the use of Institutional ethnography. In the thesis, the experiences of implementing IS are in focus, and so are the relationships between social action and ruling structures. Ethnography is here understood as a combination of the close up ethnography and the philosophical way of doing ethnography: the combination is necessary in Institutional ethnography due to its focus on the relationship between social relations and ruling structures of society. Kling (2007), Atkinson (1992) and Savage (2000) point out the advantages of doing ethnography in research studies in health care contexts: it is a credible method for grasping beliefs and practices in healthcare and enabling understanding for staff and patients within healthcare. This thesis aims to understand how social actions in everyday work in a Swedish healthcare organization affect implementation of IS, therefore ethnography was chosen as a basic attitude and as a research design. The essential characteristics in ethnography which are fundamental in this study include the following parts;

- taking part in everyday work in a Swedish healthcare organization: mainly through interviews, reading and writing texts and observations
- trying to become one with the healthcare organization: wearing the same kind of work-clothes, eating and talking with healthcare staff during breaks
- working in an ethnographic, unstructured way: observations and interviews with the aim of answering some questions lead to new questions and analysis
- reflecting on the reflexivity of ethnography: the researchers presence may influence the interaction in a culture (Alvesson and Sköldbberg, 2008, Smith, 2005) like the healthcare organization.

According to Smith (2005), Institutional ethnography is an ethnography that enables understanding of everyday life and how social actions within a culture are influenced by ruling relations of society. It aims at informing and supporting practical changes in the social reality of society. Knowledge about society can be obtained by observing everyday relations and the experiences of everyday actions. Institutional ethnography is an ontology, as described above, and a methodology. Smith (2010) points out that knowledge of society is socially organized: to know anything about society and enable understanding about it, research needs to start in individual experiences. For too long, research studies about society have proceeded from standardized archetypes founded in literature, theory, and historical contexts. The archetypes have contributed to a distorted understanding of organizations and institutions in society. To enable understanding, individuals in lived and experienced social relations need to be included in research. Interactions and social relations need to be observed where they actual take place. By starting in experiences, research may enable understanding of the social organization of society (ibid.). In this thesis this means that staff in Swedish healthcare organizations are included in research **studies 1-4**: they were interviewed about implementation of IS and observed in everyday work. Smith (2010) states that in Institutional ethnography, the concept of *institution* does not refer to a certain kind of organization. For instance, referring to a healthcare organization in this thesis, many coordinated work processes inside and outside the healthcare organization are included in the institutional concept. According to Smith (2005), an entire institution is difficult to study as it consists of a large amount of processes. Therefore, Institutional ethnography often focuses on a specific part or process of the institution. With a focus on one specific part, understanding of the whole institution may be enabled (ibid.). The studies in this thesis focus on everyday work in primary healthcare and at the hospital in a Swedish healthcare organization, analyzed from an interpreted interdisciplinary theoretical framework in Applied Health Technology. Nurses' everyday work is in focus: when this thesis is referring to staff members in discussions, nurses are in focus. With this focus, the thesis may state something about the overall coordination in work processes and actions within the organizations included in the institution of healthcare. Focusing on a specific part of the institution (e.g., a specific healthcare organization), Smith (2005) points out that individual interaction and the used discourse are starting points for research. As mentioned before in this thesis, Smith (2005) emphasizes that individuals are unique. It is not their uniqueness that ought to be studied in Institutional ethnography, but the coordination of actions founded in interaction and in the discourse. The coordination of actions called social relations in Institutional ethnography, are founded in what individuals'

are doing, saying and which attributes they are using, all of which are connected together in certain combinations of actions. A social relation is not a relation between father and son, but more structured relations (ibid.). According to Smith (2005), the connection becomes a ruling norm for how things should be done, said and which attributes that are to be used in social relations. Individuals are not always aware that they are taking part in connected social relations and how they may control their relations. Of course, individuals are aware of what they do and say, but they may not always be aware that texts and attributes connect relations together in a continuum (ibid.). Also, individuals are not aware of how they take part in reproducing actions in the connection over and over again. The local, social relations are connected in a certain way due to their seamless coordination with other relations produced elsewhere in order to elucidate the ruling relations and forces of society. Ruling relations are the non-local relations that provide societies with control, initiative and specialization of organizations: they form bureaucracy, management, administration, organizations, and media. Also, ruling relations form the complexity in coordination of social relations discourse (Smith, 2005). The social relations of healthcare staff (mainly nurses) are in focus in this thesis. With observations, notes and interviews, studies have been carried out in order to identify and enable understanding of the importance of the connection between the relations and what it looks like. The thesis also emphasizes what may happen when the connection is not coordinated or may not fit ruling relations of society. When IS were implemented in social relations in a Swedish healthcare organization, the connection had to change in order to fit ruling relations stated in eHealth strategies of society. The four studies included in this thesis highlight the importance of coordination and also the relationship between social and ruling relations.

Kjellberg (2012) and Walby (2007) point out that Institutional ethnography allows free scope when it comes to analyzing empirical data. Despite many studious attempts to analyze data in Institutional ethnographic studies (Isaksson, 2010, McGibbon et al., 2010), Walby (2007) states that the fundamental relationship between social relations and ruling relations in Institutional ethnography guides the analysis of collected empirical data. According to Kjellberg (2012), there are risks as well as opportunities in the lack of guidelines for analysis in Institutional ethnography: if the researcher presents the methods thoroughly in the studies, the freedom of choosing methods of analysis may enriched the findings of the studies (ibid.). To start from a fundamental relationship between social relations and ruling relations may cause the researcher to make assumptions about society and the studied culture in the

beginning of the research studies. Kjellberg (2012) states that even if Institutional ethnography starts from the point that there are hidden power relations in society, the method may assist individuals in understanding the relations and acting upon them. Starting from this point, the researcher needs to believe that there are power relations in society in order to reveal them: the researcher needs to believe that there are social relations and use them in the method of analysis. Also, the researcher needs to be convinced that individuals are able to reflect and act upon the findings (ibid.). Hence, Smith (2005) states that Institutional ethnography aims at making changes in social reality.

There are explicit limitations in Institutional ethnography: Smith (2005) confirms that an entire institution may be difficult to study due to the complexity of it and because of the large amount of social relations it includes. At the same time, Smith (2005) states that by studying a part of an institution, understandings of the institution may be enhanced. As mentioned before, this thesis focuses on social relations of healthcare staff (mainly nurses) in a Swedish healthcare organization 2009 to 2013: the thesis aims to identify and enhance understanding of the importance of the connection between the relations and what it looks like. The thesis also emphasizes what may happen when the connection is not coordinated or may not fit ruling relations of society. The non-synchronized connections may result in greater social challenges when implementing IS in a Swedish healthcare organization. Another limitation that is mentioned by Kjellberg (2012) when doing Institutional ethnography is that the researcher cannot include all social relations that are a part of the selected part of the institution. Based on Institutional ethnography and the aim of the study, the researcher needs to define social relations in order to know what to look for. In this thesis, social relations are defined as Smith (2005) describes them: it is what individuals in structured relations at work say, and do, and how they act upon attributes in everyday work in a Swedish healthcare organization. The social relations that are in focus in this thesis are the ones that are connected together and influenced by the implementation of IS.

Smith (2005) presents three aspects that make Institutional ethnography connect practice with structure of society;

- Institutional ethnography starts in a statement that there are social relations that need to be studied (ibid.). As mentioned above, this thesis acts upon this conviction.
- Institutional ethnography focuses on everyday work from the relations it includes (Smith, 2005). This thesis does not focus on individual uniqueness, but at the

connected coordinated relations in everyday work in a Swedish healthcare organization.

- Institutional ethnography studies social relations at work: structured social relations included in institutions are the starting point in Institutional ethnography (Smith, 2005). The empirical data in **studies 1-4** was collected at everyday work in a Swedish healthcare organization, through observing, asking and reading about structured social relations.

Although Smith (2005) maintains that Institutional ethnography ought to start from the point of saying that there are social relations and ruling relations in society as a sort of outline of the research, the use of theoretical frameworks in Institutional ethnography needs to be clarified. Smith (2005) points out that social science has for a long time started from theories that see individuals from ideal images and based on concepts and definitions: when actor and actions are theorized they will be too abstract to enable understanding of the relation between social relations and ruling relations. Theory may be what Bakhtin (1981) refers to as monologic: theory can be too dominating so that individuals in social relations are pushed away from research findings and discussions. Instead, Smith (2005) emphasizes that Institutional ethnography starts in how the social is real, where the individuals are the knowers. Research needs to be seen as a dialogue where individuals all through the research work are in focus in social relations. If theory is used, it should be looked upon as a tool in expressing social relations (ibid.). In this thesis, theory is defined as assistance in interpretation of what has been going on in the past related to what is going on right now. Theory may also bring in thoughts on what to expect through what once could be expected (Corvellec, 2013). Although theory is used with included concepts and definitions, the text in the thesis emphasizes the dialogue between individuals and theory. To prevent a monolog, individuals included in this thesis are looked upon as the knowers. Their discourse and social relations have been the foundation and starting point when theory has been used in analysis, but also when a framework of social challenges has been identified. The thesis has aimed at using theory in line with the advice of Calhoun et al. (2012) and Isaksson's (2010) practical use of Institutional ethnography: interpretations of the social worlds become more useful and somewhat more organized if they are analyzed from a theoretical framework.

## **Phenomenological hermeneutics**

In **study 2**, phenomenological hermeneutics is used as research design and analysis method. According to Lindseth and Norberg (2004), phenomenological hermeneutics can be used as a design and method to enable understanding of the meaning of a phenomenon, especially in studies focusing on healthcare contexts. Phenomenological hermeneutics aims at understanding the meaning of lived experiences that are expressed by individuals in interviews. In order to understand and thoroughly study the meaning of a phenomenon, lived experiences need to be written down in texts. The meaning can then be studied and made known in the interpretation of the texts, of what the text talks about (ibid.). Lindseth and Norberg (2004) combine phenomenology and hermeneutics in design and method: starting in searching for the meaning of a phenomenon, the design and method end with entering the hermeneutical circle via naïve reading, structural analysis, and comprehensive understanding (ibid.). The aim of **study 2** was to highlight the experience of nursing staff in primary healthcare regarding discharge planning sessions and to pick up on their concerns regarding the use of video conferencing in the discharge planning session. Guided by Lindseth and Norberg's (2004) description of phenomena being the essence of meaning, phenomenological hermeneutics was used as design and method in order to search for the essence of meaning of work practices as a phenomenon and how it may change through using video conferencing. The lived experience of the phenomenon was of importance for the progress of the thesis: lived experience of how work practice change when IS are implemented in a Swedish healthcare organization may give a better understanding of social challenges.

Smith (2005) and Lindseth and Norberg (2004) state that research ought to start from individuals' interpretation and experience of what is going on in their everyday life: to enable understanding, the individuals need to be in focus and be visible in research studies (ibid.). This thesis combines Institutional ethnography with phenomenological hermeneutics. The designs and methods have the same focus and starting points in seeing individuals as the knowers. The combination is interpreted as enriching the findings and discussions of the thesis: the meaning of the phenomenon work practice has been studied at the same time as social relations have been studied. The combination of meaning of phenomena and relations bring substance to the empirically identified social challenges when implementing IS in a Swedish healthcare organization.



## Study site and access to the field

This thesis was conducted at Blekinge Institute of Technology, Faculty of Health Sciences, Department of health. In the beginning of my PhD studies, the Faculty of Health Sciences was called School of Health Science. Consequently, **study 1-3** refers to School of Health Science as affiliation while **study 4** refers to Faculty of Health Sciences as affiliation.

All included studies (**studies 1-4**, table 1) were conducted at healthcare sites in the southeast part of Sweden in a healthcare organization. **Study 4** includes a macro level group in the national healthcare organization. This group was located in a city in the middle of Sweden. Due to anonymity, no further specific details of study sites are described in the thesis. When this thesis refers to a healthcare organization it means the organization in the southeast part of Sweden where **studies 1-4** were conducted. As Hammersley and Atkinson (2007) point out: it should be the ethnographic researcher's main concern to act ethically appropriately during observations, interviews, and in presentation of research studies. The researcher and individuals in the studies determine what is legitimate in ethnographic studies (ibid.). In **studies 1-4**, it was considered appropriate (as agreed upon with healthcare staff) to guarantee anonymity in who the informants were and where they worked or studied. It was decided that in this thesis with its aim, it would not be necessary to reveal individual and specific details about the study sites.

Hammerlsey and Atkinson (2007) and Carlson (2012) indicate that one of the most important parts in ethnography is to gain entry to the field. In ethnographic research the researcher usually is not a member of the culture that is being observed. To gain entry as a non-member can be difficult. Not only are there practical and often physical matters, involving intra and interpersonal resources, there are also psychological thresholds that need to be considered (ibid.). Hammerlsey and Atkinson (2007) call attention to gatekeepers as guards watching over the field, such for instance the relations and actions it includes. To gain entry to the field, the gatekeepers often are the initial contact to the field (ibid.). The entry to a Swedish healthcare organization in included studies (**studies 1-4**), was initiated in the project "*Syster Gudruns Fullskalelabb i Blekinge för IT i vård och omsorg*". It was in this project that relationships were developed and a network within the Swedish healthcare organization was founded. The formal gatekeepers play an important part in this thesis: managers at different levels in the Swedish healthcare organization from the founded network were contacted and helped pave the way into everyday work in healthcare. Formal, as in formal gatekeeper, is here interpreted as the official guard according to the organizational hierarchy: it is a part of

the manager's tasks to oversee the field. In this thesis, nurses are in focus in all included studies (**studies 1-4**). Of course, there are other professions that are included in the group of healthcare staff. Also, nurses may a diploma in specialist nursing. The specialization is not considered in this thesis. Nursing, irrespective of specialization or site, is founded in the same ethical codes (Svensk Sjuk-sköterskeförening, 2007): due to the common foundation of nursing, nurses and student nurses are in this thesis seen as one group included in healthcare staff. According to Smith (2005), a focus on one specific part of an organization, although limited in scope, may support and enhance an understanding of the whole institution. The studies in this thesis focus on nurses' (irrespective of specialization or site) everyday work. Despite this specific focus, the thesis may convey something not only about coordinating actions in nurses' work but also about the overall coordination in work processes and actions within the institution of healthcare.

Table 1. Research questions addressed, methods, data sources, data collection, and analysis used in studies 1-4

Study	1	2	3	4
<b>Year</b>	2009-2011	2009-2011	2011-2014	2013-2014
<b>Main question addressed</b>	What does accessibility mean when implementing HIT in everyday work practice in a health-care context?	What experiences do nursing staff in primary healthcare have regarding discharge planning sessions, and what concerns do they have regarding the use of video conferencing in the discharge planning session?	Are there social challenges when implementing IS in everyday work in a nursing context? Can you put social challenges in a theoretical framework in order to address them more constructively when implementing IS in healthcare?	Can we obtain an understanding of social challenges when implementing Information systems in Swedish healthcare organization and their influence on the implementation process?
<b>Design/Method</b>	Institutional Ethnography	Phenomenological hermeneutics	Institutional Ethnography	Institutional Ethnography
<b>Data</b>	10 district nurses 35 student nurses	10 district nurses	10 district nurses 35 student nurses Healthcare staff	18 healthcare staff micro, meso, and macro level
<b>Data collection</b>	Interviews	Interviews	Interviews Observations Written reflections	Interviews
<b>Analysis</b>	Qualitative content analysis	Phenomenological hermeneutics	Directed qualitative content analysis	Directed qualitative content analysis

## **Data collection method**

Institutional ethnography's methodological practice includes two data dialogues. The first one is between the researcher and the individuals whose social relations are to be studied (Smith, 2005). To enable understanding for social relations between individuals and at the same time see individuals as knowers of reality (Smith, 2005, Hammersley and Atkinson, 2007), the first data dialogue included interviews, observations, and written reflections. Hammersley and Atkinson (2007) point out that ethnographic studies are a part of the social world they study. In this thesis this means that research is conducted close to context and individuals in order to see, hear, and enable understanding concerning reflections, meanings, and social relations.

### *Qualitative interviews*

According to Kvale and Brinkmann (2009) and Bryman (2012), the qualitative interview may enable understanding for individuals' everyday life: with a purpose of putting individual meanings of the world in focus, the qualitative interview describes the reality from the individual as the knower (ibid.). The qualitative interview has been a methodological tool in **studies 1-4**: with focus on the aim of this thesis, qualitative interviews have been used to gain insight into nurses' experiences about implementation of IS in everyday work in a Swedish healthcare organization.

In **studies 1-3**, individual qualitative interviews were carried out (by LN and CB). Bryman (2012) states that individual qualitative interviews are to be used when individual meanings and understandings of reality are searched for in research. Although Institutional ethnography (research design in **studies 1, 2, and 4**) emphasize on relations and not on the uniqueness of individuals, individual qualitative interviews were carried out. Due to a new and chaotic situation in Swedish healthcare when the organizations were urged to implement IS to improve safety and accessibility (Socialstyrelsen, 2006), individual interviews were considered more suitable: group interviews were almost impossible to arrange due to a stressful situation and heavy workload. According to Lambert and Loiselle (2008), a combination of individual interviews and group interviews may provide enriched qualitative research data. In this thesis the combination of individual and group interviews is used as a way to deepen empirical data, but also to enable understanding concerning the coordination of social relations from different perspectives. In **study 2**, a phenomenon was searched for and analyzed. Lindseth and Norberg (2004) suggest the individual qualitative interview as one way of searching for phenomena when doing phenomenological hermeneutics.

In **study 4**, focus group interviews were conducted (by LN and CB). Krueger (2009) defines focus group interviews as group discussions with focus on a by the researcher given topic. By discussing things that the group may not discuss every day, they may find assurance in expressing their experiences in the interaction with known group members (ibid.). In study 4, groups in a Swedish healthcare organization were asked to reflect on identified social challenges and their influence on the implementation process of IS. It was in the interaction in the group that reflections were articulated and developed: the individuals found coordination in their reflections and were confirmed and strengthened by the interaction. In this process, the social relations Smith (2005) is referring to, were identified and studied.

#### *Observations and field notes*

In **study 3**, observations were made at a hospital ward in the south of Sweden. Due to that staff members (nurses) were observed during everyday work in an implementation process of IS, all observed individuals are considered as what Patton (1990) refers to as relevant information carriers. In this thesis this means that due to observations in a specialized context as healthcare is (Agar, 1996), all nurses during observed shifts were observed and included in the observation data. During 6 days (morning, day, and night shift, in total 6 days\* 8 hours= 48 hours), observations were made. Hughes et al. (1994) and Jeffrey and Troman (2004) argue that it is not important to count the hours when doing ethnographical observations, it is the content of the observations that counts. In order to get as much nuanced data as possible, the observations were made during a long time of the implementation process (6 months) and during different shifts with different individuals. After these observation hours, no new data about social challenges when implementing IS in a Swedish healthcare was observed. Bryman (2012) and Jeffrey and Troman (2004) confirm that observations can be stopped when no new data related to the aim of the research can be observed in the context.

During observations, field notes were written. Bryman (2012) refers to field notes as written down observed data. In **study 3**, field notes of what was going on at the ward when IS were implemented (i.e. what staff did, how they acted, how they positioned themselves etc.) were written down in a note book. The note book was carried in a pocket during the shift, field notes were often written down directly or a bit later. When notes were written down later it was because of not wanting to interrupt the situation or missing important interaction or actions. According to Bryman (2012), it is common to mix these ways of writing fieldnotes in ethnographic studies. Sometimes, it was better to illustrate actions instead of writing about

them. For instance, when information about IS was put up on the notice board, it was often placed behind some other sheets of paper so that some of the IS information was hidden.

### *Written reflections*

Smith (2005) calls attention to texts as a connection between social relations and ruling relations: texts make connections between the local of individuals' being and the translocal of ruling relations. It is in the text that time and space are separated, yet there is a connection between the writer and the reader. The text discourse reveals the effects it has been influenced by (ibid.). **Study 3** includes reflections written by student nurses at an elective course at the nursing programme at a university college in the south of Sweden. The aim of including the written reflections in **study 3** was to capture the discourse student nurses see, hear, and watch when they do their practice. It was clarified that the reflections they wrote about should be experienced during their practice. Although the reflections were read afterwards, in another time and space, the reader of them could grasp something about how the connection of social relations was influenced by implementation of IS in a Swedish healthcare organization. The reason why student nurses were chosen to write down experienced reflections was to capture how soon-to-be graduated students were already included in the coordinated connection of relations.

### **Data analysis methods**

Qualitative data can be analyzed in different ways. In this thesis content analysis and phenomenological hermeneutics were used.

#### *Qualitative content analysis*

There are many different ways of doing content analysis; the common denominator is the aim of grouping similar texts together in categories (Burnard, 1995, Patton, 1990, Graneheim and Lundman, 2004). **Study 1** was inspired by Patton's (1990) qualitative content analysis: the characteristics of the texts are found by searching for the core of the text. Every interview was numbered; the text was read several times before meaning units of the texts were chosen, condensed, and grouped in categories. During this process, the aim of the study is in focus (ibid.). Patton's content analysis (1990) was chosen in **study 1** due to the emphasize on the core of the text: in **study 1** the core was the everyday use of the word accessibility when implementing IS.

In **study 3 and 4**, directed content analyses (Elo and Kyngäs, 2008, Berg and Lune, 2004, Hsieh and Shannon, 2005) were made. Directed content analyses allow texts to start the

analysis process in theory or in frameworks in order to relate the study to a specific area or aim (ibid.). In **study 3**, the analysis started in a related framework in order to enable understanding for empirically identified social challenges when implementing IS in a Swedish healthcare organization. **Study 4** tested identified social challenges in another part of the healthcare context and included experiences on macro, meso, and micro levels of the healthcare organization about social challenges and implementation processes. An example of content analysis (**study 4**) is presented in table 2.

### *Phenomenological Hermeneutics*

In **study 2**, phenomenological hermeneutics analysis (Lindseth and Norberg, 2004) was made: lived experience of a phenomenon was searched for. As mentioned before in this thesis, the phenomenon studied in **study 2** was lived experience of how work practice changes when IS are implemented in a Swedish healthcare organization and how this may bring social challenges to the surface. Lindseth and Norberg (2004) call attention to that the analysis process of phenomenological hermeneutics starts in naïve reading where a primary understanding of the phenomenon is founded. In **study 2**, the transcribed interviews were read several times before a summary, naïve reading was made. The summary aimed at being open minded concerning what the texts mediated with focus on the phenomenon. The next step of the analysis, Lindseth and Norberg (2004) refer to as structure analysis: with focus on the aim of the study, meaning units are searched for in the transcribed interviews. The naïve understanding gives guidance when searching for meaning units (ibid.). In the structural analysis of **study 2**, the naïve understanding was printed out and was put on the desk. With the aim of the study and with the naïve understanding in mind, meaning units were searched for. Themes were articulated, including groups of related meaning units. The last step in the phenomenological hermeneutic analysis (Lindseth and Norberg, 2004) is the comprehensive understanding where naïve understanding and themes are related to theory, pre-understanding and previous research. In this step, an understanding of the phenomena can be enabled (ibid.) Trying to enable understanding, themes were related to theory, pre- understanding in the interpretation of the Applied Health Technology framework, and previous research: not only does work practice change with IS, the settled culture, norms, attitudes and beliefs are affected by these changed practices.

### *Qualitative content analysis and phenomenological hermeneutics in the same thesis*

As stated before, this thesis combines Institutional ethnography with phenomenological hermeneutics in design and method. The combination has an influence on the analysis

process: combination of designs may end up with different analysis processes (Bryman, 2012). Content analyses and phenomenological hermeneutics state that analysis ought to start from individuals' interpretation and experience of what is going on in their everyday life (Smith, 2005, Burnard, 1995, Lindseth and Norberg, 2004). Although directed qualitative content analyses starts in theory or a framework (Elo and Kyngäs, 2008), the analysis process acts on individuals as what Smith (2005) refers to as the knowers. Again, the combination of design, methods and analysis is interpreted as enriching the findings and discussions of the thesis. Atkinson (1992) refers to analyses like these as characters of culture of fragmentation: this thesis has decontextualized and recontextualized into themes or categories to search for patterns in empirical data.

Table 2. Examples of analysis from Study 4

<b>Meaning unit:</b>	<b>Condensed meaning unit:</b>	<b>Identified social challenges in the implementation process:</b>
'You cannot do as I often hear about that when purchasing a service in an electronic patient record for instance, the organization permits the supplier to do the entire configuration. Then the organization has lost all its power! You need to control all of it yourself...' (Macro level)	Lose power to supplier, need to control IS yourself	THE INFLUENCE OF POWER WHEN PUTTING IS INTO PRACTICE
'IS are work facilitators, but hardly ever do they [staff members] accept them. IS are facilitators in the same way that an infusion pump is. But a lot of times they have another attitude towards IS, like IS should be served in another way...' (Meso level)	Do not accept IS as a natural facilitator of work	THE INFLUENCE OF PROFESSIONAL IDENTITY WHEN MAKING IS A PART OF WORK ROUTINES
'It is a stressed out working environment. When something new is coming, you say to yourself: 'let us get this over and done with as quickly as possible'.	New things are encountered hurriedly, and perceived as adding to existing stressfulness	THE INFLUENCE OF ENCOUNTERS WHEN ESTABLISHING IS IDENTITY

## **Ethical considerations**

This thesis and included studies (**studies 1-4**) were conducted in accordance with ethical principles within humanities and social science (Forskningsrådet, 1990) and ethical principles of ethnography (Hammersley and Atkinson, 2007). All participating individuals, who share their experiences and everyday life in research have the right to information, to not be included in research if they do not want to be included in it, to confidentiality, and the right to the information (Hammersley and Atkinson, 2007, Forskningsrådet, 1990).

Participating individuals need to be *informed* before an observation or interview (Hammersley and Atkinson, 2007, Forskningsrådet, 1990). All included participants (participating individuals) were informed beforehand: in **studies 1-4** information letters were handed out. Participants gave their written consent before observations or interviews. Before interviews, the participants were informed that participation was optional, and that the tape recorder could be stopped at any time during the interview. Also, they were informed how interview research material is saved: according to Hammersley and Atkinson (2007) it should be saved in a locked site away from its identity codes. According to Hammersley and Atkinson (2007) and Forskningsrådet (1990), participants have the right to decide if they will be included and participate in research. In **studies 1-4**, individuals at the ward decided before each study if they wished to participate in the observation. Patients and staff members that were at the ward during observations had been informed (notices on notice boards in the hall and in their rooms with contact information to the researchers, information meetings) before the observations. Patients and staff gave their consent to the observations.

Participants have the right to *confidentiality* and to remain anonymous in research. Personal information about participants needs to be kept in a way so that their identities cannot be exposed (Hammersley and Atkinson, 2007, Forskningsrådet, 1990). Hammersley and Atkinson (2007) call attention to the importance of the complexity of not revealing secrets that are overheard during observations in public places. In this thesis, a hospital ward was considered a semi- public place: it is not open for everyone, though patients, staff and visitors share several spaces. Discussions about patients or organizational secrets that were overheard in offices and lunchrooms are not revealed in this thesis. They were not written down in the field notes. All empirical data (observation, interviews, information) in **studies 1-4** are decoded from name, personal identity number or data that would expose information about the participants. Names and organizational affiliations are separated from taped interviews. In



all written and oral information to the participants, the researchers have kept the participants posted about confidentiality. Participants have been asked to answer whether they have understood the information about confidentiality or not.

Participants have the *right to the information*: all empirical collected data shall only be used for research (Hammersley and Atkinson, 2007, Forskningsrådet, 1990). In **studies 1-4**, this means that collected data from observations and interviews have not been used for a commercial purpose or used in actions that may affect or influence the participants without their consent.

In **study 3**, the observations allowed by the Ethical Advisory Board in South East Sweden: an ethical application was accepted in 2010 (Dnr 2010/81). In **studies 1, 2, and 4**, ethical self evaluations were made: because of the aims of the studies the evaluations stated that no ethical applications needed to be made to the Ethical Advisory Board in South East Sweden. During interviews, no patients were present. The interviews which conducted in sites were no patients had access to. Also, interviews were conducted at times when no patients were affected.

## **Research diary: Findings**

*It is summer holiday. Although I am supposed to be at home enjoying the lovely weather, I slipped away to work today. I have so many ideas about all the things that need to be included in article 4. Instead of keeping it all in my head or on post-its until autumn term starts, I felt I had to draw up an outline of the article. After that I will enjoy the lovely weather, I promise. While I am waiting for the computer to start, I look at a blue folder I have on my desk. It says 'My research papers' on the cover. I open it and write 'paper 4' on the next flap of the index. I am using my best pen, the one I got at the conference in Norway some years ago. I cannot believe that I have written research papers, that I actually pulled it off! Well, I have not done it single-handed of course, but still... there in the blue folder they all started as some outlines on a piece of paper. Today, hopefully someone out there somewhere may apply our findings. Our findings... I remember my supervisors talked to me earlier this spring about our contribution to the research field of Applied Health Technology. After our talk I started to draw a map of the findings of our research. The map is almost finished; I think the fourth article really will complete it. The map starts in concerns and attitudes towards something new in everyday work. Then it moves on to the importance of including interpretation of symbols and words when we change something in a context. The last stop on the map was identification of social challenges. I remember this stop and the well-earned attention it got: people thought it was an important topic. Now it is high time to end my map. This stop needs to tie up five years of research. I know exactly where to start, if only I could get the computer to start! Ah, now it is working, perhaps it was a little bit drowsy from the summer and heat wave outside. I am opening Word and start to write: 'paper 4: The influence of social challenges when implementing Information systems in a Swedish healthcare organization'. I really need to go on with my outline now. Talk to you soon again!*

## FINDINGS

### The serpentine road from study 1 to study 4

While we were working in the project “*Syster Gudruns Fullskalelabb i Blekinge för IT i vård och omsorg*” and with the healthcare channel, the Swedish eHealth strategy (Socialstyrelsen, 2006) was published. At that time, the word everyone used when they talked about eHealth was accessibility. However, in studies made within the project it seemed as though different departments (i.e. wards, IT department, service department etc.) and also different levels of the organization used the word accessibility in different ways. For instance, the eHealth strategy used the word in a way that was very different from how it was used at hospital wards and in primary healthcare. Interviews were conducted with healthcare staff: they talked about IS implementation, how work changed with IS, and what accessibility meant in their everyday work. The interviews were long and included a lot of information. Hence, they became the foundation for **study 1** and **2**. Student nurses also took part in **study 1**, as we wanted to get a more overall understanding of the word accessibility: student nurses added another perspective and they had been in practice at many different wards in various and primary healthcare units. When **study 1** and **2** were conducted, project “*Syster Gudruns Fullskalelabb i Blekinge för IT i vård och omsorg*” was still running. However, the progress we made with the healthcare channel was delayed when it came to implementation in practice. Many different excuses (from healthcare staff) were given for the delays, despite that they had approved and liked the idea at earlier stages in the healthcare channel development. It was at this point that the idea came up of posing the questions ‘What exactly is causing the delays? Are there challenges in implementation of IS that we have, up to this point, been unaware of, or been putting aside?’ The interviews (with primary healthcare and student nurses) were gone through again, observations were made and more interviews were conducted. Based on this empirical material, social challenges were identified and presented in **study 3**. This study also analyzed the challenges from an interdisciplinary perspective: challenges are often complicated and need to be looked at from many different perspectives in the same study in order to see a complex reality from a more complex theoretical framework. At the same time as **study 3** was written, project “*Syster Gudruns Fullskalelabb i Blekinge för IT i vård och omsorg*” was reported and finished off. The identified social challenges needed to be discussed with healthcare staff on different levels in the healthcare organization to explore if they recognized them and if the staff on different levels worked with them in the same way. The start of **study 1** had shown that the levels did not communicate or play well together. In

**study 4**, healthcare staff on micro, meso, and macro level talk about their experiences of social challenges in the implementation process of IS.

What started out with the aim of becoming a dissertation about the implementation process of a healthcare channel has now become four studies about work, words, and the woeful ways of implementation of IS. Writing this thesis has been like driving on a serpentine road. Despite tough driving, the view has always been breath-taking. You might say that the view (here used as a metaphor for everyday work practices and sense-making in a Swedish healthcare organization) kept me going and made this thesis into what it has become today.

### **Study 1**

**Study 1** aimed to investigate different meanings of accessibility when implementing HIT in everyday work practice in a healthcare context. It focuses on nurses to highlight a view of a complex relationship between HIT and information in a healthcare context. The results indicate that accessibility depends on working routines, social structures and patient relationship. The meaning of accessibility in everyday work was not the same as the way accessibility was used in the National Strategy for eHealth. When a strategy and interaction in everyday work use the same word in different ways there will be consequences. The study emphasizes the importance of communication and interaction implementing HIT, because people act upon words based on the interpreted meaning of them in a local context. There is a need for making place and space for negotiation of the meaning of words when implementing HIT in everyday work practice.

### **Study 2**

**Study 2** aimed to describe experience-based reflections on discharge planning as narrated by nursing staff in primary healthcare, along with their concerns about how the introduction of video conferencing might influence the discharge planning situation. It was found that nursing staff in primary healthcare regarded the planning session as stressful, time-consuming and characterized by a lack of respect between nursing staff at the hospital and in primary healthcare. They also described uncertainty and hesitation about using video conferences where patients might probably be the losers and nursing staff the winners. There is a need for improvement in communication and understanding between nursing staff at the hospital and in primary healthcare. There is also a need for the nursing staff in primary healthcare to obtain more information about how IT solutions could support their work and help them to find ways to collaborate.

### **Study 3**

The aim of **study 3** was to explore social challenges when implementing IS in everyday work in a nursing context. Moreover, this study aimed at putting perceived social challenges in a theoretical framework in order to address them more constructively when implementing IS in healthcare. Power (changing the existing hierarchy, alienation), Professional identity (calling on hold, expert becomes novice, changed routines), and Encounter (ignorant introductions, preconceived notions) were categories (subcategories) presented in the findings. Implementation of IS affects more aspects in the organization than might have been intended. These aspects need to be taken in to account in the implementation process due to their importance for everyday work in a Swedish healthcare organization.

### **Study 4**

The aim of **study 4** was to explore and obtain a deeper understanding of Swedish healthcare organization micro, meso, and macro levels' experiences on how identified social challenges of power, professional identity, and encounter have an influence on the implementation process of IS. It was found that the challenges were related to the steps of putting into practice, becoming part of everyday work routine and establishing an identity in the implementation process. Although healthcare staff on all three levels in the Swedish healthcare organization are of the opinion that identified social challenges have an influence on the implementation process of IS, it seems that they are lost in different ways concerning how to face the social challenges of power, professional identity, and encounter. Being lost in different phases of the implementation may influence that different focuses are founded with no overall picture of implementation process, with no shared overall picture of implementation of IS in Swedish healthcare, may influence communication and interaction within and between the different levels negatively, contributing to escalating the social challenges throughout the organization in a negative, self-propelling spiral.

### **Synthesis of studies 1-4**

In 2006, an eHealth strategy was introduced in Sweden. It stated that Swedish healthcare needed to change to be prepared for future challenges: the strategy was based on the assumption that IS would bring accessible and safe healthcare to more patients in shorter time. In the strategy, the word accessibility was not used in ways that staff members of Swedish healthcare organizations used it in their everyday work practices. As a consequence, the intense implementation phase of IS in Sweden started with fighting an uphill battle: if

members in an organization do not believe in what you write in a IS strategy for the future, it is hard to convince them about the benefits of IS and about a digital future that is supposed to change their everyday work in far-reaching positive ways. Although there were information campaigns about IS in Swedish healthcare organizations, staff did not know about them or did not consider attending information meetings about IS as being part of their everyday work. They did not prioritize being informed about IS in their time schedules. At the same time, IS made old differences in Swedish healthcare organizations visible: with IS different parts of the organization could work more closely together. Although new ways of working came with supposed benefits, nursing staff assumed that including IS in healthcare work practice would harm or marginalize patients (as for instance when using video conferencing in discharge planning). Also, different routines in work practices were exposed with IS: deeply rooted work routines were questioned when IS were supposed to make different parts of a Swedish healthcare organization work closely together. Implementation of IS revealed the strong healthcare organizational culture with rigid routines, roles, norms and values: the social side of everyday work is affected by IS and the new routines, structures, and processes they bring into the organization. To ignore the social interplay in the implementation processes of IS brings delays: the implementation of IS affects how individual act and behave in a Swedish healthcare organization. The Swedish healthcare organization is lost in different ways at different hierarchical levels in how to shape IS identities and put IS into practice as an everyday routine: because of trying to bridge the gap between societal development and organizational culture in different ways at different levels in the organization, the implementation of the eHealth strategy is further delayed. Also, the vision of accessible and safe healthcare thanks to IS promoted by the eHealth strategy very distant from current experiences of IS in everyday work practice in many Swedish healthcare organizations. Today, it might be even the other way around: IS may be contributing to inefficient, ineffective, and unsafe healthcare due to ignorance or downplaying of usability issues and social challenges when implementing IS in healthcare organizations.

## **Research diary: Discussion**

*People say that you should start writing the summarizing chapter of your thesis as soon as possible. I have postponed this writing exercise long enough now: this time next year my thesis ought to be finished. I will make it, no problem! From the first day as a PhD student I have had a document called 'Do not forget to mention in your thesis'. Every now and then I have added thoughts, experiences and concepts to this document. I look at the document and it is almost like a summarizing text about all the things that I have experienced in my research. Of course it is hard to describe all your experiences, pitfalls and findings, but I have tried to do my very best. I think this document will be an excellent starting point for my summarizing chapter. So now I have a starting point and a blue folder with research papers: they need to be put together in an amazing summarizing chapter. For a really long time now, I have thought about how to put all our findings together and look at them from another point of view. Or with my sociological eyes from another distance one might say. I have thought about how to find an interesting distance when I am at work, when I am free from work, when I clean my house, even now and then when I talk to my friends! It is like I cannot let the thought about fusion of findings from another distance go! But yesterday it happened. I was jogging and listened to some music. Then it suddenly came to me; I saw the fusion of findings. This was not only good for my thesis, it was really good for my condition as well because I had to ran as fast as I could back home. Quite breathless I wrote down all my ideas on an envelope (this was the first piece of paper I saw when I got back home again). I brought the envelope to work and put it on my notice board. I open the 'do not forget' document and write: **What new knowledge does this thesis bring to theory and practice?** These words will be the foundation of the fusion.*

## DISCUSSION

The overall aim of this thesis was to identify social challenges when implementing IS in a Swedish healthcare organization. Furthermore, the overall aim was to understand the impact of identified social challenges when implementing IS in a Swedish healthcare organization, by putting them in an interdisciplinary theoretical framework. Three empirical identified social challenges were identified: power, professional identity, and encounter. Theory is used as to enable understanding of why certain things happen or exist. That means, theory is used as explanandum of this thesis: it assists the thesis to focus on the question: *'Why are there social challenges?'* Before asking ourselves this question, it needs to be clarified if *there are* any social challenges at all when implementing IS in a Swedish healthcare organization. And if there are any, does this thesis bring them out in order to set off its own views? In this thesis, empirical identified social challenges are identified. They are based on what has been experienced and observed when IS were as Olsson and Sörensen (2011) and Engström (2005) refer to as top-down implemented in a Swedish healthcare organization. Experiences and observations about challenges beside the technical difficulties were related to the need described by Koch (2006) and Westbrook et al. (2009) of looking at implementation of IS from the social side of everyday work. Using Rogers (2003) definition of implementation, challenges of the social side of everyday work were identified from collected data. Identified social challenges are set off in order to be used or transferred to the reader's own organization or institution if the reader finds the study relevant. Or as Robson (2002) suggests, the reader is responsible to use the findings in a similar setting or oppose to the researchers.

### **Historical flashback: Do you remember Spinning Jenny?**

Below is an abstract from field notes. They were written during an observation at a hospital ward in the south of Sweden. At the ward, a new IS had been introduced a few weeks before the observations were made. The working team was quite upset about the gaps in introduction and how the system did not fit their working routines. Four staff members of the working team chatted about the system during a coffee break. To remember the chat but at the same time not interrupt it, the notes were written in the ladies room afterwards.

*But wait a minute! This conversation and the trouble times that have arisen remind me of something I have read and seen a picture of. Ah, but of course! Why have not I thought about this before? I consider myself being interested in history, I cannot believe I have not thought of this before. This is like Spinning Jenny all over again, it is like the starting point of the Industrial revolution. Ah, I remember reading about Mr Hargreave's machine that upset the*



*industrial workers: it increased productivity with its spools (or was it something else?) at the same time that it reduced the amount of labour that had to be done. The workers were afraid that the machine would take over their jobs. I remember a picture from a film slide at the history class in high school: the workers were so upset and the Spinning Jenny in the picture looked rather lost. This is the exact (ah but almost) same thing: IS almost always look lost in working teams' everyday work: it is not a working flow between them, it is like they're dancing different kind of dances. Often, the teams get upset about IS because they are supposed to increase productivity.*

*Just one more thing before I go back to observations: I cannot decide if it is sad or cool to be a part of sort of a revolution? Perhaps revolution is a big word, but still something is going on out there. History keeps repeating itself. I just love history, so I am deciding right now that it is a cool thing for me as a researcher to be in the middle of a change. Perhaps there will be pictures of IS and upset working teams in future history books? Ah, back to the revolution!*

### **Why are there social challenges when implementing IS in a Swedish healthcare organization?**

When a hierarchical organization is encouraged by society to change the shape of everyday work, there may be thresholds in organizational acceptance of letting go of control of how things ought to be done correctly. In interviews and observations this was shown as keeping to old routines in a digitalized healthcare, struggling of being expert and novice at the same time, and feeling puzzled about keeping and letting go of power. Looking at society as being in a state where the modernity era has come to an end, and where its consequences founded in industrialization and Enlightenment are lined up, Giddens (1991) states that society is in a late modernity state of mind. Consequences as dividing time and space, disembedding mechanisms, and reflexivity are framing late modernity. Because of technology, globalization, and political relations, activities in everyday work are not controlled by time ('when') and space ('where') anymore. Ahrne et al. (1996) point out that time and space are dissolved in the modernity era. Without connection between time and space, Giddens (1991) calls attention to that social contexts may grow independent of the physical place where it first grew strong (ibid.). In this thesis this means that when Swedish government encouraged Swedish healthcare organizations to implement IS in order to improve accessibility and safety, the strategy opened up for new collaborations and taking care of patients at a distance. IS may therefore be looked upon in a Swedish healthcare organization as a tool that will change controlling methods and how things ought to be done: scheduled appointments at a

certain ward or healthcare site, as well as control information are not included in the late modernity era. Also, IS might be interpreted as support that do not fit the established everyday work system Alter (2003) is referring to: IS are not yet a resource that are trusted when Swedish healthcare organizations provide care. Giddens (1991) points out that disembedding mechanisms of abstract systems of experts and symbolic tokens separate social relations from the context where they were formed in interaction. In late modernity, social relations are included in wider contexts, independent of the time perspective. Expert systems control how things are done in modernity era: they are controlled from outside the physical place where the context grew strong. Symbolic tokens are replaced in modernity era by more practical tools or solutions. In late modernity era, individuals need to trust disembedded mechanism in order to make them function (ibid.). In the Swedish healthcare organization, social relations have been the foundation for caring and nursing: communication has been the core of mediating information, culture, and knowledge (Berg, 1999). To separate relations from Swedish healthcare organizations might bring disequilibrium in how to send on everyday work. Expert systems such as organizations, authorities, laws and regulations are situated outside wards, hospitals, or healthcare sites. Still they are controlling how relations are to be shaped when IS are implemented (e.g., collaborations, how to journalize etc.). Symbolic tokens in Swedish healthcare organizations as nurses' note pads, patient records, and information boards are replaced with digitalized solutions that are more practical for a globalized society. This thesis maintains that disembedded mechanisms of late modernity era are not yet fully trusted in the Swedish healthcare organization. Without trust, staff members do not have confident in experts and the replacements of their tokens. Instead, they are trying to balance between late modernity consequences and the comfort of keeping known systems and tokens. The balancing may be related to Smith's (2005) declaration of connected social relations: if ruling relations of late modernity society are not coordinated with the social relations in the Swedish healthcare organization, the healthcare institution does not reproduce actions that fit the controlling and specialization of the organization. This means, although IS are supposed to bring accessibility and safe healthcare, they will not succeed unless they are included in reproduced actions in everyday work. As a third consequence in late modernity era, Giddens (1991) is referring to reflexivity. Social norms and values in late modernity are constantly questioned because of the never-ending information flow. Information about norms and values will assist in changing them. The reflexivity of knowledge based in norms and values are changing so fast and often in late modernity so that knowledge based updated norms and values may be questioned by skeptical individuals (ibid.). Nurses in the Swedish

healthcare organization base their everyday work on firmly established norms and values: in interviews and observations deeply rooted ethics of role models were mentioned and observed. If these norms and values are constantly questioned in information about implementation about IS (e.g., the nursing perspective of Florence Nightingale), information and the updated norms of using IS in everyday work will be questioned. Reflexivity may also be related to Scheel (1995) and Scheel et al.'s (2008) discussion on knowledge problems and practical interactional nursing: if the inside of a profession constantly is questioned from the outside conditions, there may be disharmony in the nursing profession's own inside logic and outside societal logic. When foundations of a profession and experiences connected to it cannot be used in everyday work, outside conditions may be questioned and experienced as being too abstract or unknown. Nilsen (2010) and Hasenfeld (1983) is highlighting the importance to study everyday work together with the implementation process in Human service organizations such as healthcare in order to understand the real use of tools or ways of working. If reflexivity is a consequence of social process, this thesis confirms not only the importance of deeply rooted norms in Swedish healthcare but also that there is a gap between everyday work and IS implementation. The gap may stem up from not looking at healthcare as a constantly moving Human Service organization that relies on its everyday work. To sum up, social challenges may arise when a hierarchical organization is questioned and controlled by a strategy made by a late modernity era society: when Swedish healthcare organization does not trust consequences of late modernity, the gap between old routines and new ones that come with IS may be difficult to fill.

In the balancing between hierarchy and late modernity, nurses do not feel that there is clarity in their professional roles. In Goffman's (1990) dramaturgy, everyday life and identities are performed as roles in front of an audience. On stage, impressions are given to the audience in order to win their trust: the performance is a way of forming audiences' impressions. To consolidate impressions, individuals participating on stage need to trust each other: every role needs to be coordinated with the play in order to gain the audience's trust. Before the performance, impressions are trained on stage and back stage behind the wing flats (ibid.). Swedish healthcare organizations educate nurses to act and behave in deeply rooted ethical ways in healthcare performance: student nurses reflected on difficulties in put new routines into practice and nurses experienced clashes between IS and their profession. Also, nursing is trained to be acted on a certain stage in front of an audience. At stage they have their position in a hierarchical organization. Handel and Hackman (2010) and Axelsson et al. (2011) state

that IS influence and change this hierarchy. In this thesis, the hierarchical position brought trust, but it also is changed when IS are implemented. In late modernity, the place is no longer of importance: the stage of nursing performance has been changed into be separated from context (e.g., ward, hospital, offices etc.). When implementing IS, the play was changed. With no physical stage, a newly written play, and with clashes in performing roles, the performance may be considered unreliable by patients. Hierarchy is now longer important for everyday work: in late modernity play the experts are off stage. Of course the show must go on, but the impressions may be difficult to form when roles are not settled and practiced. Without coordination in performance, IS may never be able to bring accessible and safe care.

Organization culture in Swedish healthcare needs to be reframed to be able to put IS into practice. In **studies 1-4**, interviews and observations revealed that healthcare staff relied on a strong, deeply rooted culture including norms, values, symbols, and stories where knowledge was formed how things ought to be done. Kaptelinin and Nardi (2006) state that norms and values are formed in interaction with others. Blumer (1969) calls attention to that individuals act on things dependent on its meaning. Interaction is where things get their meaning: words, things and individuals do not come with an intrinsic meaning. Individual meanings get adjusted in interaction with other individual in the context: meanings are shaped from within the individual and with others. Meanings of things guide individuals within a context how they should act on the thing in the future (ibid.). In interaction, Giddens (1984) and Orlikowski and Gash (1994) call attention to that individuals get socialized into the organization culture. The findings of this thesis state that the forms of IS encounters are of importance for implementation of IS. Sometimes, Swedish healthcare organizations have been carelessly treated in introductions of IS: words and interaction have been used in a way that might not have fitted the meaning of things within the organizations. With other words, the way staff members have been socialized into the context may not be integrated with information about IS that will be a part of the context. Also, the eHealth strategy used the word accessibility in a different way that the organization was used to. Consequently, healthcare interaction, where culture is formed, is not taken into consideration when IS are to be implemented. This may cause difficulties in forming a common meaning of IS in everyday interaction and culture. With somewhat ignorant introductions, IS might have difficulties in becoming the supporting system in boundary (1994) contexts Chen et al. (2013) and Kling (2007) refer to. Included interviews and observation state that the Swedish healthcare organization is a boundary context: when IS were implemented staff members faced new

cooperation networks which caused irritation because of their breaking forces of boundaries like the ones Santos and Eisenhardt (2005) are referring to: power, communication, competencies and values were challenged with IS implementation. The interaction in organization culture form roles: according to Goffman (1990) roles are performed everyday in plays to make sense of situations. In the sense-making, Benner (1982) describes four steps in how nurses are trained into their role as experts of nursing: by using symbols and stories, nurses are trained into their performance. Scheel (1995) and Scheel et al. (2008) refer the actual training as being the inside of a profession where the identity is shaped in order to fit the societal context. This thesis reflects on what may happen when interaction, meanings, and training of roles within Swedish healthcare organizations are facing IS to be included in everyday work. According to Lau et al. (2014) interaction traditions need to be changed when IS are implemented: IS enable different interaction flows. This means, when interaction and roles are trained in certain ways, new plays need to include the training processes. If they are not included, it may be difficult to make sense of IS situations. Especially when, as stated before hierarchical organizations meet what Giddens (1991) refers to as consequences of modernity. With no training and thresholds in new interaction flows, staff members and different levels in the Swedish healthcare organization may have difficulties in forming new mutual frames and connect inside and outside of a profession. Orlikowski and Gash (1994) and Bolman and Deal (1991) call attention to that organizational socialization (e.g. training on roles) create a unity in the organization: frames are formed that are used when the organization is defined. This thesis points out that there are well founded culture frames in the Swedish healthcare organization: they are shown for instance as hierarchy, power relations, in training, and in organizational stories. Also, the way time is interpreted is an example of framing culture, interaction, and training. To say '*we do not have time*' has become a united way of defining organizational culture frames to exclude IS. Heidegren (2014) calls attention to that time is socially accelerated in what Giddens (1991) refers to as late modernity and modernity: the time eras demand that individuals should perform more in less time. Social acceleration can be related to individuals' time experiences: a time experience is a way of framing actions together in interactions (Heidegren, 2014) and in shaping the inside of a profession (Scheel, 1995, Scheel et al., 2008). In this thesis this means that being an organization balancing on the relation between hierarchy and late modernity, time experiences control the meaning of time in a healthcare organization. Late modernity demands social acceleration of time when implementing IS, but at the same time organizational culture frame experiences to say that there is no time. Orlikowski and Gash (1994) state that old frames

often are used when IS are to be implemented. In interviews and observations included in this thesis, this was confirmed: the Swedish healthcare organization has difficulties in implement IS in existing culture. This means that, organization culture in the Swedish healthcare organizations needs to be reframed to include IS in it. How individuals interact, how they get socialized into a culture, and how symbols and stories can be updated need to be considered when implementing IS in Swedish healthcare organizations. If they are considered, time for implementation of IS may be included in organizational frames.

The sense-making between the Swedish healthcare organization and IS makes no sense: in interviews and observations it was noted that staff members did not know how to use IS in ways there were designed. On the other hand, IS did not know the dance nurses were dancing: IS have difficulties in becoming what Kroenke et al. (2010) and Stair and Reynolds (2011) refer to as networks that support everyday work processes. Throughout this thesis, nurses' everyday work has been compared to dancing: they were organized and synchronized in a trained way to provide care for patients. Goffman (1990) states that coordinated performances are a part of individual presentation: in synchronized acting (or dancing) the performance can impress the audience. In performed interaction, Blumer (1969) points out that a common meaning is formed. If IS do not fit the performance, or if the performance does not use IS as they were designed, staff members cannot make sense of them, even with what Orlikowski and Gash (1994) and Davis (1989) call attention to. If sense-making is cloudy with confusion how to synchronize work or IS, IS may have difficulties in becoming as what Star and Griesemer (1989) refer to as boundary objects. As a consequence, IS may have difficulties in creating an identity in the implementation process. Or with other words, wards, different levels in the Swedish healthcare organization keep on dancing their dances because they do not understand the moves of IS. Without an identity, IS may have difficulties in becoming the facilitator Lundström et al. (2014) and Nilsson et al. (2010) are highlighting as an important task of IS. In order to understand, the nursing frames that Kim (1987) is referring to need to be included: interplay between clients, nurses and practices is important for sense-making of IS. Charon and Hall (2009) and Riehl (1996) confirm that interplay in interaction is the foundation of nursing. In Nordmark et al. (2014) and Carljford et al.s' (2010a) research, the importance of interplay in nursing was validated: if IS did not supported interplay, it was difficult to implement in everyday work. Although Kling (2007) indicates the importance of a social context for IS, this thesis states that there are confusions in bridging IS and the Swedish healthcare organization. The bridging of sense-making can be related to Giddens' (1991)

discussion on ontological safety in late modernity. Structured routine activities in everyday life have been trained and taught through socialization. In late modernity, a safety net may be built around the activities to protect them from late modernity consequences. The safety net forms an ontological safety that brings order inside and outside individuals (ibid.). An ontological safety might be in the way of the sense-making between IS and the Swedish healthcare organization. Staff members may wish to keep the organized performance they need to perform to provide care. When the performance is changed, staff members stick to their trained and structured routines they know and can interact. Or going back to dancing; staff members know how to dance routines, but in late modernity dance they get two left feet and cannot make sense of it. Trying to dance the late modernity dance, different levels in the Swedish healthcare organization have difficulties in different part of the dance. Hence, the dance show does not run smoothly.

In the Swedish healthcare organization, there is no space for IS in professional identities. When IS were implemented, staff members experienced set aside from their everyday work: their skills were questioned as well as the context they were a part of. The Swedish healthcare organization lost the practical interactional nursing Scheel (1995) and Scheel et al. (2008) are referring to: knowledge problems between inside and outside of the profession arose. IS brought faster and changed pace and routines with different kind of frames and opportunities for everyday work. When shaping an identity, Giddens (1991) states that individuals need continuity and trust to be able to keep up when technology runs riot in society. Continuity and trust are reproduced in interaction. Venkatesh and Davis (2000) and Terrizzi (2013) point out that trust is the key to IS implementation: if staff members trust IS, they will include it in their everyday work. Consequently, in late modernity era it is importance that individuals feel continuity and trust in order to keep up in the fast lane and form an ontological security. At the same time, trust is important in IS implementation. In this thesis, staff members experienced that they were a part of large industries, where IS would eventually take over their everyday work and identities. The experiences of IS taking over may lead to mistrust: in interaction IS then become something that are not included in ontological security. Also, and perhaps because of it the implementation of IS are delayed and complicated. Going back to the reflection about Spinning Jenny, staff members of the Swedish healthcare organization do not trust the technology of a new era because it changes everyday work and professional identity. If IS are mistrusted, it may be hard for them to gain trust again because of individual's definition of situations: Charon and Hall (2009) point out that actions are

outcomes of that individuals are defining situations in interaction. Benner (1982) indicates that situations are taught to be defined during nurses role interpretations from being a novice to becoming an expert. In this thesis this means, if IS are defined as something that are taking work and change professional identities, it may be difficult to change a definition of the implement situation. Especially if nurses are taught from experiences how IS are and what they do to nurses' everyday work. Taught from experiences, it may take long for definition of IS situations to change. As one respondent referred to, although Florence Nightingale was an entrepreneur and model, late modernity demands that she shares her space with other models. This may not be easy because of norms, values and stories in the Swedish healthcare organization. When IS are to be implemented, Axelsson et al. (2011) and Scandurra et al. (2013b) are suggesting that key persons or Informaticians need to step forward in order to ease the implementation process. This thesis does not focus on what kind of person or if there is a need for Informaticians in Swedish healthcare. Instead, this thesis emphasizes what IS do to everyday work and nurses experiences of being a profession. This information is important for key persons of the implementation to include in their everyday work.

The theoretical framework of this thesis is interdisciplinary: it includes several different theories from different scientific areas. Theory is interpreted as explanandum (Bijker et al., 2012) and guideline when thinking and giving nuanced answers about how social life works and how things fit together (Calhoun, 2012) when implementing IS in the Swedish healthcare organization. Although many different theories from different research areas may be looked at as aiming at all and nothing, theory is used as stated by Corvellec (2013): it is a connection of what has been in relation to what is going on. Also, theories assist the reader in imagining what will be in the future. Aspers (2011) recommends the use of a theoretical framework when doing ethnography: it assists the researcher in knowing how to interact with the context. In this thesis, this means that the theoretical framework assists the research in finding its way in Applied Health Technology. The theory became a kind of glasses to put on when doing ethnography: they guided research to know what to ask and look for. A common feature in the interdisciplinary theoretical framework is interaction: Symbolic Interactionism (Blumer, 1969) is one corner stone of the theoretical framework. Symbolic Interactionism focuses on micro level of society where joint actions based on meanings of things and individual are the core (ibid.). Although used theory focuses on micro level of society, this thesis is studying meso, and micro level of a Swedish healthcare organization. As Blumer (1969) points out, Symbolic Interactionism does not ignore meso and macro levels of society. Focusing on



individuals' interaction at micro level, Symbolic Interactionism interprets meso and micro levels of society to be dependent on individuals (ibid.). In this thesis this means that individuals' interaction is in focus during analysis processes. Macro and meso levels are interpreted as something that has been emerged from micro level. To discuss the gap that after all exists between micro level and society (e.g. meso and micro levels), consequences of late modernity (Giddens, 1991) is included as a theoretical corner stone of this thesis: Giddens (1991) calls attention to the relation between interaction and ruling relations at macro level of society. This relationship is also discussed in Smith's (2005) Institutional ethnography: social relations at micro level need to be connected in certain ways to fit ruling relations of society. Although this thesis is founded in interaction, it aiming at trying to explore challenges that may arise when IS are implemented in a Swedish healthcare organization. The thesis wishes to point out the importance of meaning, interaction, and roles when everyday work is to be revised by IS. Although theory is used with included concepts and definitions, the text in thesis is emphasizing the dialogue between individuals and theory as Calhoun et al. (2012) and Bijker et al. (2012) call attention to: to prevent a monologue individuals included in this thesis are looked upon as the 'knowers'. Their discourse and social relations have been the foundation and starting point when theory has been used in analysis, but also when a framework of social challenges has been identified. Using individual experiences as the truth ('knowers') is a keystone in the ontology of Institutional ethnography. Instead of sitting at the top of reality as universal knower representing people as objects (Månson, 2006) research has been done among individuals in order to unable understanding of how everyday work in a Swedish healthcare organization is experienced and how social relations are coordinated and influenced by ruling relations of society.

Identifying challenges, one might wonder if this thesis would present some kind of solution how to deal with them. Nilsen et al. (2010) call attention to that there is a riskiness in presenting solutions tailored for everybody. Though, they recommend research close to organizations in order to tailor-made solution to the shape of the implementation challenge. Also, Nilsen et al. (2010b) discuss if we all are sure that of reducing implementation challenges automatically lead to facilitations in the implementation process (ibid.). This thesis will not present all-embracing solutions to social challenges when implementing IS in a Swedish healthcare organization. Instead, it wishes to discuss why there are challenges in the implementation process, argued from an interdisciplinary theoretical framework. The studies in this thesis do not focus on the reducing of social challenges. Having said that, the result

discussion points out that Swedish healthcare organizations are balancing on the gap between hierarchy and late modernity consequences. In the balancing act, reducing of challenges might not have eased the implementation process because of their strong foundation in Swedish healthcare. Bosch et al. (2007) referred solutions to challenges in implementation as a black hole that still has not been bridged. With highlighting latecomer challenges and putting them in an interdisciplinary framework with a social focus that is missed (Azad and Faraj, 2011) in order to look at them constructively, this thesis wishes to cut the first sod for that bridge.

### **Methodological considerations**

The methodological reflections will focus on the value of the findings of this thesis. The chapter also includes a discussion on the authority of qualitative research.

#### *The value of the findings: the influence of the researcher*

In the including studies of this thesis, researchers have been in the context, taking part in research. Researchers have been inspired of what Alvesson and Sköldbberg (2008) and Smith (2005) point out being the core in ethnography: taking part in everyday life, trying to become one with the individuals in the context, working in an unstructured way, and reflecting on reflexivity (ibid.). When doing ethnography, the researcher becomes a tool for seizing interaction and coordination of social relations (Smith, 2005). Being a tool is interpreted as becoming involved in what is going on in the context. As Speziale et al. (2011) indicate, doing ethnography is a social phenomena itself. In this thesis, subjectivity is considered to bring a different perspective to everyday work in a Swedish healthcare organization. The institution and organizations have been studied numerous of times from many various perspectives, but with the base in an interpretation of an Applied Health Technology theoretical framework and with the interpretation of how to be a tool, findings of this thesis are considered valuable. Hammersley and Atkinson (2007) state that subjectivity of the researcher needs to be reflected on in ethnographic studies. According to Bryman (2012), the ethnographer ought to be consider important for being a part of ethnographic studies: it is the researcher's unstructured work in a context that enable understanding. Perhaps the context has been studied many times, but it is in the entrance in interaction and taking part in interaction that make understanding possible (ibid.). Although researchers gain entry to the Swedish healthcare organization, it was sometimes difficult to observe everyday work at hospital wards. Hammersley and Atkinson (2007) call attention to the influence of the researcher's characteristics: studies have shown that ethnographer's race, gender, age, and background influence the interplay with individuals of the context (ibid.). Of course, difficulties in

admission to a Swedish healthcare organization may have to do with ethical considerations, but it may also have to do with that the researcher (LN) is not trained in nursing referring to Hammersley and Atkinson's (2007) statement. Although, not being a 'native' ethnographer as Narayan (1993) refers to ethnographers doing studies in their own field, important findings may come out of 'outsiders' doing ethnography in unknown contexts. The aim of the research may have influenced entrance to a Swedish healthcare organization: research was conducted in a rather chaotic situation where an eHealth strategy was introduced and IS were implemented in a Swedish healthcare organization. Being in a nursing context without nursing education, the pre-understanding of researcher (LN) still needs to be discussed. Aspers (2011) states that researchers have an implicit or explicit pre-understanding when doing ethnography. To analyze ethnographical findings from a theoretical perspective assists the researcher in restraining and utilizing what is known before research (ibid.). Using theory as an explanandum, this thesis aims at trying to understand why there are social challenges when implementing IS in Swedish healthcare. The theoretical framework was formed before observations and interviews in order to follow Calhoun et al.'s (2012) recommendations to use theory as guideline. In phenomenological hermeneutics (Lindseth and Norberg, 2004), pre-understanding is used as a tool in the phase of comprehensive understanding. To sum up, in this thesis pre- understanding of Applied Health Technology framework with focus on interaction is used as a tool in order to know what to look for and what findings mean. Although Smith (2005) calls attention to precaution in using theory in Institutional ethnography, this thesis use theory in dialogue with the 'knowers' and as an explanandum between social relations and ruling relations of society.

In Institutional ethnography, Smith (2005) indicates that ethnographical studies assist in becoming one with the individuals in the context: they capture coordination and the reorganization of connected social relations in order to study how experiences, the known are related to ruling relations. The coordination is captured in observations and interviews. During observations, Hammersley and Atkinson (2007) and Bryman (2012) call attention to the importance to know what to observe. With the aim of the study in focus, the researcher uses different techniques to make notes of the interaction and interplay in the context (ibid.). During observations, notes and pictures were written down in a note pad. Sometimes writing had to wait in order not to disturb the interplay in the context. The delay of taking notes may have influenced what was written down: delays may cause risks of not remembering all things that happened during interplay or interaction. To reduce this risk, the researcher (LN) wrote

down main points as soon as possible during observations. Also, the aim of the study was written down in the note pad as a reminder of what was supposed to be observed. This might interfere with the unstructured way of working in ethnography. Though, the aim was a guidance in what to observe, it did not controlled what was seen, heard and written down. According to Kvale and Brinkmann (2009) and Bryman (2012), interviews need to be conducted in environments that are experienced by respondents as relaxing and safe. In unknown environments, respondents may have difficulties in talk about things they experience as difficult or do not talk about everyday (ibid.). To follow the unstructured way of ethnography (Alvesson and Sköldbberg, 2008, Smith, 2005), the interviews weren't structured more than that they had a guideline. The guideline included areas that were supposed to be discussed in the interviews (e.g. identified social challenges). The respondents chose where the interviews took place because of letting them decide where they felt comfortable in telling researchers about their experiences. In the beginning of every interview, researchers presented themselves and tried to create a relaxed environment where all experiences were welcomed. Just a small sample of all nurses included in the implementation of IS in a Swedish healthcare organization were interviewed. With a small sample, the risk may be that some nurses experience control of the research. However, Hammersley and Atkinson (2007) state that the occasion decides how many interviews that can be included in ethnographic work: all participants in an ethnographic study are rarely available at the same time for interviews. Smith (2005) calls attention to the significance with small samples: it is possible to understand institutions by listening to some of its members. Bryman (2012) and Hammersley and Atkinson (2007) confirm that in order to get a deeper understanding to a certain topic or activity, same interviews can be used but with different analysis. To diminish the risk of only get some of many experiences, Hammersley and Atkinson (2007) state the importance of combine interviews with observations in ethnographic studies: with observations the researcher can ensure the experiences noted in interviews by following members movements in the context over time. To deepen the understanding of the findings in the studies, observations were made to ensure that there were social challenges when implementing IS in a Swedish healthcare organization.

Alvesson and Sjöberg (2008) explain reflexivity as thinking about research and how involvement of the researcher in everyday life may influence the interaction. Reflecting on reflexivity is to think about the researcher's interaction and interplay in the context when doing ethnography. Ehn and Klein (1994) state that the researcher is a part of the context: to

study individuals is also to study oneself. Therefore, reflections of the reflexivity are important in ethnography. Alvesson and Sjöberg (2008) recommend that the researcher reflects on method procedure, the awareness of research being interpreting, theory, and representation. In the method procedure, there need to be a certain systematic: the researcher needs to know how to deal with the empirical findings. Smith (2005) remarks the importance to start research in the coordination of social relations: the relations between individuals need to be visible throughout the research. In this thesis, individuals' relations and the coordination of them are in focus. It is reflected on and argued for throughout the text that individuals are the 'knowers' and that interaction is in focus. The lack of analysis instructions in Institutional ethnography has been discussed earlier in the thesis: to present them, to be aware of the lack of guidance, and to reflect on them are ways of reflecting on the researcher's reflexivity. Alvesson and Sjöberg (2008) argue that qualitative research includes interpretation: used methods and theories do not stand alone outside the researcher's interpretation of them. Or with other words, method and theory control in some ways what is interpreted (ibid.). Although theory is not in focus in Institutional ethnography, it has been used as an explanandum sounding board. To start research with a theoretical framework brings influence of the interpretation of interviews and observations. It has been stated that individuals are not aware of participating in coordinated connections of social relations. With this statement, this thesis include that there are social relations and built-in power relations in society. To know that theory is not neutral is a part of Alvesson and Sjöberg's (2008) guidance for reflections: theory is included in political as well as ideological currents of society. Interpretations of theories are then automatically influenced and cannot be seen as neutral (ibid.). This thesis was written during a chaotic period in Swedish healthcare organizations: IS were supposed to be implemented in order to provide accessible and safe care. Used theories are a part of ideological currents and may be interpreted as strengthen the chaos in the chaotic situation. Using theory as explanandum, chaos needs to be included in theory and interpretation because of the departure from individuals being the 'knowers' of why there are social challenges. Finally, Alvesson and Sjöberg (2008) are discussing representation as a part of reflections: the researcher decides what is to be written down and be presented as findings. The findings and analysis of this thesis are interpretations of reality that is studied through a theoretical framework. When searching for sometimes hidden social relations, hidden parts needed to be interpreted. Hidden and visual social relations were then written down and are the foundation of this text. Hence, interpretations are a part of every step of ethnography. To expose the chain of interpretations, the text is aiming at being rich and clear.

This thesis states that it is doing ethnography. Nightingale (1993) criticizes the intense use of doing ethnography in studies that actually are doing something else. Emerson (2011) does not agree when he is emphasizing the freedom in ethnography: it can be done in many different ways, following many different methodological guidelines. This thesis is doing Institutional ethnography: in the text the ethnography is described, used and argued about.

Although every choice the researcher makes will influence the findings of the ethnographical findings, the findings ought to be seen as valuable because of their representation of what is going on in a certain context. Being close to action, ethnography can reflect on individuals' everyday life from the perspective of being a part of it.

*The authority of qualitative research: the power of understanding*

To enable understanding is interpreted in this thesis as making insights possible about social challenges when implementing IS in a Swedish healthcare organization. According to Bryman (2012), qualitative research aims at enable understanding for experienced everyday phenomenon in a social context. Creswell (1998) calls attention to qualitative research as a way to investigate issues in the social world, by building a complex understanding, analyzing of words, and seeing and hearing experiences from the actual context. In qualitative research understanding refers to the deepen insight into a social context (ibid.). When enable understanding, Denscombe (2000) indicates the risk in presenting everyday phenomenon in a context too simple: in order to fit theory or discussion, the researcher does not reflect on what is experienced. In this thesis, individuals' experiences are in focus. Although they are in focus, individual's capability to reflect and change the situation is not highlighted in the discussion. According to Smith (2005), individuals are reflecting on their situation. When power structures and the sometimes hidden coordination of social relations are presented to them, it assists individuals to reflect on their own part of the context, as the role as 'knower', and may support individuals to change their interpretation of the connected coordination of relations (ibid.). Guided by Institutional ethnography (Smith, 2005), individuals are interpreted in this thesis as having the ability to reflect. Research believes in hidden coordinated relations and is assisting individuals in seeing them. The knowledge and the reflections this thesis brings, assist healthcare staff members to act upon social challenges when IS are implemented in a Swedish healthcare organization.

In the research work of enable understanding, there is also a risk of the researcher being deterministic: Smith (2005) is comparing the risk with driving a car by the same rules anywhere and always. As a driver you need to follow rules, but you should also coordinate

you driving with other cars, traffic pace, and national rules (e.g., driving on the left or right side of the road). Sohlberg and Sohlberg (2008) add the risk of being naïve and reductionist in a predetermined way: in the researcher's eager to understand, own interests are put ahead and complex experiences are explained with rather simple principles (ibid.). There is a risk if saying that there are always social challenges when implementing IS in a Swedish healthcare organization. Saying that is the same thing as always driving at the right side of the road no matter what country you are driving in. This thesis wishes to highlight that there is a social side of challenges and why this side may exist in the Swedish healthcare organization. Using an interpretation of an interdisciplinary theoretical framework, the risk of being both naïve and reductionist are reduced: with multi perspectives on social challenges several different disciplines are represented. For instance, implementation is a rather complex process (Rogers, 2003). If this thesis should state that this process always looked the same and are controlled by certain global rules, it would have simplified a complex context and process into a naïve expression. In order to show complexity and enable understanding, implementation is founded in theory and in experiences. Also, everyday work is in focus in order to study what Nilsen (2010) refer to as the real use of IS. With the combination, the driving has been coordinated to others, pace and real rules. Using theory as an explanandum (Bijker et al., 2012) is interpreted as theory being assistance to understanding why there are social challenges when implementing IS. At the same time theory may control what is seen in empirical data and may guide research off to 'theory side roads': on these roads theory controls empirical data and not the other way around. Aspers (2011) suggests that theoretical concepts may be used in order to refer to empirical data but at the same time the concepts may not reduce connections to what Smith (2005) is referring to as 'the knowers'. To reduce the risk of getting on a 'theory side road', this thesis is using theoretical concepts to enable understanding of why there may be social challenges when implementing IS in a Swedish healthcare organization and to the collected empirical data. In order to look at data and get an overall interdisciplinary picture, theoretical concepts have been the guiding framework.

In this thesis, qualitative research starts in ethnography: the findings might be generalizable to the thesis's interpretation of a theoretical focus on Applied Health Technology. The findings cannot be applied to another context before they are tried. Bryman (2012) refers to the discussion about the lengthy debate about qualitative research and data being generalizable. The discussion starts in the remark about qualitative studies cannot say anything about things or phenomena outside the context where the study was made. Willman et al. (2006)

contributes to the discussion by stating that qualitative research findings may be generalizable to certain standards. According to Robson (2002), the reader is responsible to use the findings in a similar context or oppose to the researchers. According to Bryman (2012), generalization and application of research studies are included in qualitative research's relation to validity and reliability. This thesis discussion on validity and reliability originates from Lincoln and Guba (1985) and Guba and Lincoln's (1994) guidance on how validity and reliability are not adapted for qualitative research: the concepts demand an absolute picture of the social world. Instead, trustworthiness and authenticity are more suitable concepts when discussing the generalization and application of qualitative research. Lincoln and Guba (1985) and Guba and Lincoln (1994) include credibility, transferability, dependability, and conformability in the concept of trustworthiness. Credibility embraces the need of unity between what is reported in research and the truth out there. In this thesis, all studies are built on engagement: although observations did not last for as long as wished, knowledge about the context was established in the project '*Syster Gudruns Fullskalelabb i Blekinge för IT i vård och omsorg*'. During research, researchers (with different scientific backgrounds) debriefed ideas, thoughts, and findings at least once a month. As an addition, Hughes (1994) and Jeffrey and Troman (2004) call attention to that ethnography can be engaged although it is done in a short period of time. In this thesis this means that **studies 1-4** are built on engagement based in getting to know the organization step by step in the project. Also, the thesis followed Lincoln and Guba's (1985) of going back to previous findings and test them in another study to try out the credibility of them: the identified social challenges were tried out again in **study 4**. According to Lincoln and Guba (1985) and Guba and Lincoln (1994), transferability includes if the findings may be transferred into other contexts. The thesis and **studies 1-4** include thick descriptions as a way to present the reality where the research was done: with a context description, the reader may as Robson (2002) suggests, decide if the finding might be transfer to another reality. Despite context description, the context is not described in a way that exposes included respondents. To describe the context but not too much, may be a weakness in this study and in qualitative research. Lincoln and Guba (1985) and Guba and Lincoln (1994) state that dependability includes that way studies present how consistent the findings are and if they might be repeatable. Denscombe (2000) highlights the risk of simplifying findings in qualitative research in order to fit them into analysis. This thesis is presenting implementation of IS in a Swedish healthcare organization. The findings are dependent on the interpretation made from an interdisciplinary theoretical framework. Although findings have been presented, and therefore somewhat tried at conferences and seminars, findings are dependent on theory,



methods, and scientific background of the researchers. With thick descriptions, a multi perspective theory, and with examples of how findings were analyzed, the readers are offered a founded platform where they may agree or disagree with the findings in this thesis. Conformability is, according to Lincoln and Guba (1985) and Guba and Lincoln (1994) a kind of neutrality of the research: research ought to treat respondents as ‘knowers’ and should not be shaped by researchers’ interests. This thesis states that it aiming at treating individuals as the ‘knowers’. With ethical considerations of individuals’ having the right of using information, researchers’ own interests are put aside. Also, with reflections on reflexivity, the researchers’ roles are mirrored as a way of knowing how researchers’ may have influenced research.

Authenticity includes discussions about if the context is truthfully presented and how the findings are gaining the respondents (Lincoln and Guba, 1985, Guba and Lincoln, 1994). This thesis is trying to bring a truth picture of implementation of IS in a Swedish healthcare organization. During research, Swedish healthcare organizations have changed as an institution: many private clinics and hospitals have been set up all over Sweden. Private healthcare clinics are not included in this thesis. This exclusion is of course a weakness: the whole healthcare context of 2014 is not presented in this thesis. Nurses are in focus in this thesis: Smith (2005) calls attention to that one focus in ethnographical studies can enable understanding of an institution. With a wider focus in professional groups in Swedish healthcare organization understanding of social challenges would perhaps been influenced. At the same time an overall picture of the professions in the context might have providing a more fair picture of a complex context. Though, the different scientific backgrounds of the researchers strengthen the description of the context: with different references the context is described from several perspectives. This thesis is to be seen as a way of presenting healthcare staff (e.g., nurses) experiences of IS implementation. The thesis may be used as a foundation when IS are to be implemented in the future in order to enable understanding for the social side of IS implementation challenges.

The aim of this thesis was to enable understanding of social challenges when implementing IS in a Swedish healthcare organization was, not to present overall truths that can be applicable everywhere and anytime. As Savage (2000) reminds us, doing ethnography in healthcare contexts doesn’t lead to generalizable findings, but in depth understanding. This thesis has tried to show the power in understanding as founded in trustworthiness and authenticity: with

a perhaps different perspective on implementation of IS in healthcare, this thesis is anchored in real life, in everyday work.

## **Research diary: Conclusion and future work**

*This is the last page of my research diary. Five years ago I started this journey. I cannot believe that I have made it to the finishing line. Ah, but is this really a finishing line? When I think about it this is just the beginning, a sort of warm up of what is in front of me. It is like that song they are playing a lot on the radio right now. The song starts with the words: 'This is where it ends, this is where it all begins'. It is exactly like that! It has been an interesting warm up session filled with possibilities, findings and some pitfalls. And now here I am, ready for the race of my life. I have my backpack packed up with experience, wisdom, theories, my sociological eye and findings. Where I am going? Well, I' am an Ethnographer bound for Somewhere where society can get as much out of my warm up as possible. On my way there I will be, and I quote an entrepreneur I heard on the radio (Yes, I do listen a lot on the radio) last summer: 'be as good that they cannot ignore you'.*

*1,2,3 let us do this now! Here we go!*

## CONCLUSION AND FUTURE WORK

The aim of research in Applied Health Technology is to study how health may be related to impact, consequences, and implementation of technology in a healthcare context (BTH, 2008). This thesis is interpreting the aim to include everyday working situations in a healthcare organization. The findings of **studies 1-4** are each one contributing to insights of IS implementation in a Swedish healthcare organization, but perhaps it is the intertwined discussion of the studies that enable deeper understanding of the social side of challenges.

### **Let us dance!**

The thesis revealed that there are boundaries in a Swedish healthcare organization that stop IS from being a boundary object. Although boundary object comes with boundaries, their structures are not interpreted as being common enough to maintain rationality between different social contexts. Different norms and values between wards, between professions, and between late modernity and hierarchical organizations are too powerful to allow IS to keep coherence. Of course, IS keep their outer structures everywhere they go (exactly as boundary objects do), but their inner structures have different meanings in different social contexts in Swedish healthcare organizations. Meanings are formed in interaction: as long as staff members relate and are trained to a different kind of performance, there will be boundaries that prevent IS to become a part of the play. Or the other way around, if IS do not know the show, they will never become the stars of it.

Talking about IS implementation as a revolution of everyday work practices, staff members are lost in transacting negotiations about IS being the tool for accessible and safe healthcare. This thesis contributes to the starting up of a discussion of how ingrained professional characteristics are important to feel secure of *being* a profession. If the characteristics are questioned, the whole professional performance is threatened. If actors need to change their performances in order to make an updated impression to the audience, they have to understand what is added to the play and why they have to change. The transacting negotiations are stranded in many different ways. As mentioned above, *being* a profession in a new play with new requirements may be misleading. Or with other words, if you are uncertain of the coordination of connected social relations that will fit new power relations, you may feel threatened: everything you know and are, perhaps is turned upside down. Also, the comfort and irritation of the solidity of power structures in a Swedish healthcare organization may lead staff members astray: even if staff members know their position in power structures very well, they are revolting against decisions that come from top floor.

Perhaps the revolution is elaborated because of that levels in the healthcare organization are lost in different ways: when lost the strength of power structures are affected. Also, balancing between hierarchy and late modernity consequences, power is changing its meaning. If you do not know who you are and where you are, how can you then negotiate? Usually, negotiations in revolutions take time. Perhaps the negotiation will take even longer because of that the meaning of time is balancing right next to healthcare staff members.

In essence, this thesis contributes to the understanding of that IS are developed in a social context just as Mackay and Gillespie (1992) remind us of in the starting quotation of this thesis. IS are nothing without their users that are interplaying and trained in interaction. There are many studies that use many different words to describe how IS need to adopt to the context by being useful and supporting, built on experiences, and being workable in places and spaces. Of course, different disciplines use different kind of words when describing the adoption. This thesis has no intention of forming one more word that describes this relationship. Instead, it suggests that it may be more understandable what IS really are if we would call the *Interaction* systems. The abridgement would stay the same (IS), just that it makes it clearer that IS are suppose to support social processes built of interaction. With all due deference to information, but it is in the interaction we all are trained and create meaning with assistance of things like IS. Or if we compare with dancing, there will be no dancing before staff members know the IS dance and are confident who or what will lead somebody out. This thesis states that it is the staff members (e.g., nurses) who have to lead in order to dance and learn. It will be easier to learn if we call what it really is. Let's dance the Interaction systems dance!

### **Research contribution**

This thesis is a response to the demand of studying the social interaction when IS are implemented in a Swedish healthcare organization. During these five years, more and more studies are published that are focusing on organizational challenges when implementing IS in healthcare contexts. Perhaps this thesis can be looked upon as a part of the foundation of a research discussion on how we say, act, and do things really do matter when something new is entering the context we know well. Institutional ethnography is not widely spread in Sweden as a way of doing ethnography in organizations. Through this thesis's contribution of doing Institutional ethnography in a Swedish healthcare organization, Institutional ethnography may find a foothold in how ethnography is done in Sweden.

To the interdisciplinary research area of Applied Health Technology, this thesis contributes to the development of a rather new research area by elucidating that there may exist several theoretical interpretations as well as including criteria of the area. The chosen interdisciplinary theoretical framework enables deeper understanding to a complex process than one single research would do: for sure, IT IS complicated to understand the implementation of IS in a Swedish healthcare organization.

### **Implications for everyday work in Swedish healthcare organizations**

As stated before, this thesis cannot bring overall solutions that are applicable everywhere, anytime: Swedish healthcare organizations are changing when private practices are up and coming at the moment as well as new solutions in how IS can provide care at a distance. Still, the thesis focuses on interaction as a source for learning, teaching, and making sense of things in everyday life. Saying that interaction is importance perhaps is not a tangible proposal for everyday work, but the highlighting of what staff members do everyday and that this do not fit IS, is important for further implementation discussions in Swedish healthcare organizations. Everyday work in Swedish healthcare organizations has not demanded for this kind of research. It was when implementation of IS was delayed that the thought of social challenges started to grow. Although staff members have not demanded research, studies based in hidden connected social relations connection to ruling relations may assist them to act and understand their sometimes frustration towards IS.

The thesis shows that professional identity is influenced by IS implementation: student nurses and nurses experienced that their role as *being* a nurse changed when IS became a part of their everyday work. This influence is important to reflect on, both in education and in everyday work: IS need to become a part of interaction in order to individuals to form a meaning about them and also to reframe culture to include IS. To become a part of interaction, IS and strategies about them need to be understandable for the actors (staff members). As consequences, implementation of IS will disturb everyday work in healthcare organizations: if nurses do not feel like being nurses this will for sure influence their professional skills. In the long run, the loss of being a profession may influence quality and safety of care. Hence, the strategy's request for safe and accessible care may end up in the opposite direction. In the end of the writing process of this thesis, Informatics became one of the core competences of nursing in Sweden. This means that Informatics needs the same kind of place and space as evidence based caring and person centered care in Nursing programmes. Perhaps Informatics as a core competence will ease the gap between implementation of IS and the feeling of being

a nurse: to be taught how Informatics may assist caring in improving its safety and accessibility can ease the implementation of IS. At the same time, we need to remember that nurses are socialized in everyday work to talk and act upon IS in certain ways. To sum up, Informatics as a core competence may ease implementation of IS but it will not erase social challenges.

Swedish healthcare organizations rely on hierarchy. The thesis states that power structures in hierarchy can be experienced in two ways: they can bring comfort and they can cause irritation. When implementing IS, hierarchy changes at the same time as different levels are lost in different ways in the implementation of IS. Additionally, power is changed in the late modernity era. The discussion about power structures and implementation may improve the chances of finding the path again: the implementation founded in late modernity has to take into account the organizational structure of Swedish healthcare organizations when implementing IS as the solution to accessible and safe care. Today, the organizations may interpret accessibility and safety in a different way than late modernity strategies do. Errors in security and care may be consequences of the misunderstanding. Everyday work in a Swedish healthcare organization may maintain reliance on hierarchy as long as there is a gap between interaction and IS. To change IS or interaction will for sure take a long time and may be impossible. This thesis suggests that social challenges when implementing IS need to be highlighted on the macro, meso, and micro level in Swedish healthcare. Also, higher education within the healthcare area needs to cooperate and interact with each other and with public sector in questions regarding IT, IS, implementation, and processes.

This thesis demonstrates that there are challenges when IS meet everyday work: prejudices, misunderstandings, and introductions do matter when the two shall meet for the first time. The significance of meetings is important for Swedish healthcare organizations to reflect on, especially when IS are introduced because of the differences in interpretations and meaning of time. For instance, to say “I do not have time to learn IS” really means that there are no time for learning IS in a Swedish healthcare organization’s present culture, norms, and interaction. It will take time to change the idea of time in a Swedish healthcare organization. To start the time reflecting process, this thesis is suggesting that strategies, introductions, and encounters start in staff members ways of interact. With a start like that misunderstandings and prejudices may be prevented at the same time that time for sure will be saved.

## **Future research**

There is a need for future work about social challenges when implementing IS in Swedish healthcare organizations. This thesis focuses on nurses and their experiences. Of course, other healthcare professions need to be included in future research in order to get a variety in professional experiences. Perhaps studies on different wards during implementation of IS could enable understanding for how everyday work influences and get influenced by IS implementation. Furthermore, identified social challenges need to be tested and evaluated in different healthcare contexts in different geographical parts of Sweden. There might be more social challenges that this thesis has not identified; these challenges need to be elucidated in future research. Technical and social challenges ought to be intertwined in future research in order to enable understanding for a complex implementation. Because IT IS complicated to implement IS in a Swedish healthcare organization.



## SUMMARY IN SWEDISH/ SVENSK SAMMANFATTNING

År 2006 presenterades en Nationell IT-strategi som uppmanade svensk hälso- och sjukvård att implementera IT-verktyg (även kallade Informationssystem, IS) i varje dags arbete för att på så sätt kunna år 2012 erbjuda en tillgänglig och säker vård. Då Sveriges befolkning blir allt fler och samtidigt äldre, behövde hälso- och sjukvården enligt strategin nya verktyg som skulle kunna underlätta varje dags arbete. Implementeringsarbetet av IT-verktyg är försenat, orsakerna till förseningen diskuteras i media, inom politik och i forskning. Ofta förklaras förseningen i dessa diskussioner med att tekniken inte är användarvänlig och att systemen inte kan använda samma data och information. Samtidigt uppmanas till mer forskning inom det sociala, organisatoriska perspektivet till att inte IT-verktygen än idag är implementerade och en del av varje dags arbete inom svensk hälso- och sjukvård. Avhandlingen *IT IS Complicated- Social Challenges when Implementing IS in Swedish Healthcare* är ett bemötande av uppmaningen då sociala utmaningar i implementering av IS har identifierats och studerats i fyra inkluderade studier. Avhandlingens övergripande syfte är att identifiera sociala utmaningar när IS implementeras i svensk hälso- och sjukvårdsorganisation. Vidare var syftet att förstå vilken inverkan identifierade sociala utmaningar har på implementeringen av IS i svensk hälso- och sjukvårdsorganisation genom att analysera dem från ett tvärvetenskapligt teoretiskt perspektiv. Inspirerad av Institutional ethnography och fenomenologisk hermeneutik har observationer av och intervjuer med hälso- och sjukvårdspersonal i södra Sverige varit grunden i studier hur varje dags sociala relationer inverkas av styrande relationer i samhället och vad som kan hända när en kedja av händelser bryts och ersätts med någonting annorlunda eller nytt. I avhandlingen presenteras vad som kan hända när en nationell strategi inte använder begrepp på samma sätt som begreppen används av hälso- och sjukvårdspersonal. Exempel ges hur mötet med IT-verktyg inverkar på resultatet av implementeringen. Makt, professionell identitet och mötet presenteras i avhandlingen som empiriskt identifierade sociala utmaningar när IS implementeras i svensk hälso- och sjukvård. I avhandlingens fjärde studie har grupper på mikro-, meso- och makronivå i svensk hälso och sjukvård intervjuats om utmaningar. I samma studie identifieras att grupperna är osäkra på olika sätt i identifierade utmaningar, samt att de fokuserar på olika delar i implementeringsprocessen. Avhandlingens resultat analyseras utifrån ett presenterat tillämpad hälsotekniskt ramverk bestående av informatik, omvårdnad och sociologi. I avhandlingens diskussion förs främst ett resonemang till varför det finns sociala utmaningar vid implementering av IS i svensk hälso- och sjukvård. Orsaker kopplas till att svensk hälso-

och sjukvård står inför konsekvenserna av modernitetens utveckling. En konsekvens är till exempel uppfattningen av tid och vad som egentligen ska hinnas med att göras, läras in, dokumentera under varje dags arbete har förändrats. Ett annat exempel som diskuteras är hur sjuksköterskans nyinförda kärnkompetens Informatik inte automatiskt blir en del av varje dags arbetsrutiner. Mer forskning om sociala utmaningar vid implementering av IS i svensk hälso- och sjukvård behövs där fler professioner observeras och intervjuas om deras upplevelser av implementering av IS.

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## APPENDIX: INCLUDED ARTICLES

### My contribution to and participation in included articles

Below, my contribution to and participation in article 1-4 (**studies 1-4**) are listed.

**ARTICLE 1.** Nilsson, L., Hofflander, M., Eriksén, S., Borg, C. (2012). The importance of interaction in the implementation of information technology in health care: A Symbolic Interactionism study on the meaning of accessibility. *Informatics for Health and Social Care*, 37(4), 277-290.

**My contribution and participation:** I was responsible for preparatory work (eg., planning, ethical application). My supervisor (CB) and I collected data and analyzed it. I was responsible for writing the manuscript and revising it after it was peer-reviewed. All authors (LN, MH, CB, and SE) took part in writing the discussion.

**ARTICLE 2.** Hofflander, M., Nilsson, L., Eriksén, S., Borg, C. (2013). Discharge planning: Narrated by nursing staff in primary healthcare and their concerns about using video conferencing in the planning session – An interview study. *Journal of Nursing Education and Practice* 3(1), 88-98.

**My contribution and participation:** I was responsible for preparatory work (eg., planning, ethical application). Together with my supervisor (CB), I collected data. I and MH were responsible for writing the manuscript. MH was responsible for revising the article after it was peer-reviewed. All authors (MH, LN, CB, and SE) took part in writing the discussion.

**ARTICLE 3.** Nilsson, L., Eriksén, S., Borg, C. (2014). Social challenges when implementing Information Systems in everyday work in a nursing context. *CIN: Computers, Informatics, Nursing*. 32(9), 442-450.

**My contribution and participation:** I was responsible for preparatory work (eg., planning, ethical application). Together with my supervisor (CB), I collected data and analyzed it. I was responsible for writing the manuscript and revising the article after it was peer-reviewed. All authors (LN, CB, and SE) took part in writing the discussion.

**ARTICLE 4.** Nilsson, L., Eriksén, S., Borg, C. (2014). The influence of social challenges when implementing Information Systems in Swedish healthcare organization- a focus group interview study (manuscript).

**My contribution and participation:** I was responsible for preparatory work (eg., planning, ethical application). Together with my supervisor (CB), I collected data and analyzed it. I was responsible for writing the manuscript and will revise it after it is peer-reviewed. All authors (LN, CB, and SE) took part in writing the discussion.

## ABSTRACT

When the Swedish National IT Strategy for Health and Social Care was introduced in 2006, intensive work started in implementing Information Systems (IS) in Swedish healthcare organizations. To follow up on the requests for more research with a combined socio-technical focus on challenges, the overall aim of this thesis was to identify social challenges when implementing IS in a Swedish healthcare organization. Furthermore, the aim was to understand the impact of identified social challenges when implementing IS in this context by putting them in an interdisciplinary Applied Health Technology theoretical framework. Institutional ethnography and phenomenological hermeneutics influenced the study design. Study 1 aimed to investigate different meanings of accessibility when implementing Health Information Technology in everyday work practice. The results indicate that accessibility depends on working routines, social structures and patient relationship. When an IT strategy and interaction in everyday work use the same word in different ways there will be consequences. Study 2 sets out to describe experience-based reflections on discharge planning as narrated by nursing staff in primary healthcare, along with their concerns about how the introduction of video conferencing might influence the discharge planning situation. It was found that there is a need for improvement in communication and understanding between nursing staff at the hospital and in primary healthcare. The aim of study 3 was to explore social challenges when implementing IS in everyday work in a nursing context. Power (changing the existing hierarchy, alienation), Professional identity (calling on hold, expert becomes novice, changed routines), and Encounter (ignorant introductions, preconceived

notions) were categories presented in the findings. The aim of study 4 was to explore and obtain a deeper understanding of how identified social challenges have an influence on the implementation process of IS, based on healthcare staff's experiences on micro, meso and macro levels of Swedish Healthcare organizations. It was found that the challenges were related to the steps of putting into practice, making IS a part of everyday work routine and establishing an identity in the implementation process. In the thesis's discussion, social challenges when implementing IS in Swedish healthcare organizations and how they might be met and dealt with constructively are further reflected upon in relation to the interdisciplinary theoretical framework and as possible consequences of the modernity-era. This thesis contributes to the starting up of a discussion of how ingrained professional characteristics are important to feel secure of being part of an established profession. If the characteristics are questioned, the whole professional performance is threatened. One consequence of this insight is the reinforcement of the realization that a basic understanding of IS and IS implementation processes in healthcare organizations needs to be integrated in to the construction of professional identity of nurses already from the start in nursing education.

**Keywords:** Applied Health Technology, Health Informatics, Healthcare Organizations, Information Systems, Implementation, Institutional ethnography

