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# Quality Improvement in Healthcare:

## Experiences from a Swedish County Council Initiative

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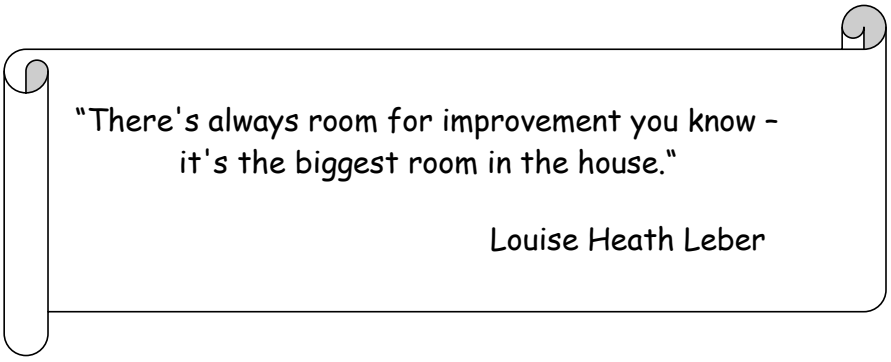
"There's always room for improvement you know –
it's the biggest room in the house."
Louise Heath Leber

## Abstract

In recent decades, quality improvement (QI) has become an important issue in healthcare settings. Problems such as an aging population, financial strains, and patient safety have arisen, and QI has been seen as a strategy to manage these. A central question for many healthcare systems, however, is how to manage improvement initiatives adequately. The Swedish public authorities have recognized the importance of QI, and some regulations for quality and patient safety in healthcare have been drafted, aiming to support these efforts. To accomplish these efforts, different models and methods have been introduced, mainly originating from the industrial sector. All county councils and regions managing healthcare in Sweden have started to work with QI at an organizational system level, to varied extents. The Kalmar county council is one of them. In 2007 the county council delegates decided to invest in QI work, with the aim to become a learning organization, working with continuous QI, and focusing on the welfare of patients. This county council improvement initiative constitutes the empirical basis of this thesis. The aim of the thesis is to provide knowledge about different aspects of a county-wide improvement initiative, and a broader understanding of factors and strategies that affect participation, management and outcomes.

The overall study design is based on a case study, exploring different parts of the improvement initiative as a phenomenon in its real-life context. In the included studies both qualitative and quantitative research methods were used. The first two studies illuminate the practice-based (micro level), bottom-up perspective. First a content analysis was made of the practice-based projects applying for funding to carry out improvements. Inductively five different areas (categories) were identified. In addition, almost all project applications contained issues about patient safety, effectiveness, availability, and education/training (paper I). An analysis of factors influencing participation in improvement initiatives provided the basis for the next study. The result showed that different staff categories were attracted by different initiatives. Nurses were the largest group participating, and physicians were participating above their representation in the county council (paper II). The next two studies illuminate the top-down (macro/meso) management perspective. Managers' views of how patients can participate were investigated by letting managers in a group reflect on and discuss that issue, and a content analysis of the written answers was made. Four main areas (categories) were identified. The managers thought that the culture and attitude at the unit were important, and that they were supposed to create arenas for collaboration (paper III).

A survey study investigated all of the county council managers' experiences of the whole improvement initiative. The main driving forces for improvements were staff ideas and daily work not functioning. Overall the managers thought that the improvement work was worth the effort, and is consistent with norms and values at the unit (paper IV). To evaluate one of the important parts of the QI initiative, the Breakthrough Collaborative program (BC), a survey was developed and tested (paper V). This survey was then used in the next study, comparing process and outcome of the BC program at two different points in time. The majority of the respondents were satisfied with their work, but wanted more time for teams to meet and work, as regular tasks always intruded (paper VI). To find out if an improvement program can affect outcome and contribute to sustainable changes, interviews were made with project applicants (n=202). Almost half (48%) of the projects were funded, and of those 51% were sustained. Of the rejected (not funded) projects 28% were accomplished and sustained anyway, most of those developing checklists and care plans (paper VII).

The results in this thesis cannot show that the "golden mean" exists, or that a single best way to manage changes and improvements in a healthcare organization has been found, but the way QI initiatives are organized affects participation and outcomes. The intention, from the management top-down system level, encouraging staff and units and letting practice-based ideas develop at all system levels, can stimulate and facilitate improvement work.

## Svensk sammanfattning (abstract in Swedish)

### Kvalitetsutveckling och förbättringsarbete i hälso- och sjukvården: Erfarenheter från ett svenskt landsting

Kvalitetsutveckling och förbättringsarbete har blivit en viktig del av hälso- och sjukvården. En fråga för landsting och regioner är hur kvalitetsutveckling skall drivas och styras. Syftet med detta arbete är att bidra till kunskap om kvalitetsutveckling i en hälso- och sjukvårdsorganisation, hur förbättringsinitiativ kan bedrivas och ledas, samt vilka faktorer som bidrar till ett framgångsrikt förbättringsarbete. Arbetet utgår empiriskt från satsningen på kvalitet och förbättringsarbete i Kalmar läns landsting och är genomförd som en fallstudie (case).

Resultatet speglar vad ett landstings satsning på förbättringsarbete utifrån mikro-, meso- och macronivå kan ge. Dessutom ingår en instrumentutvecklingsstudie, där ett frågeformulär, the Swedish Improvement Measurement Questionnaire (SIMQ), har testats och utvärderats. De första två delstudierna speglar det praktikbaserade förbättringsarbetet utifrån ett verksamhetsnära perspektiv. Först analyserades alla projekt som ansökt om ekonomisk ersättning till förbättringsarbete (paper I). En innehållsanalys genomfördes och fem kategorier framkom. Samtliga ansökningar innehöll dessutom områden som patientsäkerhet, förbättrad tillgänglighet och effektivitet. Studie II kartlade deltagande i förbättringsarbete utifrån två olika initiativ: metodstyrda program som följde genombrottsmetodiken och fria ansökningar, av typen icke metodstyrda projekt (paper II). Resultatet visar att de olika initiativen attraherar olika personalkategorier, men kan utesluta andra. Olika initiativ kan ändå attrahera flera att delta i förbättringsarbetet.

Studie III och IV undersökte chefers åsikter om och erfarenheter av landstingets satsning, samt hur man kan involvera patienter i förbättringsarbetet. Cheferna är överlag positiva och nöjda med arbetet. De upplever det svårt att involvera patienter, men anser att det är en viktig uppgift för framtiden. Ett instrument, SIMQ, utvärderades och testades (paper V) för att studera förbättringsprogram av typen Genombrott (paper VI). Resultatet från SIMQ visade att deltagarna är nöjda med arbetet med sin förbättringsidé, men att genombrottsmetodiken kan upplevas som svår och att den inte alltid stödjer utvecklingsarbetet. Dessutom efterlyste deltagarna mer tid för förbättringsarbete i vardagen. Den sista studien analyserar resultatet av

alla de projekt som ansökt om pengar för förbättringsarbete. Nästan hälften av alla projekten (48%) fick ekonomisk ersättning, och av dessa hade fler än hälften (51%) uppnått sitt mål och infört en bestående förbättring. Av de ansökningar som fick avslag genomförde 28% ändå sitt förbättringsarbete.

Resultaten i den här avhandlingen påvisar vikten av att ledningen uppmärksammar, möjliggör och stimulerar förbättringsarbete. Genom att erbjuda flera olika initiativ och metoder eller modeller att bedriva förbättringsarbete ökar möjligheterna för allas medverkan, vilket bidrar till ett framgångsrikt resultat av landstingets satsning på kvalitet och förbättringsarbete.

## Acknowledgments

Writing a thesis and going through doctoral studies is a long journey, having its ups and downs. Even if my name stands alone on the front page, there are a lot of people who have contributing to the existence of this thesis, in different ways.

First of all, my supervisors, Mattias, Ewa and Kent-Inge, thank you for your advice and guidance. Mattias, thank you for always being calm, patient and encouraging, and for our discussions forcing me to reflect and consider. I will always remember you telling me you missed getting off the bus. Ewa, thanks for your supportive and persistent attempts to get me to understand the importance of accuracy, and thanks for always being positive, giving me time when I have needed it. Kent-Inge, thanks for your ideas and comments, together with encouraging calls and useful readings. Finally, I think I have understood the advantages and possibilities of having supervisors from different disciplines.

Thanks to all my colleagues at the Division of Quality Technology and Management at Linköping University, for always making me feel welcome on those occasions I have been there. Jostein, thank you for your feedback on an earlier draft of this manuscript. Lilian, thank you for all your help with practical issues during all those years.

I am grateful to all my colleagues at the development department at the Kalmar county council. Anna, Lena and Viktoria, for being there from the beginning, all the way through. Stefan, even if you have left, without you the PhD position (and this thesis) would probably not have existed. Anna, thank you for the idea ending up in a paper appended in this thesis, I will miss our (Monday) lunches. Lars Brudin, your support with statistical issues has been invaluable, thank you so much for your commitment. Others, all included, coming and leaving during the years, caring and sharing time at coffee breaks and lunches. There are a lot of other people at the county council who gave their support in different ways, not least all the participants in the different studies, thank you, all of you! Hopefully, there will be some continued research collaboration in the future.

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There has been more than four years of weekly commuting between Lund, Kalmar and Linköping, the last year and a half also including Malmö. I am most grateful to my husband Jonny for putting up with this and for your support when times were rough. I will also express my gratitude to my parents and the rest of my family; you have always believed in and encouraged me over the years.

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Lund, April 2013

Ann-Christine Andersson

## Appended papers and author contributions

This thesis includes five accepted/published papers and two submitted manuscripts, for a total of seven appended papers, listed below. In the text the papers are referred to by their Roman numerals. The division of work between authors is described in connection with each paper below, with main emphasis on the contributions of the underlined author. All papers are reprinted with permission.

I Andersson, A-C., Elg, M., Idvall, E. & Perseius, K-I. (2011) Five Types of Practice-Based Improvement Ideas in Health Care Services: An Empirically Defined Typology. *Quality Management in Health Care*, 20(2), 122-130

ACA collected the data, ACA and KIP mainly conducted the analysis. ACA took main responsibility for writing the paper. An earlier version was presented by ACA at the 12th International QMOD Conference in Verona, Italy 2009.

II Andersson, A-C., Elg, M., Idvall, E.& Perseius, K-I. (2013) Improvement Strategies: Forms and Consequences for Participation in Healthcare Improvement Projects. Submitted for publication

ACA collected the data, ACA mainly conducted the analysis with assistance of KIP. ACA was mainly responsible for writing the paper. An earlier version was presented by ACA at the 13th International QMOD Conference in Cottbus, Germany 2010.

III Andersson, AC. & Olheden, A. (2012) Patient participation in quality improvement: managers´ opinions of patients as resources. *Journal of Clinical Nursing*, 21(23-24), 3590-3593

ACA and AO jointly made data collection, analysis, and result interpretations. ACA took main responsibility for writing the paper, and both authors reviewed and approved the final manuscript.

IV Andersson, A-C. (2013) Managers´ Views and Experiences of a Large-Scale County Council Improvement Program: Limitations and Opportunities. *Quality Management in Health Care*, 22(2), 152-160

ACA conducted data collection, made the analysis, and wrote the paper.

V Andersson, A-C., Elg, M., Perseius, K-I. & Idvall, E. (2013) Evaluating a questionnaire to measure improvements initiatives in Swedish healthcare. *BMC Health Services Research*, 13(48)

ACA conducted data collection. ACA and EI mainly conducted the analysis and ACA was mainly responsible for writing the manuscript. An earlier version was presented by ACA at the 14th International QMOD Conference in San Sebastian, Spain 2011.

VI Andersson, A-C., Idvall, E., Perseius, K-I. & Elg, M. (2013) Evaluating a Breakthrough Series Collaborative in a Swedish healthcare context. Submitted for publication

ACA collected the data and ACA and ME mainly conducted the analysis. ACA took main responsibility for writing the paper. An earlier version was presented as a poster by ACA at the International ICERI Conference in Madrid, Spain 2011.

VII Andersson, A-C., Idvall, E., Perseius, K-I. & Elg, M. (2013) Sustainable Outcomes of an Improvement Program: Do Financial Incentives Matter? *Total Quality Management & Business Excellence*, accepted for publication in February 2013

ACA collected data (conducted all interviews) and took main responsibility for the analysis and drafted the paper. An earlier version was presented by ACA at the 15th International QMOD Conference in Poznan, Poland 2012.

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## 1. Introduction

Quality improvement has become an important aspect of healthcare organizations. The main reasons for this development are that improvement work is viewed as a means for healthcare organizations to become safer and more effective while delivering care with better quality. This is of particular importance during hard financial times. Healthcare organizations are forced to change and improve, due to an aging population (demographic pressure) (Nolte & McKee, 2003), technical innovations and medical treatment development (Grol, 2001; Anell, 2005), financial strains (Anell, 2005; National Board of Health and Welfare, 2009) and expectations of stakeholders such as government and patients (Anell, 2005; Wu & Hsieh, 2011). Today, there are those who argue that more resources will not be the solution to these problems (National Board of Health and Welfare, 2009). Other alternatives need to be taken into account, and quality improvement is considered one of the central strategies for handling pressures for change and improvement (Stenberg & Olsson, 2005). Riley et al. (2010) stated that healthcare *"by eliminating inefficiency, error, and redundancy, … can continually improve critical processes and reduce costs associated with poor quality"* (p. 7).

Improvement is generally considered the act of "doing better" and while all improvements presuppose change, not all changes are improvements (Batalden & Davidoff, 2007). Quality improvement (QI) in healthcare is made up of diverse models and methods, aiming to improve healthcare, making care more effective and efficient, and to increase safety for those being served, the patients (Donabedian, 2003). Ting et al. (2009) consider QI research to be a way to bridge the gap between what we know and what we do. A central problem for many healthcare systems is how to organize and manage improvements. In Sweden, as in other countries, healthcare organizations engage in various improvement initiatives and programs in order to improve their healthcare services. The Kalmar county council is one of them. In 2007 an improvement program was initiated through a political decision to invest financial resources in improvement work. The aim of the county council improvement program was to become a learning organization, spread improvement methodologies and implement continuous quality improvement in the organization. This county council improvement program constitutes the context for this thesis; it will be outlined in more detail in section 5.2.

Systematic quality and improvement work in healthcare context were highlighted at the turn of the 21st century. In the book *To Err Is Human* (Kohn et al., 2000), the U.S. Institute of Medicine (IOM) published facts about the problems and challenges that healthcare was facing. The book highlights patient safety issues; patients get hurt or even die from the care that was supposed to cure them. Medical mistakes were claiming more victims than motorcycle accidents or AIDS, related to inappropriate care processes and working methods (ibid.). In the next publication, *Crossing the Quality Chasm* (IOM, 2001), six important areas to improve healthcare were identified: safety, effectiveness, patient-centeredness, timeliness, efficiency, and fairness. The point was made that the problems mainly were at an organizational level. Stenberg & Olsson (2005) speak of system transformation, with the change perspective focusing on both individual and organizational system levels. Researchers argue about where the changes are to arise, top-down initiated by management or bottom-up and practice-based (see Beer & Nohria, 2000a). Both those views have their advantages and disadvantages. Is it possible then to manage and integrate this paradox and find a middle approach, by combining top-down and bottom-up approaches, without implementing any specific ideology (e.g. Lean or Six Sigma), simply focusing on systematic long-term improvement strategy?

### 1.1 Outline of the thesis

This section outlines the thesis; first, central definitions and concepts will be outlined. This section also contains some descriptions and discussions of various concepts related to quality improvement that are prevalent but often confusing. Then the organization and some regulations important for Swedish healthcare will be presented. The subsequent sections will handle important research related to quality improvement and in healthcare settings. A theoretical framework for improvements in healthcare, as well as a framework of change management will constitute the theoretical base in this thesis, as described in section 4. In section 5, methods and study settings are described and the county council improvement program constituting the empirical framework of this thesis is presented. The section findings handled the results of the studies that compose this thesis, and in the discussion section that follows, both empirical study results and methodological considerations are discussed and connected to the theoretical frameworks. In the end, conclusions from this thesis are drawn and some implications for practice and of future research are outlined.

## 1.2 Concepts and definitions

*This section describes concepts and definitions related to quality and quality improvement and define how they are used in this thesis. Finally, implementation, and why that concept is not dealt with in this thesis, will be discussed.*

### *1.2.1. Quality improvement as a concept*

Quality is a complex concept, with many different descriptions and interpretations. Dahlgaard et al. (2011) stated that quality can be a relative phenomenon, meaning different things to different people. One of the founders of QI, Edward Deming (2000) writes, "*Quality should be aimed at the needs of the customer, present and future*" (p. 5). Classical theory in quality management and improvement proposes that the key principles are customer focus, continuous improvement, process orientation, teamwork and decisions based on facts (Dean & Bowen, 1994; Hackman & Wageman, 1995; Sousa & Voss, 2002; Schroeder et al., 2005). Over the years the concept of quality developed from industrial control thinking (Bergman & Klevsjö, 2002) to a comprehensive view based on the principle of continuous improvement (Batalden & Davidoff, 2007). Sometimes QI knowledge is called improvement science and most researchers and practitioners agree that it has developed and become more common since its introduction to healthcare, some twenty years ago. In the United Kingdom the Health Foundation is working to improve improvement science (Health Foundation website). Their report "Improvement Science" (Health Foundation, 2011), stated that *"improvement science is about finding out how to improve and make changes in the most effective way"* (p. 3).

Bessant et al. (2001) stated that *"there is a considerable and unhelpful confusion in the way the term 'continuous improvement' is used"* (p. 68). A number of different expressions (e.g. quality improvement, continuous improvement, quality assurance) are used. Riley et al. (2010) conclude that healthcare has not embraced a shared and common definition for QI. The U.S. Department of Health and Human Services has urged the need to find a common definition of QI in healthcare, helping both practitioners and patients (customers) to know what they can expect (Riley et al., 2010). Batalden and Davidoff (2007) responded to the question "*What is quality improvement*?" as "*the combined and unceasing efforts of everyone – healthcare professionals, patients and their families, researchers, payers, planners and educators – to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning)"* (p. 2).

### *1.2.2. Definitions*

The word quality originates from the Latin word "qua litas", meaning "usefulness". The Oxford dictionary (website) defines quality as *"the standard of something as measured against other things of a similar kind; the degree of excellence of something"*, and the Swedish Academy Dictionary (SAOL, 2006) defines quality as type, grade, state and character in a positive aspect.

Dean and Bowen (1994) define quality management, or what they refer to as total quality, as a *"philosophy or an approach to management that can be characterized by its principles, practices and techniques. Its three principles are customer focus, continuous improvement, and teamwork"* (p. 394). The American Institute of Medicine (IOM) defines quality in healthcare (medicine) as the extent to which health services increase the likelihood of desired health outcomes consistent with current professional knowledge for individuals and citizens (Sorian, 2006). Sollecito and Johnson (2011) emphasize that QI in healthcare is a structured process for involving the personnel in a continuous flow of improvements, aiming to provide high-quality healthcare that meets or even exceeds expectations.

The Swedish Healthcare Act (SFS, 1982:763) states what good care is and how to work to develop and maintain it, but quality is only briefly and generally mentioned in language about methodical quality improvement. The National Board of Health and Welfare defines quality as the extent to which the organization fulfils its commitments (SOSFS, 2005:12). Those commitments are viewed from six different quality areas: Safety care, Patient-centred care, Knowledge (evidence) based care, Equal care, In-time care, and Effective care (God Vård, 2006). In January 2012 the National Board of Health and Welfare published new directions, SOSFS 2011:9, and together with these directions a guideline on how to put quality management systems into practice (National Board of Health and Welfare, 2012, both available at: http://www.socialstyrelsen.se/ledningssystem). The new direction includes the definition from 2005:12, but implies expanded demands (National Board of Health and Welfare, 2012).

In this thesis the term "quality improvement" is referred to in healthcare settings and used in the more comprehensive sense, as the attitude towards, and intention by, everyone inside the organization to improve processes and achieve satisfactory results regarding performance and patients (see Batalden & Davidoff, 2007). Quality management is a leadership model related

to quality improvement and includes strategies, methods, and ways of working to achieve continuous improvement in goods, processes and services (see Hackman & Wageman, 1995).

The concept of change is also essential to the work in this thesis, due to its foundation in the theoretical change management model presented in section 4.2. Martin (2000) stated that "*to understand change, we must first understand the status quo*" (p. 456). By that he means that to change is to act differently than before, and if we fail to understand where we are today there is a risk of undermining the change efforts. Svensson et al. (2008) investigated sustainable change in working life, but the requirements to reach change are the same as for improvements: strong managerial support, high degree of participation and necessary recourses available, to name a few. The change model is used as a foundation to analyze an improvement initiative, and therefore the change concept will not be further theorized. Change in this thesis is defined in line with the change model used, expressed as doing things (acting) differently than before (Martin, 2000).

### *1.2.3. Implementation*

The concept of Implementation is closely connected to change and improvements (IHI website). In research, Improvement Science (Ting et al., 2009) and Implementation Science (Fixen et al., 2005) are two clearly distinct fields. In practice, however, it is often hard to draw the boundary line between them. However, this thesis will be situated within the field of improvement science, and the field of implementation science will not be applied. The first reason for this is that this thesis mainly deals with change and improvements from a specific case view, and in this case, implementation are not explicitly included, which can be seen as a weakness, but not unusual in improvement initiatives in healthcare (Wallin, 2009).

This will not, however, imply that implementation has no place in this thesis. In separate local projects in the result part (section 6), the aim was sometimes to introduce a new method or start to use checklists or registers, which is a kind of implementation. But the overall QI initiative had no established implementation strategies. The second reason is that implementation is a science of its own, and including that would have needed some background and theories covering implementation science as well, which may have contributed to more confusion than clarity about the purpose of this thesis.

## 2. Aim and purposes

This thesis consists of seven research studies, in the context of a county council improvement program. These studies aim to provide knowledge about different aspects of a county-wide improvement initiative, outlined in section 5.2. The overall aim of this thesis is to contribute to increased knowledge and broader understanding of factors and strategies for quality improvement in a county council-wide improvement program, and how quality improvement initiatives can be organized in healthcare settings. Researchers argue about from where the changes are to arise, top-down initiated by management or bottom-up based on practice. Both these views have their advantages and disadvantages. The awareness of system understanding is also emphasized (Nelson et al., 2007). Therefore, is it possible to manage and integrate the paradox to find a middle approach, by combining top down and bottom up, simply focusing on systematic long-term improvement strategy at all system levels?

In 2000, some researchers (Beer & Nohria, 2000a) attempted to reconcile the different views of change, aiming to manage and integrate the paradox by combining top-down and bottom-up perspectives. Those discussions and arguments ended up in a theoretical model for change (see section 4.2.1) that constitutes the theoretical framework of this thesis.

### 2.1 Objectives/Research questions

The purpose of this thesis can be divided into three parts, illuminated and analyzed through the research questions stated below. In addition, development of an instrument was necessary to investigate the Breakthrough Series Collaborative methodology (BC) improvement program, since no suitable existing instrument was found. The following purposes and research questions have guided the studies making up this thesis. The research questions are expressed and worded somewhat differently compared to the purposes stated in the appended papers. The reason for this is that the papers sometimes have more than one research question, or sometimes contain a statement with a different wording. To reach concordance in this thesis the purposes and research questions are therefore somewhat edited and reduced to one question per study (paper). The exception is the development and test of the questionnaire (paper V) which is still a statement due to the nature of that kind of study.

The first purpose was to empirically investigate practice-based improvement ideas and factors influencing participation from the micro-level, bottom-up perspective. The following research questions guided this part:

- Which improvement ideas do practitioners emphasize when rather freely invited to accomplish improvement projects? (paper I)
- Which factors influence participation and leadership in healthcare improvement projects? (paper II)

The second purpose was to investigate managers´ views of the impact of the improvement program and patient participation from the macro- and meso-level, top-down perspective. The research questions were:

- How do managers think patients can be resources in improvement work? (paper III)
- What do managers think of, and how do they experience, a county council-wide improvement program? (paper IV)

To evaluate the development of the improvement program, an instrument (questionnaire) was developed and tested. The purpose was:

- To translate, revise and psychometrically test the Swedish Improvement Measurement Questionnaire in Swedish healthcare settings. (paper V)

The third purpose was to analyse outcomes, asking whether a county council-wide, all-embracing improvement initiative matters, and examining the possibility of managing and integrating the paradox to find the middle approach, combining micro-, meso-, and macro-level system thinking. The following research questions were guiding this part:

- How does a specific quality improvement program within Swedish healthcare develop over time? (paper VI)
- Can an improvement effort (the applications) contribute to positive, sustainable changes in the organization, and is funding a driving force? (paper VII)

The relation between the studies (appended papers), the purposes and the overall aim are illustrated in Figure 2.1.

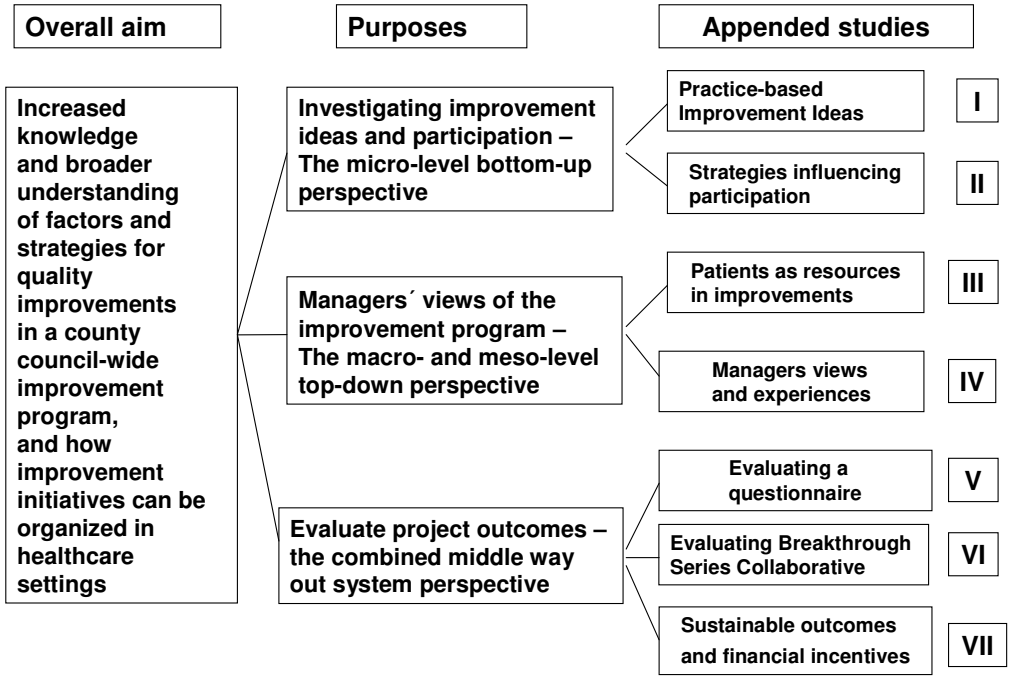


*Figure 2.1. Aim and purposes of the thesis.*
The relation between the appended studies (papers I-VII), the threefold purpose and the overall aim of this thesis.

# 3. Background

As described in the definition section, in this thesis QI is referred to and used in healthcare settings in its more comprehensive sense, to improve processes and care for patients. The modern QI in healthcare has its roots in industrial settings, and will be further described in section 3.2 below. In the following sections, some important aspects of QI and its entry into healthcare organizations and some critical aspects of its application and influence on how healthcare organizations behave today and apply QI work will be described. The ambition is to highlight some important milestones and aspects that had impact on QI in healthcare settings. The development of QI and its entry into healthcare settings, both in a general (worldwide) and specific (Swedish) context, and research in the field will be described. In order to understand the emergence of QI in Sweden and in healthcare, the Swedish healthcare organization will first be presented with respect to its organizations and important regulations.

## 3.1 Swedish healthcare, organization and regulations

*In this section a brief overview of the Swedish healthcare system, its organization and important regulations and initiatives that push healthcare organizations in the direction of improvement will be outlined.*

Swedish healthcare is a public enterprise, governed by a political organization, mainly publicly financed and regulated by laws at a national level (Anell, 2005; Blomqvist, 2007). The Swedish constitution gives the mandate to manage healthcare to the 21 independent county councils and regions. The overall regulation is the Swedish Healthcare Act (SFS, 1982:763), which is founded on the principles of human dignity, equality and human rights. The National Board of Health and Welfare is the supervising authority (National Board of Health and Welfare website). The county councils and regions are autonomous, and therefore organization of healthcare varies somewhat around the country. Municipalities are also responsible for some parts of the care system, mostly for the elderly, such as home-help services and institutional elderly care homes (Socialstyrelsen, 1996; Blomqvist, 2007). Within a county council, care can be divided into different administrations, such as Primary Care, Somatic Specialist Care, Psychiatric Special Care and Dental Care. A large number of professions and staff categories are represented; the most dominant are healthcare staff, including nurses, assistant nurses and physicians (Statistics Sweden, 2010).

Recently Swedish society and public authorities have paid more attention to the fact that quality is important. A number of initiatives have been realized in order to regulate and support improvement work in healthcare. In 2005 the National Board of Health and Welfare published a regulation about management systems for quality and patient safety in healthcare settings (SOSFS, 2005:12). This management system was updated in 2011 (SOSFS 2011:9). The updated regulations are more comprehensive, and the organizations which fall under the Swedish Healthcare Act are required to establish a management system to continuously develop, measure and guarantee quality in all parts and on all levels of their organization (National Board of Health and Welfare, 2012).

Since 2006 the Swedish Association of Local Authorities and Regions (SALAR) has made comparisons between the county councils concerning a number of parameters in the healthcare sector, in an annual report titled "Quality and Efficiency in Swedish Health Care – Regional Comparisons" (e.g. SALAR, 2011). The Swedish Society of Nursing (SSF) published a report in 2005 called *Strategy for quality development in nursing care* (SSF, 2005). In this report they state that the overall aim of the quality work within the society is "*to take systematic advantage of improvement possibilities within the healthcare environment to give the patients and caretakers qualitative nursing care at the right level*" (p. 5, author's translation). In 2009 the "OmVård [About Care] — comparing Swedish healthcare" website was established. Their aim is to make healthcare results and measurements easy to access for "ordinary people" as they claim. Probably the future will see more of those, and they will act as a motivating force for improvement.

## 3.2 Quality improvement and its entry into healthcare settings

*Quality management and quality improvement are a relatively new phenomenon in healthcare settings. In this section a brief overview of its origin and development will be described, as well as some important international research concerning healthcare applications.*

### *3.2.1 Industrial influences*

Quality Improvement (QI) and Quality Management (QM) originate from the industrial environment. The modern origin of the concept is to be found in industrial settings, aiming to produce better and more effectively. The groundbreaking works of Edward Deming, Joseph Juran, Walter Shewhart and Kauro Ishikawa provided an early platform for what it means to work with quality management (Sörqvist, 2004). In industrial settings, this domain is now generally considered a mature and accepted field of study (Sousa & Voss, 2002; Shojania &

Grimshaw, 2005). In early phases, healthcare improvements were connected to medical inventions and (physician) interventions (Laffel & Blumenthal, 1989). Now quality improvements have become more general at an organizational level (Shojania & Grimshaw, 2005; IHI website). It is about standardizing processes, developing routines, working with best practice and evidence-based care, basing decisions on facts (measurements), and developing patient-centred care in collaboration with patients and their relatives (IOM, 2001; Nelson et al., 2007).

On the way forward different quality strategies, methodologies and methods, most of them originating in industry, have been introduced and implemented in healthcare settings, including Total Quality Management (Claus, 1991; Kahan & Goodstadt, 1999), Continuous Quality Improvement (Kahan & Goodstadt, 1999; Bessant et al., 2001), Six Sigma (van den Heuvel & Bisgaard, 2005; Gremyr et al., 2012), Lean Healthcare (Young & McClean, 2008), Breakthrough Series Collaborative (IHI, 2003) and Patient Centred Care (Wakefield et al., 1994). Quality improvement, or at least the idea of it, has become a factor for competition.

### *3.2.2 Some historical perspectives*

The development of quality in healthcare probably started at the same time as medicine itself. Historically, physicians have aimed to develop care and treatment methods in order to make them better and safer for patients. However, only physicians and their behaviour were referred to, not other medical and care giving/nursing staff or any organizational processes whatsoever (Laffel & Blumenthal, 1989). Several pioneers make up the history of healthcare improvements. In 1847 the Hungarian physician Ignaz Semmelweis discovered the importance of hygiene in connection with childbirth. Some years later, Florence Nightingale improved hygiene procedures during the Crimean war. She is considered to be the first nurse to introduce measurements and statistics to improve healthcare (Hamrin, 1997). In the early 20$^{th}$ century the surgeon Ernest Amory Codman started to follow up results and outcomes in order to use measurements for improvement. He studied the outcomes of patients, and developed performance measurements (Mainz & Bartels, 2006).

A pioneer in the development of QI in healthcare was Avedis Donabedian. He was a physician and professor of public health at the University of Michigan, United States. In the 1960s he began to develop a model for Quality Assurance, consisting of seven parameters: Efficacy, how to use best practice to improve; Effectiveness, to what extent improvements are

reached; Efficiency, how to improve cost-effectively, or work smarter; Optimality, the balance between improvements and cost-effectiveness; Acceptability, how healthcare lives up to (customer) expectations; Legitimacy, relations to society and regulations; and Equity, which is a principle about equal and fair healthcare (Donabedian, 2003). He describes quality in healthcare settings as combining the science and technology in healthcare with their application in practice. The combination (what he calls the "product") is characterized by the seven parameters, or attributes, explained above.

### *3.2.3 Some QI initiatives and research in healthcare settings*

Due to increased pressure for change, there are a number of different improvement initiatives going on, at least in Western countries (see e.g. special issue of *Health Economics* 2005:14(S1)). The papers in this special issue describe different aspects of the development and state of healthcare in some of the countries in the European Union. The challenges and trends for the future are also discussed to some extent. In this special issue, Oliver et al. (2005) discuss the nature of health policies, noting that the lifetime of some attempted policies is sometimes shorter than the time it took to develop and implement them. Despite the fact that the purpose is to improve healthcare outcomes, economic evaluations of healthcare policies remain uncertain (ibid.). Another study investigating the implementation of quality improvement strategies in Europe found that all participating countries used different strategies (Lombarts et al., 2009). The study investigated four sections of quality improvement strategies. The first section focused on a general hospital level, including hospital-wide quality improvement policies, procedures, structures and activities and the organizational (governance) structure. The other three sections were about quality management for specific medical conditions. Patient-related activities were least often implemented and external quality standards, commonly ISO (International Organization for Standardization), were applied the most (ibid.).

An important agent within the context of quality improvement in healthcare is the Institute for Healthcare Improvements (IHI) in the United States. IHI works with improvements by offering knowledge and methodology development to support healthcare organizations, as stated on their website: "[IHI] *works to accelerate improvement by building the will for change, cultivating promising concepts for improving patient care, and helping health care systems put those ideas into action."* On the website they publish improvement stories from around the world, to encourage others and spread ideas (IHI website).

## 3.3 Quality improvement development in Swedish healthcare

*In this section the quality improvement in a Swedish healthcare setting will be described. Some previous improvement research in a Swedish context will also be discussed.*

### *3.3.1 QI management in Swedish healthcare*

Most management methodologies used in Swedish healthcare over the last hundred years were driven more or less from a top-down perspective (Axelsson, 2000). In his paper "*Healthcare management in Sweden 1865-1998*" Axelsson (2000) describes the development of Swedish healthcare management as a "*perpetuum mobile*" (p. 52). The different organizational management styles have replaced each other in an even faster process since the mid-19th century. County councils were established in the mid-1800s, aiming to provide a financial base for the community hospitals that had appeared and become too expensive for the local rules. In the first half of the 20th century a long period of growth occurred in the Swedish economy, which also benefited the healthcare sector. Healthcare became more decentralized and market oriented (ibid.).

The great expansion of the healthcare sector was also a result of technical and medical development. Axelsson (2000) points out, as one of the first signs of quality improvement in Swedish healthcare, the reactions to the current market orientation system. In the mid-1990s there was growing opinion, calling attention to the needs of patients, completely opposite from the market-oriented healthcare organization, aiming to use market forces to control and manage healthcare (ibid.). There was increasing interest in quality improvement. At the same time, several of the improvement ideas and QI methods transferred from IHI were introduced, and the county councils and regions started to use those methods to improve Swedish healthcare (SALAR website).

### *3.3.2 Some QI initiatives and research in Swedish healthcare settings*

In a Swedish context, some recent studies and dissertations explore and investigate quality initiatives and developments in healthcare systems. Olsson (2005), Thor (2007) and Kunkel (2008) are some of the researchers writing dissertations about quality improvement and quality management and its entry into the Swedish healthcare sector. Olsson et al. (2003a) developed a model (Swedish Organizational Change Manager) to study factors influencing successful improvements in Swedish healthcare settings. The model aimed to predict factors that could undermine (diagnose weaknesses in) improvement initiatives, and to measure an organization's potential to reach successful improvements or prioritize considered initiatives.

A survey was conducted of all managers of primary healthcare centres and hospital departments in Sweden (Olsson et al., 2003b). The majority reported a positive response to improvement work. Main areas that the managers wanted to improve concerned intra-organizational issues, such as leadership development, education, and work environment. Extra-organizational factors, such as patients and using measurements to compare results, were found to be less important. The studies in the thesis indicated that there is a need for support and for facilitating the implementation of improvement work (Olsson, 2005).

Thor (2007) studied an improvement program in a healthcare organization in Sweden. His study consists of different views of quality improvements in healthcare, from introduction of the quality improvement initiatives, identifying the main issues/problems, collaboration between multi-professional teams and managers, how methods and facilitators could help during the process, and what the outcome was after the study period of four years. One conclusion was that improvement methods and principles can not be "installed" and simply expected to work. Instead quality improvement programs can be established in the organization through an evolutionary process, involving adaptation (ibid.). Quality Management and its impact on the Swedish healthcare system was investigated by Kunkel (2008). He studied the implementation of quality systems in hospital departments from a manager viewpoint. The results indicated that to make quality improvement efforts better, hospital departments need to develop different organizational aspects, such as a structure providing opportunities for reflection and action, processes to facilitate interaction and shared learning, and outcome measured as providing a basis for further improvement and knowledge maintenance. He concludes that managers must consider that to implement high level (sophisticated) quality systems perhaps the recipient organization must be ready (also sophisticated) (ibid.).

Nowadays, virtually all of the county councils and regions in Sweden are conducting QI work, in different ways and extent, on their websites

(e.g. http://www.ltkalmar.se/lttemplates/SubjectPage____6919.aspx;
www.skane.se/sv/Webbplatser/Utvecklingscentrum/;
www.lj.se//qulturum; www.ltkronoberg.se/Forskning-och-utveckling/)

and on the SALAR website there are descriptions, examples, and methods and instruments shown that can be used as inspiration and support. One important reason may be the financial

incentives initiated from the Swedish government, “pushing” the county council and regions working with improvements to collect financial awards (Norman & Fritzén, 2012). Some of those are shortened queues and reduced care-caused infections (Ministry of Health and Social Affairs website; SALAR website). A study by Norman and Fritzén (2012) analysed how healthcare personnel respond to those initiatives and financial awards. The conclusion was that if financial incentives (money) were involved, those initiatives were prioritized.

# 4. Theoretical framework

In this section, two theoretical frameworks with impact on this thesis are presented. First a theory of change is described (in the text referred to as the "*change model*"). The theory tries to combine the two main approaches to change, top down and bottom up set out from six different dimensions, exploring and managing the paradox by combining them. Therefore this change theory makes a suitable base to this thesis and has been a guiding light throughout my research.

In the second part of this section, a model for organizational systems in healthcare is described. Almost all the different improvement strategies imply the importance of system awareness to succeed in improvement work, and therefore it is essential to healthcare professionals to be aware of systems thinking to improve their work within and between different parts of the organization. In connection to the system model, learning organizations are briefly described, as they are commonly referred to within QI in healthcare settings. Two other important parts of QI are measurements and customer/patient focus. Therefore, those two issues will also be briefly introduced and described. At last, a summary of the theoretical perspectives in a healthcare context will be presented.

## 4.1 A theoretical framework of Change Management

*The model for change constituting the theoretical framework of this thesis was the result of a conference bringing together a number of important researchers in the area of change (Beer & Nohria, 2000a). The model focuses on industrial settings, but, as will be argued in the summary section (4.3), there are important aspects that can be just as relevant for accomplishing organization-wide changes and improvement programs in public settings, like healthcare.*

Langley et al. (2009) ask "*Why should you bother with making changes?*" (p. 4). The answer, they argue, is that you can not avoid changes, they happen whether you want it or not. The choice is about just letting it happen or being proactive, being able to influence changes to make them positive, i.e., an improvement (ibid.). The *change model* constituting the theoretical foundation for this research was developed by Beer and Nohria (2000a, b) and aims to provide some understanding of organizational change, addressing the question: *How can change be managed effectively?* The model consists of two opposing theories of change, in the end trying to manage and integrate the paradox of these two opposing perspectives. The first perspective represents by the *Theory E*, based on the goal of economic values and

financial motivations and top-down management through structure and planning, often by means of staff reduction, streamlining and downsizing. The opposing *Theory O* is built on organizational capabilities from a bottom-up perspective with commitment as driving force and focusing on evolution and culture building.

The model points out strengths and weaknesses of each theory along six dimensions of change: *Goals, Leadership, Focus, Process, Reward system* and *Use of consultants*. In the model, Beer and Nohria (2000a, b) argue that the key to solving the paradox of change is to integrate the two opposing theories (Table 4.1). At the same time they state that combining them is not an easy challenge, and must be done in an orderly sequence, starting by changing the culture and making use of employees' ideas and initiatives. If change begins the opposite way, with downsizing and the termination of many employees, it could be difficult to obtain trust and commitment from the remaining staff. On the other hand, the soft line could make it difficult for managers to make tough decisions, after increasing commitment had occurred (ibid.).

*Table 4.1. Change model Theory E, Theory O and combined.*

| Dimensions of Change | Theory E | Theory O | Theories E and O Combined |
|---|---|---|---|
| Goals | maximize shareholder value | develop organizational capabilities | explicitly embrace the paradox between economic value and organizational capability |
| Leadership | manage change from the top down | encourage participation from the bottom up | set direction from the top and engage the people below |
| Focus | emphasize structure and systems | build up corporate culture: employees' behaviour and attitudes | focus simultaneously on the hard (structures and systems) and the soft (corporate culture) |
| Process | plan and establish programs | experiment and evolve | plan for spontaneity |
| Reward System | motivate through financial incentives | motivate through commitment — use pay as fair exchange | use incentives to reinforce change but not to drive it |
| Use of Consultants | consultants analyze problems and shape solutions | consultants support management in shaping their own solutions | consultants are expert resources who empower employees |

Source: Beer and Nohria (2000b) p. 137. Reprinted with permission from "Cracking the Code of Change" by Michael Beer and Nitin Nohria. *Harvard Business Review*, May 2000. Copyright (c) 2000 by the Harvard Business Publishing Corporation; all rights reserved.

### *4.1.1 The purpose of change; shareholder value or organizational development*

Is there a purpose and a goal in changing an organization? Or, as some researchers argue, is it possible not to change (Beer & Nohria, 2000a; Ahrenfelt, 2001; Langley et al., 2009)? Batalden and Davidoff (2007) discuss the challenge of healthcare in terms of a linkage between various aims of improvement, which include clinical results and professional development as well as system performance. Aim or goal can be seen as a desired result and the ultimate aim of everything. It can also be seen as the ambition or purpose of doing and achieving something.

Batalden and Stoltz (1993) speak of a policy for leadership in healthcare, answering the question "*What is the organization for*?", with reference to customers as citizens and the community as a whole, as well as specific patient groups. Other studies (e.g. Thor, 2007; Kitson, 2008) have noted the importance of attracting important professions (stakeholders) to accomplish successful improvement projects. At the same time, the goal of changing healthcare is improvement, producing better care for its customers, patients and the surrounding society (Donabedian, 2003; McIntyre, 2012).

In the *change model* the goals are seen as either maximized value to the shareholders (Jensen, 2000) or maximizing the development of the organization and its participants (Senge, 2000). Jensen (2000) argues about value creation and maximization, from a market value standpoint. The survival of the business (or organization) depends on its ability to satisfy their stakeholders. On the other hand, Senge (2000) argues that change depends on the organization's capability of adaption. Organizations are open systems interacting with the surroundings and therefore need to respond to changes around them. Increasing business opportunities are implied in its possibility to adapt, which is mainly dependent on its learning capacity (ibid.). In improvement theory, increased value and organizational development sometimes are seen as comparable, not only opposites (Batalden & Davidoff, 2007), and Bower (2000) tries to explore how the paradox can be worked out. To start with, he points out that the main problem in change initiatives is a lack of clear goals. Then, he concludes, the purpose of a change has to be at all levels in the organization. Change is complex and does not only affect one single part at a time, therefore the goals also have to be broader, including both stakeholder values and organisational development.

### *4.1.2 Quality improvement management; top-down and bottom-up perspectives*

Many scholars agree that quality improvement is connected with management and needs leadership to succeed (see e.g. Batalden & Stoltz, 1993; Beer & Nohria, 2000a; Ahrenfelt, 2001). On the other hand they disagree on how management would be applied in change processes and have different opinions about where improvement initiatives arise. Some see management from a top-down perspective while others advocate a bottom-up approach. Irrespective of the perspective, leaders in healthcare organizations need a model to combine professional knowledge and improvement knowledge and they need tools and methods to be able to achieve this (Batalden & Davidoff, 2007). Improvement should become an overall organizational program that people do alongside their regular work (Nelson et al., 2007). Managers and staff members are expected to improve work processes constantly.

Do large system-wide changes need to be led from the top? Conger (2000) argues that only top management, e.g. a CEO or a healthcare system management team, with an organization-wide perspective, resources and power, can manage change. He makes a comparison with the great generals of history, always sitting above the field with an overview of what is happening. He admits nevertheless that there are also essential needs for engagement at lower levels in the organization, but upper management must always be "in charge" to accomplish successful changes within an organization. Bennis (2000) asserts the opposite, that change arises from those who need it, and leadership always needs staff contributions to be successful. He illustrates his perspective with some social movement changes, and states that the story of the heroic leader managing everything is a myth. In his thesis Sonesson (2007) concludes that service innovations benefit from the involvement of front-line employees but that it is important that their participation in the innovation process is supported by local managers who need to set aside the time and resources for employees to take part in the development process.

Dunphy (2000) tries to tie these two different views together by embracing the paradoxical relationship between leadership and staff participation to achieve an efficient change. He argues that both could be relevant at different times and in different situations. The key is to determine what change level is appropriate for the situation. If that paradox can be worked out, a more robust ongoing capability for change can be built in the organization. Langley et al. (2009) also think that both approaches are needed and can be useful. The top-down

strategic priorities focus on what is important in a more overall context, while the bottom-up initiatives make improvements to the day-to-day work.

### *4.1.3 Focus of change and improvement; changing structure or culture*

Focus is about how the change is intended to take place, separate from the goal itself, described above. In this *change model*, there are two different ways of looking at the focus, the formal systems (structure) or the culture (competence and commitment) (Beer & Nohria, 2000a). Galbraith (2000) argues that strategic changes from the management view need to be formal and that important shifts start with structural changes. Driver & Watcher (2012) also state the importance of structure when working with improvement efforts. On the contrary, Hirschhorn (2000) argues that to succeed with change and improvement, behaviour, the culture of beliefs and values in the organization must change. The complexity and culture in healthcare has sometimes been mentioned as a barrier that explains why change and improvement progress are slow (Leape & Berwick, 2005). As Schouten et al. (2008) state, quality improvements that possibly work in some organizations may not work in others because of the differences in culture and context. In their *Framework for Continual Improvement of Healthcare,* Batalden and Stoltz (1993) advocate the need to transform healthcare organizations to make them capable of continuous improvement.

Galbraith (2000) concludes by stating that "*The ultimate achievement is … easily and quickly reconfigurable organization*" (p. 158), and to get there, there is a need for a stable, structured system. Hirschhorn (2000) then argues that to achieve change in the organization, the culture must be considered. What is seen as the right way to do things must change, so the improvement becomes the right way instead. Other researchers also agree on the importance of changing the culture to accomplish sustainable change (Ekvall, 1996; Ahrenfelt, 2001; Carlfjord et al., 2010). Cohen (2000) tries to connect the two views, by suggesting that both structure and culture are needed to accomplish successful changes. A manager that enables a culture where quality and improvements are integrated in the daily work and making time and resources available for that work is able to create a successful organization. This was emphasized by Batalden and Davidoff (2007), when they claimed that all staff members have two jobs, doing their tasks and doing them better.

### *4.1.4 Change processes; plan or emerge*

There are different ways of looking at how change "happen". Change can be seen as planned strategic processes or as emergent, simply happening without any planning, more "ad hoc". Weick and Quinn (1999) present two opposite alternatives, episodic and continuous change. Episodic change is planned, mostly carried out from the top-down perspective, and occurs just once. The opposite, continuous change, occurs locally as a long-term adaptation process.

In the *change model*, Ghoshal and Bartlett (2000) maintain that a systematic plan of action is required, while Weick (2000) argue that organizations constantly evolve and one has to take advantages of this evolution. The tricky part is to find a way of diffusing and spreading those good, locally appearing improvements throughout the organization. Other researchers also argue that improvements mostly occur locally, but that organizations, especially in healthcare, are miserable at taking advantages of and spread and implement them (Olsson el al., 2003b; VanDeusen Lukas et al., 2007). IHI (website) is working to spread good examples to help speed up healthcare improvements. Pettigrew (2000) proposes that those two opposite ways of looking at how change occur, must be balanced and tied together. The best way to realize successful changes is in fact to use both planning and emerging forces.

Another concern to be aware of, when planning change, is resistance. Changes in an organization are affected and carried out by its people (Ahrenfelt, 2001). Strong professions, as in healthcare, always influence and have their own agendas (Adler et al., 2008). To manage change and improvements, management must be aware of and take advantage of this. Professionals are the key actors, often with a strong identity and common occupational status (ibid.). Quality improvements require teamwork and the teams must be made up of different professions. Adler et al. (2008) stated that a number of healthcare services had introduced collaborative teams consisting of physicians, nurses and other staff to improve quality and cost effectiveness. At the same time they emphasize the difficulties that will arise in a strong professional organization. Leape and Berwick (2005) explain that one factor for why the quality progress within healthcare is slow is the strong and persistent commitment to individual and professional autonomy, e.g. among physicians.

From the top planned changes (almost) always come across doubters and antagonists (Pettigrew, 2000). The psychologist Kurt Lewin tried to remedy this by his theory of unfreeze – change – refreeze (Weick & Quinn, 1999). First the organization needs to be prepared for

the change, then the change is carried through, and then the new state "refreeze" in Lewin's terms as the way the organization would work going forward (compare to focusing on culture above).

### *4.1.5 Reward incentives; paying for change*

Many change and improvement programs use reward systems as motivators in different ways. Rewards as a governing model for change and improvements can be looked upon from two different views, pre- or post-incentivising (Fig. 4.1). Rewards on the post-incentive side are used most often (Behn, 2003). Marshall and Harrison (2005) emphasize the need to analyze the relationship between incentivized and non-incentivized improvements to develop a deeper understanding of how to control incentives. Berger (2011) argues that connecting payment with quality will increase the incentive's improvements, while Rosenthal et al. (2004) discuss the risks inherent in this. What happens when the money stops coming, does the performance relapse to before, not considered important any more?

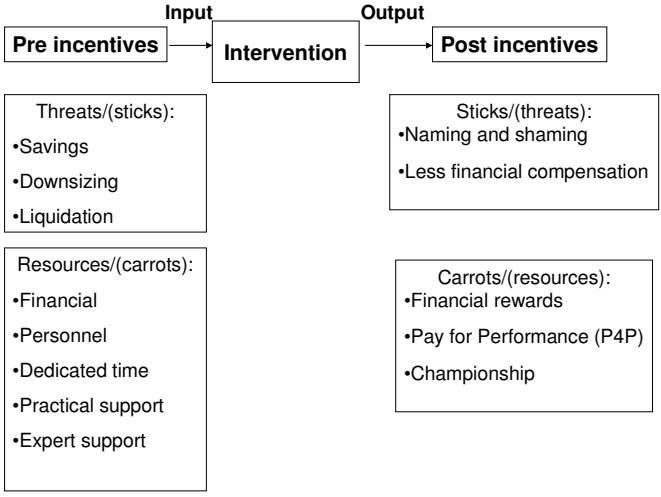


*Figure 4.1 Steering model of organizational change incentives.*

In the *change model* the rewards are regarded as motivation through financial incentives or through encouragement using payment as fair exchange (Beer & Nohria, 2000a). The question raised is whether incentives should drive the change or support already realized improvements. Wruck (2000) argue that financial incentives must be an essential part in

motivating change. Ledford and Heneman (2000) argue the opposite, that incentives should be used as compensation to encourage trust and commitment. Lawler (2000) concludes that incentives should be both pre- and post-driven, implying that the type of incentive system depends on the need to develop motivation and to facilitate implementation or motivate effectiveness once the change has been implemented. Motivation has been considered as an important part in change and improvements, and many researchers have investigated this issue and developed various theories (Wong, 2000). Motivation can be seen as intrinsic, driven by interest or joy, in this theory compared to the commitment, or extrinsic, driven by external pressure, like financial rewards or threats. Professionals need to be both motivated and trained to incorporate best practice in daily work (Grol & Wensing, 2004).

Both researchers and policy actors have raised the question of whether financial incentives are a key ingredient for encouraging and driving improvement programs (Peterson, 2004). But, Lawler (2000) states, independent of which approach is chosen, incentives and reward systems are important in change processes; to ignore those tools would probably lead to the failure of the change project.

#### *4.1.6 Change consultants; drivers or support*

In change management the use of consultants has been developed and used frequently during the last decade. Special firms have arisen, offering their expertise to companies and organizations (Beer & Nohria, 2000a). In the two opposite views shown in the *change model*, consultants are seen either as experts, analyzing the problems or suggesting the (best) solution to them (Neill & Mindrum, 2000), or as coaches, supporting the organisation and its managers to develop their own improvement ideas and solutions (Schaffer, 2000). Neill and Mindrum (2000) argue that using consultants can bridge the gap between ideas and practice, since the organization itself can not keep up to date in all existing best practices. At the same time they state that using consultants can not be successful unless all aspects of the organization are given attention. Their framework consists of five different levels: Individual, Organization, Operations, Strategy, and Environment. Within these levels there are many different components to be aware of, which influence the change process in different ways. Furthermore, they argue that by using this framework, structured solutions of change can be delivered, which can be applied to different circumstances (ibid.). Schaffer (2000) on the other hand argues that management and change consulting has become an overwhelming activity, taking more time and money than it is worth. Instead, he argues, managers should

take the lead, focusing on what they (or the organization) think is the problem, using the consultant not as the "solution bringer" but as a guide on the journey of change, helping organizational team members through the stages of the change process. Miles (2000) states that consultants can be useful, but which type of consultant initiative is needed, will be mandated by the type of change project. Furthermore, he suggests a combined solution, which he call "high impact – high involvement" to reach an "accelerated organizational transformation", aiming at speeding up the change process.

The use of consultants also contains the question of the ownership of the change process. Whether consultants are used or not, it is important to designate the owner of the change project (Svensson el al., 2008; Brulin & Svensson, 2012). Without a designated owner the risk that the project will fail increases. Therefore, managers using consultants should be aware of when the consultant is "finished" who is advocating the change/improvement, keeping it sustained (Miles, 2000).

## 4.2 A Healthcare organizational system frame for improvements

*The organizational system described and referred to in this thesis is the most common presented within healthcare organizational theory, developed by IHI, which is a stakeholder of worldwide importance within the healthcare improvement area.*

### *4.2.1 The Micro-Meso-Macro organizational system*

Already in 1993 Batalden and Stoltz (1993) proposed a framework for improving healthcare organizations. The aim was to create a method to bridge the gap between professional and improvement knowledge, to enable continuous improvements as a part of everyone's daily work. To understand the organization and its work, Batalden and Stoltz (1993) argue, three basic questions serve as guides: the means ("*How do we make what we make?*"); the aim ("*Why do we make what we make?*"); and the improvement plan ("*How do we improve what we make?*") (p. 426). Batalden and Davidoff (2007) claim that to transform healthcare organizations for high-quality performance there is a need for system understanding. An organization can mean anything from an entire society to just one unit within a larger system (Bakka et al., 2006). One way to understand and describe healthcare as a system is to illustrate it as different system levels (Nelson et al., 2007). These system levels are dependent on and influence each other in many different ways, and need to interact and aim towards a common goal. Nelson et al. (2008) claim that certain knowledge about micro-system thinking can positively influence good performance and improvements.

The healthcare organization and system levels can be illustrated as circles or as an onion with multiple layers, with the patient and his/her family in the middle (Figure 4.2). In this description of the healthcare system, the macro level is the organizational official management level, in a Swedish context corresponding to the county councils or regions. Barach and Johnson (2011) stated that "*the clinical micro system… is an important level at which to focus patient safety innovations*" (p. 258). Moreover, they stated, errors and mistakes occur within the micro system, and a well-functioning micro system can prevent, or at least reduce, errors and failures that cause patients harm. To understand the usefulness of micro-system thinking, one can use the old truth, no system is performing better than its weakest link, or in the words of Nelson et al. (2007), *"The quality and value of care produced by a large health system can be no better than the services generated by the small systems of which it is composed*" (p. 3).

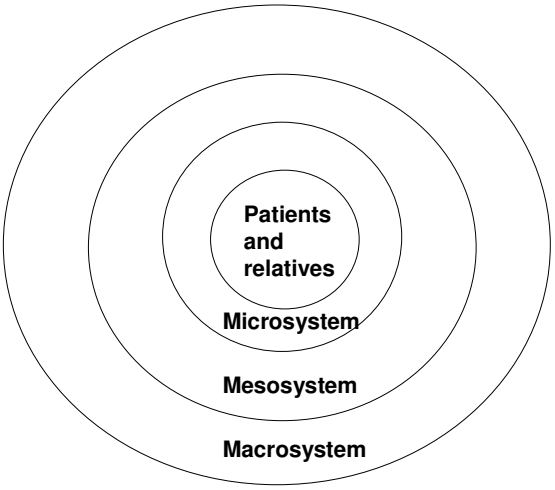


*Figure 4.2. The system levels in healthcare organizations.*
Source: Nelson et al. (2008), p. 371, reprinted with permission.

Henry Mintzberg, one of the gurus of organization system thinking, describes organizations in a quite similar way (Mintzberg, 1993). The macro-system level may be seen as the strategic apex, having the overall responsibility of the organization. The meso-system level consists of the different administrations or clinical departments, including (middle) management, which corresponds to the middle line in Mintzberg's model, the structure between top management

and the core workers. The system level next to the patient is the micro level, the units and clinics that actually perform the care, the frontline staff. In Mintzberg's terminology this is the operating core, performing the basic work in direct relation to the customers (ibid.). One difference is that in micro-system thinking, this micro system is not only the staff or team that performs the care, but even equipment, support staff, and the environment where caregivers and patients meet and constitute mutual processes (Nelson et al., 2007). In addition, Mintzberg has two supportive middle parts, the technical structure and the support staff (Mintzberg, 1993). In the Micro-Meso-Macro system framework these are to be found within the micro system (Nelson et al., 2008).

Mohr and Batalden (2002) emphasize the importance of understanding the larger system and how the different parts (micro – meso – macro) are interdependent and need to interact, but also of being aware of the necessity of interdependence and interaction between different micro systems. Nelson et al. (2008) also develop this, stating that to go on improving and developing, micro systems need to enlarge their connections and coordination with other micro systems. This is even one of the (main) responsibilities for the next level, the meso system, in facilitating collaboration between micro systems in the organization (Mohr & Batalden, 2002). The importance of collaboration between micro systems, and supportive meso- and macro-system levels are further emphasized in the Clinical Microsystems Series (Nelson et al., 2008).

#### *4.2.2 Some perspectives on learning organizations and micro system thinking*

Another approach to system understanding in healthcare sometimes used is the concept of learning organizations. Researches argue about whether an organization can learn or if it is "only" its members that learn (Argyris, 1999; Ellström, 2010). Argyris (1999) used the term "organizational learning", in the sense of an organization that creates good prerequisites for its members' learning and which takes advantage of this learning and makes use of it in the organization in its ambition to influence and adapt to the environment. The term "learning organization" includes both a philosophic dimension, derived from Senge's (1990) five dimensions (system thinking, personal championship, mental models, shared vision and group learning) to reach a more pragmatic view, i.e., systematic continuous learning and sharing by everyone in the organization. Those five dimensions correspond to the five different parameters, the 5 Ps, which according to Nelson et al. (2007), a successful high-quality performing micro system and its members and leaders need to know: Purpose, Patients,

Professionals, Processes and Patterns. A common Purpose that everyone agrees upon helps the unit work in the same direction and is a prerequisite to improve the quality at the unit. Important questions to be answered are "*Why are we here?*" and "*What is our common goal?*". Having knowledge about the Patients, existing and potential, the unit is serving is important to be able to plan and offer the requested services.

Knowledge about the Professionals is essential to be able to make the most of everyone's qualifications. The individual staff member's interest or knowledge gaps are important for the management to consider. All staff members are parts of each other's and the patients' processes. Mapping and evaluating the processes gives knowledge about where problems or bottlenecks arise. Patterns are seen as the unit's culture or climate. What is allowed, is there a hierarchic structure or is it permitted or even desirable to help each other out across professions? Are the staff members proud to work here? Patterns are also organizational knowledge. If all staff, not only the unit manager, have knowledge about the unit's financial situation and other matters that have an influence, this encourages help in improving the unit.

Furthermore it is important that the micro system knows its role and placement in the whole system and vice versa, that managers and administrators at meso and macro level understand the importance of supporting a functioning micro level, to increase the opportunities to make the whole organization qualitatively high performing (ibid.). IHI works to spread improvement knowledge around healthcare organizations (IHI website). Even if increased knowledge by itself does not guarantee improved performance, Batalden and Davidoff (2007) argue that it can and will help to raise the status of QI and transform the view of quality and safety improvement work in healthcare settings (Cooke et al., 2011).

The idea of a learning organization is to not view changes as a threat but as something happening constantly as a part of daily work. To become a learning organization it is important that all employees have time to reflect and to learn both from their own and others' experiences, through both positive and negative results being given back at all levels in the organization. Nelson et al. (2007) use the term learning system, in almost the same sense, that organizations must be able to create conditions in which staff members can learn and realize their potentials.

### *4.2.3 Some perspectives on Evidence Based Medicine/Practice and QI learning*

Another movement associated with quality and improvements in medical care are Evidence Based Medicine (EBM), and one way to increase QI knowledge is letting Evidence Based Medicine/Evidence Based Practice (EBM/EBP) and QI learn and gain from each other (Glasziou et al., 2011). Healthcare and especially medical development has its foundation in EBM, resting on quite rigorous, preferably randomised controlled trial (RCT) studies. Optimally used EBM/EBP is supposed to improve medical practice and healthcare while integrating the use of the best available treatment according to existing research with the clinical expertise of practitioners. Sackett et al. (1996) define EBM as a clinical form of best practice or standardization through the production and use of guidelines and checklists, basing decisions on the best evidence available, a definition adopted by the Swedish National Board of Health and Welfare.

EBM has traditionally been seen as the (medical) professional part of healthcare development, but using quality improvement methods to reduce the gap between what we know and what we do, what Batalden and Davidoff (2007) mean by their model of combining professional knowledge and improvement knowledge, the two "disciplines" can benefit from each other (Glasziou et al., 2011). Using both approaches, hopefully healthcare can learn to "*Do the right things right*" (ibid, p. i13).

Armstrong et al. (2012) emphasize that QI will not become an integrated part in daily work until training in improvement skills is built into every health professional's education, and the competence of quality improvement must mature and develop beside professional skills. This was emphasized already by Batalden and Davidoff (2007), when they claimed that all staff members have two jobs, doing their tasks and doing them better. In 2006 the Swedish Society of Nursing published an offprint about evidence-based care and how and why scientific knowledge is used in daily nursing care (Bahtsevani et al., 2006). In recent decades there has also been an increasing awareness amongst healthcare professional educators of the importance to build in QI knowledge in the education of physicians and nurses as well as other healthcare staff (SSF, 2010; Armstrong et al., 2012).

### *4.2.4 Some perspectives on improvement measurements*

One central idea amongst researchers in the field of QI is the necessity of measurement. Behn (2003) asks the question "*Why measure performance?*" He then suggests eight reasons why public organizations should measure, but concludes that the most important purpose is to be able to improve. Driver and Wachter (2012) also point out the importance of measuring performance as a way for healthcare organizations to improve both quality and cost effectiveness. One of the early QI pioneers in healthcare, Donabedian (2003), implies that to be able to manage, improve and implement more general quality initiatives and improvements it is necessary to observe, measure, and evaluate. Without doing this, how do we know what to improve and whether we have succeeded? There is a need to find "evidence" for improvements to be able to spread and implement them as part of healthcare.

Both Donabedian (2003) and Batalden and Davidoff (2007) claim that if there are no mechanisms to measure the changes, how can it be known whether they lead to improvements? Maynard (2005) thinks that healthcare has been obsessed with measures of failure instead of success. He argues that those traditional measurements (failures such as deaths) must be completed with measures of positive improvements, like patient experiences and satisfaction. Martin (2000) argues that an improvement implies a change, and to know if there has been a change there is a need for measurement to compare with the previous state.

In healthcare tools have been developed to measure medical results and outcomes, such as surgical mortality rates, tests of new therapies, and even patient satisfaction (Berwick et al., 2003; McIntyre, 2012). In the Swedish quality registers indicators like the number of patients having surgery with or without complications, number of in-hospital days, and deaths are recorded, with the oldest registers dating from the late 1970s (Idvall 2013; SALAR website). Grol (2001) argues that there is also a need to measure other QI efforts, not only those solely connected to medical treatments. At the same time McIntyre (2012) thinks that physicians often are suspicious about the validity of such non-medical performance measures. Both Grol (2001) and Counte and Meurer (2001) state that healthcare organizations are highly complex and this complexity makes measurements even more difficult, but finding and/or developing measurements and instruments to evaluate implementations and outcomes of improvement initiatives is a component in quality research that needs to evolve. To be accepted within healthcare, measurements also need to have relevance to all involved: physicians, other healthcare staff, patients and whole healthcare organizations (McIntyre, 2012). The factors to

be measured must also give something in return that matches the investments in time, effort and costs.

### *4.2.5 Some perspectives on patient participation and commitment to healthcare improvements*

Another area connected to quality improvement and research, and of increasing interest is patient (customer) involvement in improvement initiatives in healthcare. In his thesis Nordgren (2003) describes the patient's dislocation from being an object (collectively taken care of) to becoming a subject (demanding individualized care). He thinks that the purpose of this displacement in the view of patient to customer is to delegate more power, responsibility and rights to users. This may, according to Berwick et al. (2003), result in the possibility for customers to compare and select care and caregivers, leading to change and improvements.

Patient participation in healthcare is mostly connected to the patient's own (medical) care. Some research and researchers however have paid attention to the fact that patients can also be resources in improvement of healthcare services (e.g. Lengnick-Hall, 1996; Grol et al., 2005). A review by Longtin et al. (2010) found that patients can motivate and modify healthcare staff behaviours. For example, studies in hand hygiene promotion has shown when patients were involved, asking staff if they had washed their hands, soap consumption increased by 34%. Other results, even if somewhat contradictory, have shown that incidences of medical errors decreased when patients were trained in awareness of those (ibid.).

In Sweden a patient safety law (SFS, 2010:659) emphasizes patient participation, involvement and influence to improve healthcare and patient safety. Another reason for the rising attention to patient participation is that patients and patient organizations are becoming stronger and gaining more influence. The role of the patient has changed from being a passive receiver of healthcare to becoming an active consumer, as patients seek information and make active choices to a greater extent (Nordgren, 2009). In 2011 a Swedish patient safety law became operative (SFS, 2010:659), stating patients' rights to participation, especially in their own care, but also in the improvement of healthcare overall. Looking at the terms (patient) involvement and participation no clear differentiations are found. Both terms can mean involvement/participation in the patient's own care as well as involvement/participation in the (quality) development of healthcare as an organization. This confusion does not facilitate the involvement/participation of patients (Longtin et al., 2010).

### 4.3 Summary of theoretical perspectives in healthcare context

The *change model* constituting the theoretical frame for this thesis consists of the two opposite theories; the top-down *Theory E*, the bottom-up *Theory O*, and the combined approach, along six different dimensions, *Goals, Leadership, Focus, Process, Reward System*, and *Use of Consultants* (Beer & Nohria, 2000a). The theory was developed to focus on industrial settings, but the adherent dimensions are equally important in all change and improvement work (Batalden & Stoltz, 1993; Ahrenfelt, 2001; IOM, 2001). Therefore it can be just as relevant for accomplishing change and improvement programs in a public setting. Batalden and Davidoff (2007) discuss the challenge of healthcare in terms of a linkage between various aims of improvement, which include clinical results and professional development as well as system performance. Therefore the combination of the two opposite views, to combine more effective use of economic resources and at the same time improve the capability of healthcare staff, would serve everybody in the best way.

The leadership dimension occurs at all levels in the healthcare organization, and the need of a change management style that runs all the way through is therefore essential. Strong professions like in healthcare must be taken into account (Adler et al., 2008). Beer et al. (1990) found that the most successful change initiatives did not come with company-wide change programs, but started locally. The top manager's role was to facilitate change without pointing out specific solutions. This corresponds to the statement in the Macro-Meso-Micro-system level model; one important role for the macro and meso levels is to facilitate for micro systems in collaboration around improvement work (Nelson et al., 2007). Focus is the next dimension, and healthcare needs both structures (standardized checklists) and a permitting environment (culture) to improve.

In healthcare, processes are essential, especially patient processes. Therefore the dimension processes must contain both planned programs (like the implementation of standardized checklists) and permit spontaneous experiments (like trying another way to meet the needs of a particular patient). The reward system dimension contains both pre- and post-incentives. As finances have become strained, economic resources are even more important to be able to do anything beyond the main concerns of healthcare. Therefore it is important to find the balance between drive and encouragement. Using consultants in improvement work is another issue that needs to be used with adjustment. Having an expert doing the improvement may result in

no one taking responsibility for it when the consultant leaves. On the other hand, it could speed up the change, as the consultant has the knowledge needed, and then it is important to get that knowledge transformed into the organisation before the consultant leaves. So, this change model can be useful as a theoretical frame in change and improvement work within a healthcare context.

The importance of having a system framework for improvements in healthcare was already emphasised by Batalden and Stoltz in 1993. They wanted to create a model to bridge the gap between what we know (evidence-based) and what we do (practice-based) (Batalden & Stoltz, 1993). Later on, Batalden and Davidoff (2007) claimed that there is need for a system understanding to be able to improve healthcare and become high-quality performers. One of the most frequently used organizational systems frames in healthcare is the Micro-Meso-Macro level system (Nelson et al., 2008). The challenge is to incorporate improvement work in the daily work for everybody within healthcare organizations (Batalden & Davidoff, 2007). To be able to gain from improvements, knowing that the change is an improvement (Batalden & Davidoff, 2007), measurements are important (Behn, 2003).

Another aspect, frequently discussed lately, is the role of patients (customers). In the change model there is no dimension concerning or focusing on customers, but Galbraith (2000) speaks about customer teams as a way to produce customer strategies and plans. According to Berwick et al. (2003), increased customer possibility to compare and select care and caregivers will result in pressure for change and improvements. Other researchers (see e.g. Hackman & Wageman, 1995; Lengnick-Hall, 1996) assert that customers are an important part of quality management and improvement.

# 5. Methods and settings

This thesis is carried through as a case study, though it consists of different studies, all of which derive from an improvement program in the Kalmar county council. The aim is to contribute to increased knowledge and a broader understanding of factors and strategies for quality improvements in a county council-wide improvement program, and how quality improvement initiatives can be organized in healthcare settings. This overall aim is illuminated and analyzed from three perspectives; micro-level bottom-up, macro and meso-level top-down, and development (improvement processes) and outcomes. Different methods, both qualitative and quantitative, have been used. In this section, first the research approach and traditions that influence this thesis are discussed. Second, the empirical context (the county council improvement program) will be described. Then the methods are described and discussed in general and in relation to this thesis. More specific methodological descriptions are to be found in each of the appended papers.

## 5.1 Research approach

A research project's approach and strategy depends upon the research tradition and paradigm guiding the researcher. One way to divide science is between two of the large perspectives, natural science and social science (Bortolotti, 2008). The positivistic scientific tradition is characterized by its belief in science built on facts, in the natural/medicine context often based on standardized and experimental studies. The humanistic tradition reflects the opposite view, science built on multiple realities, often seen as subjective "soft" data (ibid.). The overall intention in this thesis has been to hold on to a holistic view, based on the nature of this research, aiming to describe a country council-wide effort. This research, aiming to illuminate an improvement effort, belongs to the social/organizational tradition. Miles and Huberman (1994) refer social science to the qualitative discipline of research. Investigating a social phenomenon, like the improvement effort, is to explore human relationships and cultures in a complex interplay, reflecting social structures and practices, which are important to consider when working with changes (Langley et al., 2009).

My background as a nurse mainly trained in the natural science (positivistic) tradition has, of course, influenced this work. At the same time, my work with and studies in organizational theory and practice have also influenced me and this thesis. The appended studies use both a

qualitative and a quantitative approach, showing that this kind of research can gain from a more cross-science multi-disciplinary methodological approach (Miles & Huberman, 1994). A holistic overview could contribute to a larger understanding of a phenomenon (case), like this county council improvement program. In a holistic view, which I have tried to adopt in this thesis, knowledge is seen within a complex system which has developed during life and history, therefore there are no absolute truths. This harmonizes with the studies of a social phenomenon, which can be seen as subsisting of complex systems built on its different components (Bortolotti, 2008).

## 5.2 Empirical context

The Kalmar county council is one of 21 county councils and regions in Sweden. It consists of 12 municipalities, and over 200,000 citizens. The county council has approximately 6,200 employees, 80% of which are women. The county's responsibility is mainly healthcare; there are three hospitals, 28 primary healthcare centres and many dental care services. The county council also governs four folk high schools integrated in the organization. In a demographic perspective the elderly population is higher than the national average. Before the ongoing county council improvement program was started in 2007, the county council had been working with quality and improvement issues for a long time, in different ways. In the first section a historical background to and perspective on the ongoing county council improvement program is outlined. The intention is not to describe every detail, but to highlight important milestones. The data is based on interviews and county council documentation, further described in the method section (5.3.2). The next section describes the empirical data that constitutes the context for this thesis. The aim is to give an overview of the ongoing county council quality improvement program, called "*Every day a little better — the power of working together*" (author's translation). At last, a short section describing the planning for the future are presented, as this still is an ongoing initiative.

### *5.2.1 History and progress*

One of the earliest documented quality initiatives in the county council were quality circles, starting in 1992. About 450 staff members were educated in the tools. However, after some time, the initiative died out by itself. In the mid-1990s representatives of the Federation of Swedish County Councils (as of 2007 the Swedish Association of Local Authorities and Regions, SALAR) went to the Institute for Healthcare Improvement (IHI) bringing back influences from what is called the Breakthrough Series Collaborative (IHI website; IHI,

2003). The result of this was that almost all county councils in Sweden started to work with QUL (Quality, Development and Leadership), a management program for customer-oriented business development (www.skl.se/web/QUL.aspx). In the Kalmar county council there was a political decision to start working with QUL, and the work began in 1997.

In 2001 the Swedish government granted funds aimed at improving patient accessibility mainly through encouraging the county councils to shorten waiting times. At the same time the Federation of Swedish County Councils, together with some county council directors and some of their managerial staff, organized a workshop called "accessibility and renewal" to map and define the most important problem areas in the healthcare sector for improvement. The workshop defined four areas to focus on: open measurements (showing results in public); proactive patient safety work; open quality registers; and accessibility. In the Kalmar county council those areas were formulated in a plan of action (The County Council of Kalmar, 2003). At the same time the county council was forced to review the finances, due to the economic crisis during the late 1990s. Beginning in 2003 there was a quality improvement focus in the political management. The political and managerial meetings started with a report from the Development Director. In the beginning this took only a few minutes, but the time spent on quality and development issues has evolved over the years.

In 2005, after some years of savings throughout the public sector, management started to think that all improvement initiatives had been eliminated as a result. An external audit was initiated looking at an overall county council level (Audit report, 2005). The audit stated that some improvement projects still existed, but only as isolated islands. There was no systematic all-embracing control or distribution. That audit report led to a county council plan to start the initiative "Learning and Renewal". The central development unit got more specific responsibility to be the driving force in this work. The patient safety project was restarted, and the external website *ltkalmar.se* was created to more easily share results with the customers, patients and citizens.

Another important milestone in the improvement work in the county council is related to the established transparent comparisons of Swedish healthcare. This initiative started in 2006 whereby the Swedish Association of Local Authorities and Regions (SALAR) carried out and published its first report, "Quality and Efficiency in Swedish Health Care", containing comparisons of the quality results in Swedish healthcare (see e.g. SALAR, 2011). The

comparisons aim to help the county councils in their improvement efforts, making it possible for them to compare results. In November 2006 SALAR followed up the report through a workshop involving the management of all county councils. This workshop resulted in a document, "Strategies for Increased Efficiency and Effectiveness" (SALAR, 2007). After the Swedish election in 2006 the elected county council members were concerned about quality problems, in part because of the SALAR report "Quality and Efficiency in Swedish Health Care" mentioned above. This led to a decision to start a county council improvement program.

### *5.2.2 The county council improvement program*

The county council improvement program was initiated to *"encourage quality improvement initiatives and to spread improvement knowledge in the organization"* (Kalmar county council website, author's translation). A decision to grant SEK 30 million (approximately 3.6 million Euro) was made by the county council steering board in April 2007. A document stating the overall strategies, based on the SALAR document "Strategies for Increased Efficiency and Effectiveness" (SALAR, 2007), was produced as well as documents stating the aims to be reached through 2011. A large amount of information about the initiative, visions and aims was formulated and communicated out in the organization through management and websites ("Kvalitetswebben", Quality Web). The county council official management and the development department were assigned to implement this political decision. All healthcare departments, primary healthcare centres, dental clinics and other units in the county council were invited to apply for money to accomplish improvement projects. A steering committee was created, with delegates from the different departments and administration, including some external researchers. The strategy document stated the requirements for the applications. The steering committee considered the applications and recommended to the decision-making board which ones to approve and why. To date (most recently autumn 2010) there have been five application batches, a total of n=232 applications (outcomes are shown in section 6.3 and in paper VII).

Another important initiative in this county council improvement program is the improvement programs following the Breakthrough Series Collaborative methodology (BC). The first program started in spring 2008, and invites staff teams to work with improvement ideas in a program using the Breakthrough Series Collaborative methodology (IHI website). With support from supervisors/facilitators the teams meet four times over a six-month period, and

between meetings they do team work at home. The aim of these programs is to spread the improvement knowledge and methodology in the organization. To date (autumn 2012) eight of those BC programs have been carried out, involving about 180 teams and more than 800 staff members from almost all county council administrations. The ninth BC program was started in autumn 2012. Most BC programs were open-ended in terms of focus and themes, but in 2010 one BC was focused on two areas stated in advance, patient safety and preventive care, and is being done in collaboration with participants and teams from the county council and some municipalities. The earlier improvement programs had no definite focus; the teams were free to propose the issues/problems they wanted to work with. The participating staff members are shown in section 6.1 and paper II and results from a survey following the development of the improvement program teams in section 6.3 and paper VI.

Over the years more and more initiatives have been placed under the umbrella of the county council improvement program. Almost all ongoing developments, improvements, patient safety projects, management and leadership development initiatives and some other care and medical projects are now facilitated in the county council improvement program. Initiatives and projects connected to the county council improvement program are e.g. intensified patient safety initiative “safe care in the county council of health”, with the aim to prevent patients from getting injured inside healthcare organization, care preventive initiatives, such as minimizing care-related infections, the VRISS (hospital/care related infections) project, and care programs in medical prioritized patient groups as well as the regular measurement of the presence of pressure ulcers and how staff follows the basic rules of hygiene. Results are publicly reported every month.

There are also initiatives aimed at managers and leaders, such as a trainee programme for future leaders and annual days where managers are invited to meet, get information and have discussions. To support and help managers in their responsibilities to be a force in the work of change and improvement, a university program for managers (Management Education in Change and Improvement Knowledge) has been introduced. The program is accomplished in cooperation with Linnaeus University. The aim of the course is to support and give managers knowledge and methods in their roles as change and improvement leaders.

### *5.2.3 Continuing into the future*

In 2011 the delegates decided to continue the improvement investment, adding the patient safety aspect more clearly into the improvement program aiming to become the safest healthcare organization in Sweden by 2014. For that reason, an additional SEK 50 million (approximately 6 million Euro) was earmarked for improvement efforts. The county council planning document for 2012-2014 (The County Council of Kalmar, 2011), states that the aim can only be reached through everyone's participation – both employees and patients – and by focusing on zero avoidable health damages, increased patient participation, high-safety culture, internal and external collaboration, management systems, equal care and decreased cost. All this work and effort is to be done within the improvement program. Many of the initiatives are ongoing, like trainee and manager education, patient safety education, health risk analysis, measurements of hygiene routines, hospital/care-related infections and use of antibiotics and auditing patient records. The ninth BC program started in September 2012, encompassing 23 teams. To follow, the BC program is planned to continue with one BC program a year, the tenth to start in autumn 2013. In January 2013 a process coordinator was hired, to speed up the process-oriented work, which already had started in some medical (patient) processes, like the "most sick elderly", diabetes care", and "stroke". New processes are to be introduced in some other areas as well, like eight different cancer diagnoses, and heart diseases. The aim is to develop the patient processes within those prioritized diagnoses to be able to offer the best, most equal care possible, as one way to reach the aim to become the safest healthcare organization in Sweden by 2014 (The County Council of Kalmar, 2011).

## 5.3 Study design

*This section presents the study designs, settings and methods used in the different studies forming this thesis. First, the overall study design is described, then a short description of the data collection to the empirical context section above is presented, followed by an overview of the settings and methods used in the appended papers.*

### *5.3.1 Overall study design*

This thesis is based on the Kalmar county council improvement program, described above. I have chosen to view the county council improvement program as one initiative (phenomenon), i.e., one case, and therefore the overall study design is based on a case study (Flyvbjerg, 2011; Thomas, 2011). A case can be constituted from a single character or group of individuals up to larger units, like organizations or societies (Miles & Huberman, 1994). Thomas (2011) defines case studies as "*analyses of persons, events, decisions, periods, projects, policies, institutions, or other systems that are studied holistically by one or more*

*methods. The case that is the subject of the inquiry will be an instance of a class of phenomena that provides an analytical frame — an object — within which the study is conducted and which the case illuminates and explicates*" (p. 513).

In this thesis the case study approach is used as a research strategy, an empirical inquiry that investigates a phenomenon within its real-life context (Miles & Huberman, 1994). Case study research can involve either a single case or multiple cases, and rely on multiple sources of evidence, and benefit from the prior development of theoretical propositions. Within the specific case studied in this thesis, different aspects were looked upon to explore a bigger picture of the initiative and illuminate different views of it. Case studies may be descriptive or explanatory, and in this thesis both approaches have been used in the different appended studies. Case studies can be based on any mix of quantitative and qualitative evidence (Miles & Huberman, 1994; Flyvbjerg, 2011). In the different studies appended both qualitative and quantitative methods have been used. The different study methodologies will be described further below in section 5.3.3.

Case studies are sometimes accused of not generating data, making it impossible to generalize results (external validity) and therefore a case study can not contribute to development of new scientific knowledge (Flyvbjerg, 2011). In response to this accusation, Flyvbjerg (2011) argues that *"knowledge may be transferable even where it is not formally generalizable"* (p. 305), it depends more on the case one is speaking of, and how it is chosen. Miles and Huberman (1994) discuss representativeness and the possibility of generalizing beyond the case, suggesting some methods to make the results reliable. Issues of generalization, study validity, reliability, transferability and other methodologically important issues will be discussed in the method discussion section 7.3. Baker (2011) argue that the case methodology could add valuable insights to the research field of quality improvements, and that it has been utilized far too seldom. Furthermore, he argues, case study methodology provides methods to investigate organizations, their processes and interplay over time in relation to leadership strategies.

Another common objection to the case study approach is the risk of bias, a tendency to verify the researchers' preconceived opinions. Looking at research as a learning process, Flyvbjerg (2011) argues that the most advanced form of understanding could be achieved if the researchers put themselves into the context they are studying. He continues, "*the question of*

*subjectivism and bias toward verification applies to all methods, not just to the case study and other qualitative methods*" (p. 310). Miles and Huberman (1994) emphasize some methods that researchers can use to avoid researcher effects and biases, for example triangulation or getting feedback from informants (also called member checking). These issues will also be handled in the method discussion section.

### *5.3.2 Data collection for providing the empirical context*

The data for the description of the empirical setting, section 5.2 above, was collected using unstructured interviews (Kvale, 1997) with two development staff members who have long experience in working with development issues in the county council. In addition, different types of documentation were examined, both old documents searched in the archives, and newer documentation located on the intranet and websites. The document search was made for overall strategic documents, the county council annual plans and strategy documents, while old improvement initiatives might be concealed in strategic planning documents. After reading and analyzing the documents, additional information and clarification was obtained by a short second interview. All sentences including words related to quality or improvement in some way were compiled in chronological order.

### *5.3.3 Included study settings and methods*

This section presents the various study settings and methods applied in each study. The first study (paper I) was based on a qualitative analysis of all the free application projects (FA) that had been handed in from the beginning of the improvement program in 2007 until 2009. All parts of the organization were invited to apply for funding to carry out improvement ideas, from healthcare departments and primary centres to dental units and service and support administrations. The data (the applications) consisted of 2-4 pages of text each, therefore a qualitative approach was used, analyzed using a qualitative content analysis, influenced by Burnard (1991). Strauss and Corbin (1990) describe an inductive process where a theory can be "*inductively derived from the study of the phenomenon it represents*" (p. 23). In total n=183 applications were included in the study. Excluded applications were pure research projects and applications wanting to hire more staff to the regular business. These kinds of applications were not handled within the FA effort. The analyzed text units were the application core text describing the purpose and aims with the improvement idea. All the applications were categorized based on the project aim. The analysis was performed by two researchers independently, and followed five steps. 1) The entire application text was read to gain an overall impression of "what is this about?". 2) The core text was identified and reread

several times. Content bearing meaning in relation to the aim of the study (meaning units), sentences or parts of sentences were marked (open coding). 3) Subcategories were found by bringing the meaning units describing the similar topics together. Those subcategories were then organized at a higher abstraction level into categories, all the time in interplay with the text as a whole. 4) The two researchers' analyses were compared, the categories identified were discussed and restructured several times to synthesize the codes into a comprehensive category system. 5) An additional two researchers were invited to reflect upon and discuss the identified codes, subcategories and categories. This step went on several times until agreement (consensus) was reached. Seventeen subcategories and five categories were found (see section 6.1.1 and Table 6.1).

The next study (paper II) was based on an analysis of factors influencing participation in improvement efforts. The data consisted of the two largest efforts of the county council improvement program, the *Designed Improvement Processes* using the Breakthrough Series Collaborative methodology (BC), and the *Intrapreneurship Projects*, free application projects (FA), free of methodological steering. All main applicants in FA (n=230) and all listed participants in BC (n=477) were analyzed regarding profession, position (manager), gender and administrative assignment. A categorization was done of the staff disciplines: 1) registered nurses including midwives and specialities; 2) assistant nurses and caretakers; 3) physicians of all kinds; 4) managers, healthcare staff; 5) managers, support staff; 6) other healthcare staff; and 7) other support staff. Managers and other support staff consisted of headmasters, librarians, IT manager and IT personnel, economists, managers and business developers. Other healthcare staff was for example psychologists, physiotherapists, dieticians and medical secretaries. Descriptive (actual and relative frequencies) and inferential statistics (chi-square test) were shown. Expected values were calculated using contingency tables (Kirkwood & Stern, 2003). The total number of participants included in the analysis was n=707, but due to the limited population of support staff, some analysis was focused on healthcare staff only, n=609.

The managers' view of the improvement program was investigated in the next two studies (papers IV and III). First a study investigated the managers' views on how to incorporate patients in the improvement development. All managers, from the county council director, heads of administrations and division managers to unit and first-line managers, participating (n=300) at an annual managers meting in January 2011 were divided into 31 groups and asked

in writing to answer the question, "*How can I as a manager involve the patient to increase safety in healthcare by 2014?*" The 31 answers were analyzed using a descriptive content analysis inspired by Graneheim and Lundman (2004). The result was presented in categories and subcategories see section 6.2.1 and Table 6.4.

To evaluate the county council managers' views of the improvement program as a whole, a survey that had previously been used nationwide twice by SALAR (Elg et al., 2011) was sent to all healthcare administration managers, Somatic Specialist Care, Primary Care, Psychiatric Special Care and Dental Care, at all levels of the organization (n=321). The survey was somewhat adjusted, excluding questions about other national improvement initiatives and personnel sick leave. In addition, an open-ended question encouraging free comments was added. Questions were answered on a range from "Absolutely yes" to "Absolutely no" or "Do not know". Statements were ranked on a five-point scale, from "Not at all" to "To a very large extent" or "Completely", while some also had the alternative "Do not know". The survey was sent out through the Web-based survey program esMaker NX2. Data was analyzed descriptively; actual frequencies, percentages, mean values and standard deviation (SD) are presented. Statements are ranked in descending order of preference, and mean values above 2 are regarded positive (agree or important) and below 2 are negative (do not agree or not that important). Seeing that the response rate was 47.3%, a qualitative dropout analysis was conducted. Ten non-respondents, randomly contacted by telephone, were interviewed. The most common reasons for not participating were: had not participated in any activity and therefore did not think they should answer the survey; did not have time to answer; forgot the survey; or had left their manager position.

To evaluate the Breakthrough Series Collaborative program, a questionnaire, based on the Minnesota Innovation Survey, was developed and tested (paper V). The Minnesota Innovation Survey (MIS) is built on a theory of innovation management, and the conceptual framework consists of dimensions grouped into clusters (Figure 5.1) (Van de Ven et al., 2000). The MIS was found to be very extensive, but two of the dimensions suited our intentions: Perceived Innovation Effectiveness (n=5) measuring the outcome, and Internal Dimensions (n=32) measuring the development processes. Therefore those two dimensions were used as a foundation in developing our questionnaire. An extensive modification and development of the two dimensions was done in several steps, adapted to fit the Swedish healthcare context. The developed questionnaire was tested and analyzed using Statistica

version 8.0 (StatSoft, Tulsa, OK, USA). Psychometric properties were tested through internal consistency scale analysis and an exploratory factor analysis was conducted for the total dimensions as well as each sub-dimension consisting of more than one item. Cronbach's alpha coefficients are presented at both dimension and sub-dimension levels and the floor/ceiling effect in percentages are presented for each item. Correlations were calculated between the two dimensions. Questionnaire results are presented as both actual frequencies and as percentages, range, mean, standard deviation (SD) and median.

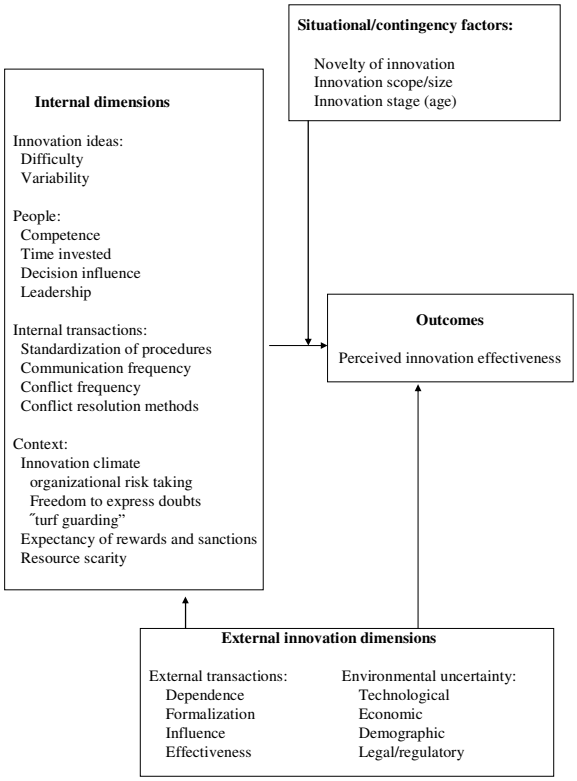


*Figure 5.1 Dimensions in Measurement Model of Minnesota Innovation Survey (MIS).*
Source: Van de Ven et al. (2000), p. 56, reprinted with permission.

To analyse and evaluate the Breakthrough Series Collaborative program (paper VI) a questionnaire was used, development of which is described above (paper V). The questionnaire was entered into a Web-based survey program, EsMaker©, and sent by e-mail

to all participants. Data was analyzed using Statistica version 8.0 (StatSoft, Tulsa, OK, USA). Descriptive statistics are presented as actual frequencies, percentages, mean values, range and standard deviation (SD). Repeated measurements are presented as actual frequencies, percentages and mean values. Mean values above 2 are considered positive and below 2 negative. Since the participants were matched between the two measurements, differences are analysed using Wilcoxon Match Pairs test. Correlations between the two dimensions Improvement Effectiveness Outcome and Internal Improvement Processes were made. Background data were analysed and compared between the two groups using t-test and chi2 test. Comparing the answers from those who only answered the first measurement (n=51) with those who answered both measurements (n=41) by using Mann-Whitney U test constituted a dropout analysis.

To investigate if the improvement program has an impact, a follow-up study was conducted (paper VII). All the applicants (n=232) from the beginning in 2007 until 2010 were contacted by telephone and interviewed about their improvement project. A structured interview guide developed on evaluation models was used (Taylor-Powell et al., 1996; McNamara, 2002). The interview guide consisted of questions about project goal achievement, implementation and sustainability, effects on the organization at the local and overall level, leadership and ownership of project and if other, not expected, outcomes had occurred. The applications were categorized based on the outcome, either funded or rejected. All funded projects were then further categorized as ongoing, finished or not started, and then further, finalized and implemented and still sustained. Rejected projects were categorized similarly, and a model was built, see Figure 6.8. The result was compared with the matrix developed in the first study (Table 6.1).

# 6. Findings

In this section the findings of all the studies included in this thesis are presented. All findings are to be found in the appended papers referred to in brackets, but the full result will be shown in this section, which therefore not only are a summary of the papers. The findings are structured from the three-part purpose. First the bottom-up perspective will be illuminated, and then the top-down perspective will be described. Next part is the instrument development, and in the end some results from the Breakthrough Series Collaborative methodology program (BC) and follow up from Free Application projects (FA) will be shown.

## 6.1 Practice-based improvement ideas and participants in different improvement strategies (papers I and II)

*Two of the more outstanding initiatives in the county council improvement program are the Free Application projects (FA) projects and the Breakthrough Series Collaborative methodology guided improvement programs (BC). Those initiatives are further described in section 5.1, the empirical framework. First a categorization of the FA was done, and then strategies for participation were analysed. Both those studies mainly illuminate the micro system bottom-up perspective.*

### *6.1.1 Categorization of the practice-based improvement projects*

The first study focused on the FA; which types of improvements were brought out when practitioners freely could initiate improvement ideas. Five categories and 17 subcategories were found (Table 6.1). Those categories illustrate the range of strategies that encourage letting individual units and staff define their own improvement needs, and point to the various problems and experiences healthcare professionals encounter in their day-to-day work. The categories are shown in descending frequency, and exemplified with quotations which are translated from Swedish by the authors of paper I. The category **Organisational Process** occurred most frequently. The improvement ideas were about processes, clinical and/or administrative, within and between units. The subcategories were: Restructuring/changes of organizational roles; Psychosocial work environment; Organizational mapping; and Patient flow. Initiatives about coordination and collaboration are common, as well as ideas about freeing up more time to work with patients, such as “To achieve an earlier start in the morning and a more efficient and smoother flow in our surgical activity”. Cooperation and patient flow can be illustrated with: “To transform and develop the care process for patients with thrombotic illness”.

*Table 6.1. Taxonomy of improvement projects.*

Most common ⟷ Least common

| Categories | Organizational process | Evidence and quality | Competence development | Process technology | Proactive patient work | Comments |
|---|---|---|---|---|---|---|
| **Sub categories** | *Restructuring/changes of organizational roles* | *Support evidence-based practice* | *Auscultation* | *Implement new clinical methods and technologies* | *Patent education - self care* | Applications only containing own work or research |
| | *Psychosocial work environment* | *Quality register work* | *Self education* | *Purchase equipment* | *Screening risk groups* | are not improvement work and |
| | *Organizational mapping* | *Other quality follow up* | *Practice in realistic environment* | *Supportive IT systems* | | therefore excluded, total 19 |
| | *Patient flow* | *National standards and guiding principles* | *Training other staff* | | | |
| **Applications in category** | Only in this 48<br>Also in another 37<br>Total 85* | Only in this 24<br>Also in another 27<br>Total 51* | Only in this 20<br>Also in another 27<br>Total 46* | Only in this 15<br>Also in another 16<br>Total 31* | Only in this 17<br>Also in another 12<br>Total 29* | Total analyzed applications 183<br>Also in another 59 (32%)* |
| **Comments about trends** | Overall most common intention, a small increase until 3rd application batch | Most common in first and latest (4th) application batch | Stable during first three application batches, but because of few applications in 4th batch moved down from 2nd to 3rd place | Stable during first three application batches, no applications in batch 4 | Increased a bit until third application batch | |
| **Comments about tensions for changes** | Broad category both bottom-up profession and top-down administration driven | Both bottom-up profession and top-down administration driven | Bottom-up profession driven | Mostly bottom-up profession driven, but some administrative influence in the IT supportive part | Bottom-up profession driven with a small influence from sidewise patients | |

* As applications belongs to more than one category the total amount of categories are above the total number of applications

The next category was **Evidence and quality**. Improvement ideas aimed at integrating practice with the best available methods or treatments based on systematic research, and implementing or introducing work with quality using evidence-based research, such as *"Implement evidence-based nursing strategies within psychiatric institutional care",* are common. Many of the improvement ideas concerned initiatives related to various quality registries, such as the national diabetes register (NDR). Others wanted to use, create and/or implement national standards and guiding principles to achieve just and equal care. Others were more about using new knowledge, implementing it and trying to evaluate work, like those who want to quality proof the handling of breast milk in the neonatal care unit, and "Standardized nursing schemes—an aid to achieve effectiveness and quality assurance in documentation".

All applications in the third category, **Competence development**, involve training and education in different ways, both theoretical and practical, such as *"Simulator training in acute paediatric (SAP) will increase knowledge and result in increased confidence in the staff. Practical training will improve the cooperation between different staff categories"*. Another example is to go to Holland where they practice the "*Lean Health care model*". Others propose joining courses or educational programs, but they also would like to learn from/among each other in the county council. Some would like to train other staff with the purpose of increasing safety for patients. An example of this is the district nurses who want to produce a handbook to share with home-help service in how to treat demented patients. A few applications refer to rescue training with simulators, one wanting to introduce CEPS training or acute obstetric training. Other bring up issues about "having the right competencies", such as *"The purpose with this improvement work is to learn about more efficient working methods to help children and youths to process their grief. Accomplishing this requires the right competencies"*.

**Process technology** is about implementation and developing new methods and technologies, such as *"Using computer games in stroke rehabilitation to improve and increase assessment and training instruments"*. Some applicants want to buy new equipment to be able to give patients better care, for example update the ultrasound machine or an analysis machine for Microarray. The IT support part, more frequent in the first batches, consists of developing IT solutions to work smarter and increase the availability for patients, like Web-based scheduling systems, electronic forms or electronic library — *"Through electronic forms create a functional system for form handling and with new technology develop and adapt forms to applicable legislation"*.

The least common category, **Proactive patient work,** refers frequently to patient safety and a healthy way of life. It also contains improvement ideas of training for different patient groups, such as diabetics, obese children or expectant parents. Others want to work preventively and try to find risk groups before they become ill, like *"Screening project for patients with asthma at a care centre"*. Even if the main purpose is different there are some intentions that can be found in many of the applications and categories. These are patient safety, effectiveness, care ranges, availability, and education/training. Of the projects that were awarded grants, some were approved from other entities like the Research and Development Unit or the administration's central projects, such as "Vårdresurser på nätet" (Health/Nursing Care Resources on the Internet). A comparison between the four batches was made, showing a large correspondence, although there were fewer applications (only 14) in the fourth batch.

### *6.1.2 Improvement strategies and their consequences for participation*

The second study was exploring strategies and factors influencing participation in improvement efforts. The largest administration, Somatic Specialist Care, had the most people engaged in improvements, both in *Intrapreneurship Projects* (FA projects) track, 132 applications of 202 (65%), and *Designed Improvement Processes* (BC programs), 59 of 105 teams (56%).

The Psychiatric Specialist Care was represented with eight applications (FA) and 15 teams (BC). Primary Care centres had 22 teams participating in BC, representing 12 of the units, and 23 applications came from the total of 29 Primary Care centres in the county council. All administrations were represented in the FA track, but the Information Technology (IT) and Folk High School had only one application each. The IT and Dental Care administrations had no teams represented in the BC program. The largest staff groups are healthcare professionals, and those were also most frequently participating in both FA and BC track. Table 6.2 provides an overview of the overall participation in the FA and BC track respectively, and in comparison to the general number of county council employees in connection with a gender perspective.

*Table 6.2. Participants and staff categories.*
In relation to the overall number of county council employees in that category (actual frequencies)

| | **Free Applications** ***f*** **(Women / Men)** | **Improvement Program** ***f*** **(Women / Men)** | **Overall in the county council ^** ***f*** **(Women / Men)** |
|---|---|---|---|
| **Nurses/ midwives** | 64 (61 / 3) | 155 (145 / 10) | 1931 (1720 / 211) |
| **Assistant nurses/ caretakers** | 6 ** (6 / 0) | 55 (47 / 8) | 1451 (1226 / 225) |
| **Physicians** | 44 (15 / 29) | 53 (20 / 33) | 683 (275 / 408) |
| **Managers** | 80 * (49 / 31) | 79 (60 / 19) | 293 (194 / 99) |
| **Other staff** | 36 (30 / 6) | 135 (115 / 20) | 2325 (1857 /468) |
| **Total** | 230 (160 / 70) | 476 (387 / 90) | 6683 (5305 / 1378) |

**^** County council data from 2008-12-31
* $p < 0.05$, ** $p < 0.01$, Chi2, df 3

Managers were responsible for more applications, and assistant nurses and other healthcare staff for fewer applications than statistically expected. Assistant nurses and other healthcare staff seem to be more disposed to participate in BC programs, but those trends were not statistically significant. Female nurses are the largest staff group of the participants (29.1%) but also in the county council (25.7%). The distribution of participating healthcare staff groups and gender in percentages is shown in Table 6.3. Physicians as a group are participating above their representation in the county council (13.7% compared to 10.2% in the county council). There are relatively more male physicians and more female nurses and assistant nurses participating. Healthcare managers participated significantly more than expected in the FA track; 31% (71 of 230) of the applications were sent in by a healthcare manager. A majority of the managers, participating in both the FA and BC track, were registered nurses. Physician managers were dominantly more frequent in the FA track, but there was no statistical significance shown.

*Table 6.3. Participants and their inclination to participate.*
Distributed by staff categories, and percentages of the overall number of county council employees.

| | Free Applications % (Women / Men) | Improvement Program % (Women / Men) | Total % (Women / Men) |
|---|---|---|---|
| **Nurses/ midwives** | 3.3 (3.5 / 1.4) | 8.0 (8.4 / 4.7) | 11.3 (11.9 / 6.2) |
| **Assistant nurses/ caretakers** | 0.4 (0.5 / 0) | 3.8 (3.8 / 3.5) | 4.2 (4.3 / 3.5) |
| **Physicians** | 6.4 (5.4 / 7.1) | 7.8 (7.2 / 8.0) | 14.2 (12.7 / 15.1) |
| **Managers** | 27.3 (25.2 / 31.3) | 26.6 (30.9 / 18.1) | 53.9 (56.1 / 49.5) |

Seeing that there were so few managers belonging to the support staff group, they were excluded in this analysis. The gender distribution corresponded to the overall gender distribution in the county council. Of the 230 FA application projects women accounted for 202 of them, 70%, and the share of women in the county council is somewhere between 75-80%. When this study was done, only 17 of the 75 granted FA projects were finalized (compare with the outcome results shown in section 6.3 and paper VII). Of those finalized projects, 75% had a woman as applicant, and 39% a manager.

A comparison was also made with the categorization of the improvement ideas (described above and in paper I). Most managers were found in the first category, Organizational Process. Female registered nurses were mainly found in the Proactive Patient Work category, which occurred least among male managers and physicians. The least number of registered nurses was found in the Method and Technique category. The assistant nurses (only six applicants) were found in different categories, one in the Proactive Patient Work category, two in Organizational Process category and three in Competence Development category. The physicians were mostly represented in the category Evidence and Quality.

## 6.2 Managers´ views of improvements and patient participation in healthcare improvements (papers IV and III)

Patient participation is a “hot” topic in Swedish healthcare right now. How can healthcare improve by using all parties involved is being discussed, including in the county council improvement effort. Therefore all managers participating in manager days in January 2010 were

asked to answer a question about patient participation. One finding analysing managers' answers was that the terminology was quite confusing. To investigate the managers' views of the whole improvement program, a survey was sent to all managers at all levels in the county council. Both those studies illuminate the top-down macro-meso system perspective.

### *6.2.1 Patients as resources in improvement work*

The managers thought that patients could take part in different ways and processes, and four categories and ten subcategories were identified (Table 6.4). The categories are exemplified with quotations translated by the authors of paper IV. The first category, Culture, was made up of the two subcategories *Attitude* and *Actions.* Attitude involve openness and permission to be involved, moving the perspective from the organizational view to the patient process view, like "*treating patients open-mindedly and invitingly*" and "*shifting perspectives*". The subcategory Actions was about demands, requests and making use of patients' ideas, and words like "demanding", "encouraging" and "acting proactively" are examples of this. The managers thought that all personnel are part of the culture in an organization, and that a positive, inviting culture is considered to have greater potential for success. They also stated that the managers themselves must create space for improvement work both for patients and personnel, making the organization more open-minded and facilitating.

The next category, Procedures, was about ways of working at a systematic level. The subcategory *Secure the system* brings up the importance of systematic handling to avoid errors, for example, "*secure drug administration and other treatments drug handling*" and "*giving and getting feedback on cases that went wrong*". *Benefit from the patient's views* was about having or introducing procedures to collect patient input, like "*follow-up talks and calls at discharge*" and "*follow-up dissatisfied patients and relatives*". The last subcategory was *Individual nursing* and included procedures about individual nursing care, such as right treatment for the right patient, documentation and individual care plans and "*individually adapted information and feedback/follow-up*".

The third category, Methods, included the subcategories *Develop the organization* and *Strengthen the patient. Develop the organization* described how to use methods and techniques to collect the patients' views, such as "*using methods, such as focus group interviews and surveys*", "*using patient narratives*" and "*open up citizen suggestions on website surveys and interviews*". *Strengthen the patient* was about information and education on how to improve patient

participation, lectures and groups for self-care. Exemplified expressions were "*address patient education in patient safety issues*" and "*specific theme lectures*". The category Methods differs from the above Procedures in its focus on using and developing techniques to improve the structure.

*Table 6.4. Categories, subcategories and examples.*

| Category | Subcategory | Example * |
|---|---|---|
| Culture | Attitude | Treating patients open-mindedly and invitingly;<br>Shifting perspectives |
| | Actions | Demanding;<br>Encouraging;<br>Act proactively |
| Procedures | Secure the system | Feedback on cases that went wrong;<br>Secure drug administration and other treatments |
| | Benefit from the patient's views | Follow-up talks and calls at discharge,<br>Follow-up dissatisfied patients and relatives |
| | Individual nursing | Encourage health and wellness training;<br>Individually adapted information and feedback/follow-up |
| Methods | Develop the organization | Using methods, such as focus group interviews and surveys;<br>Using patient narratives;<br>Open up citizen suggestions on website |
| | Strengthen the patient | Address patient education in patient safety issues;<br>Specific theme lectures |
| Collaboration | Internal/external | Co-operate with patient associations;<br>Patients participating in care planning;<br>Incident analysis with patients and relatives |
| | Internal/internal | Co-operation between units;<br>Propagate and spread good initiatives in the organization;<br>Emphasize the Patient Safety Committee and use their cases to learn from |
| | External/external | Facilitate patient groups to meet and exchange experiences without interference from healthcare |

* The examples are translated into English by the authors

The last category was Collaboration, both inside, between and external to the organization, as the three subcategories, found at different levels, show. *Internal/external* was between the healthcare organization and its patients/customers, and this collaboration can be either passive or active from the patient's point of view. Examples are "*co-operate with patient associations*", "*patients participating in care planning*" and "*incident analysis with patients and relatives*". The subcategory *Internal/internal* collaboration referred to cooperation between different (hospital) units, specialities and staff categories, like "*co-operation between units*", "*propagate and spread good initiatives in the organization*" and "*emphasizes the Patient Safety Committee and uses their cases to learn from*". The *External/external* subcategory refers to collaboration without healthcare interference, such as when patient groups meet and exchange experiences. An example was "*facilitate patient groups to meet and exchange experiences without interference*

*from healthcare*". The category contained suggestions about how managers could create arenas for cooperation to improve quality and safety in healthcare.

### *6.2.2 Surveying managers' opinion of the improvement program*

To evaluate the managers' view of the improvement program, a survey was used, see section 5.3.3. The overall response rate was 47.3% (n=152), the response rate and distribution divided on healthcare administrations are shown in Table 6.7. The respondents were 80% (n=122) managers, 4% (n=6) assistant managers and 16% (n=24) leading position without economic and/or personnel responsibilities. The majority were women, 72% (n=110). The unit sizes of the participating managers are shown in Figure 6.1. Most common were unit sizes between 21-50 employees.

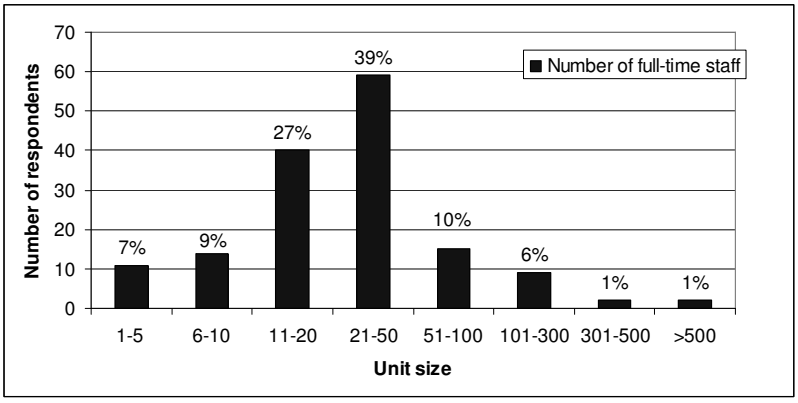


*Figure 6.1. Number of employees the participants is managing.*
Figures in the graph are percentages of all answers

The working time as manager range from under one year to 25 years, mean 6.5 (SD 5.9). Of the respondent managers, 92% (n=140) stated that they have been working with improvements since the county council improvement program started in 2007. Staff members and physicians involved in the improvement work at the participants unit are shown in Figure 6.2. Managers whose units have no physicians were requested not to answer the question, therefore the answer rates differ (other staff n=152, physician n=120).

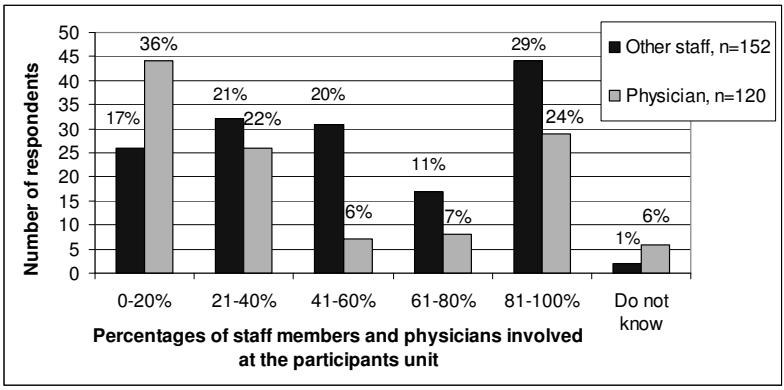


*Figure 6.2. Staff categories involved in improvement work.*
Staff members and physicians involved in the improvement work at the participating manager's unit. Figures in the graph are percentages of all answers in each group

Figure 6.3 shows the answers to the questions, whether the results have been worth the effort and if the county council improvement program has affected the improvement work at the unit. The question about the number of patients that had been involved in the improvement work was answered "All patients" by 5.3% (n=8) of the participants, "Most patients" 9.2% (n=14), "Some patients" 41.4% (n=63), "No patients" 38.8% (n=59) and "Do not know" 5.3% (n=8). Whether it is easy to find data and measurements of improvement work concerning their own unit, 15.1% (n=23) of all participants answered "Absolutely yes", 43.4% (n=66) "Partly yes", 21.1% (n=32) "Partly no", 13.2% (n=20) "Absolutely no" and 7.2% (n=11) "Do not know".

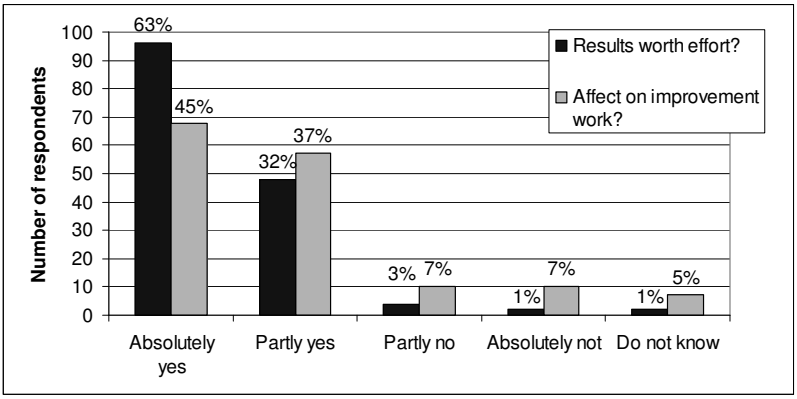


*Figure 6.3. Results worth efforts and improvement program affected the improvements.* Managers´ answers to the questions "Do you think the results were worth the efforts?" and "Do you think that the county council improvement program has affected the improvement work at your unit?" Figures in the graph are percentages of all answers.

The statements about driving forces and managers' opinions are presented in order of preferences, including mean values and SD. Mean values above 2 are regarded as positive (agree or important) and below 2 as negative (do not agree or not that important). The general opinion of the managers is that improvements are something positive and consistent with the unit norms and values (Table 6.5). Lowest ranked was the statement that improvements conflict with professional positions.

*Table 6.5. Statements agree with general opinion regarding improvement work.*
Answers to the question: "To what extent do you think that the following statements agree with general opinion regarding improvement work in your organizational unit?"

| **Statement,** Rank order | **Mean value *** (n=152) | **SD** |
|---|---|---|
| Improvement work is something positive | 3.5 | 0.6 |
| Improvement work is consistent with our norms and values | 3.0 | 0.8 |
| Improvement work meets current needs in our operations | 3.0 | 0.8 |
| Improvement work yields distinct results | 2.8 | 0.8 |
| Improvement work conflicts with our daily work tasks | 1.7 | 1.2 |
| Improvement initiatives are difficult to test on a limited scale ( i.e., through pilot studies) | 1.6 | 1.1 |
| The guidance available for improvements is insufficient | 1.5 | 1.0 |
| Approaches to, and methods for, improvement are difficult to use | 1.4 | 1.0 |
| Improvement work is in conflict with the roles and positions of different professional groups | 1.2 | 1.1 |

* Mean value above 2 is positive (agree) and below 2 is negative (do not agree), answer scale 0-4

Top statements for driving forces for improvement work are ideas from personnel and daily work not functioning optimally. Patients' needs and complaints came in at fourth place, followed by access and patient safety problems. Ranked last were statements about increasing market share and political decisions (Table 6.6).

*Table 6.6. Driving forces for improvement work.*
Answers to the question: "To what extent have the following items been driving forces for your improvement work?"

| **Statement,** Rank order | **Mean value *** (n=152) | **SD** |
|---|---|---|
| Good ideas from employees | 3.1 | 0.7 |
| Daily work does not function optimally | 2.6 | 1.0 |
| Problems regarding the quality of healthcare | 2.2 | 1.0 |
| Patient needs/complaints | 2.1 | 1.2 |
| Problems regarding access to healthcare | 2.1 | 1.3 |
| Problems regarding patient safety | 2.1 | 1.1 |
| Medical innovations | 2.0 | 1.1 |
| Problems regarding staff/the work environment | 1.9 | 1.2 |
| Changes to the organizational structure | 1.7 | 1.1 |
| Directives from official authorities; laws and regulations | 1.7 | 1.0 |
| Decisions from higher level managers | 1.6 | 1.1 |
| Financial problems | 1.4 | 1.1 |
| Financial support for improvement work | 1.3 | 1.2 |
| Political representatives' decisions | 1,3 | 1.1 |
| The desire to increase our market share | 1.2 | 1.2 |

* Mean value above 2 is positive (agree) and below 2 is negative (do not agree), answer scale 0-4

Characteristics reflecting the improvement work are shown in Table 6.7. At the top are goals developed in dialogue with leaders, and carried out by multi-professional teams, while risk-taking and learning from mistakes are at the bottom.

*Table 6.7. Improvement work characterized by statements.*
Answers to the question: "To what extent do you think that improvement work in your organization is characterized by the following statements?"

| **Statement,** Rank order | **Mean value *** (n=152) | **SD** |
|---|---|---|
| The goals for our improvement work are developed through dialogue between employees and leaders | 3.0 | 0.8 |
| Improvement work is carried out by multi-professional groups | 2.9 | 1.1 |
| Employees have experience of problems (that we are trying to solve) from their daily work | 2.8 | 0.9 |
| The improvement work has challenging but realistic goals | 2.7 | 0.8 |
| We can demonstrate concrete results quickly which can be attributed to the change made | 2.5 | 0.9 |
| Data that illustrates the importance to our patients of solving a particular problem are demonstrated and accepted by all who are concerned by improvement efforts | 2.4 | 1.0 |
| Those affected by changes are allowed to participate in interpreting goals, ideas, and the implications of the changes | 2.4 | 0.9 |
| In our improvement work there is an attitude which encourages risk-taking and experimentation; a spirit prevails which accepts that things can go wrong, but that we learn from mishaps | 1.8 | 1.0 |

* Mean value above 2 is positive (agree) and below 2 is negative (do not agree), answer scale 0-4

The respondents' views of which aspects were affected by the improvement work are shown in Table 6.8. The respondents thought that staff satisfaction and internal processes were most affected. Those statements were followed by the question of whether the respondents have data (measurements) that confirm results. Few of the participants stated that they had data confirming their improvement results.

*Table 6.8. Aspects that have been affected by improvement work.*
Answers to the question: "From your experience of improvement work in your organization - in which way has the following aspects been affected?"

| **Statement,** Rank order | **Mean value *** (n=152) | **SD** | **Number of respondents having confirming data *f* (%)** |
|---|---|---|---|
| Staff satisfaction | 3.3 | 0.7 | 13 (9%) |
| Systematic improvement of internal care pathways | 3.2 | 0.8 | 21 (14%) |
| Patients' experiences and satisfaction | 3.2 | 0.7 | 21 (14%) |
| Patient safety | 3.2 | 0.8 | 11 (7%) |
| Patient access | 3.0 | 0.8 | 24 (16%) |
| Use of Evidence-Based Medicine | 2.8 | 0.8 | 8 (5%) |
| Medical results | 2.8 | 0.8 | 11 (75) |
| Systematic improvement of care pathways that cross organizational boundaries | 2.8 | 0.8 | 5 (3%) |
| Changes to the organizational culture | 2.7 | 0.8 | 3 (2%) |
| Changes to the organizational structure | 2.7 | 0.8 | 3 (2%) |
| The economy | 2.5 | 0.8 | 19 (12%) |
| Systematic improvement of care pathways between municipality and county council | 2.3 | 0.8 | 3 (2%) |

* Mean value above 2 is positive (agree) and below 2 is negative (do not agree), answer scale 0-4

The statements concerning improvement potentials ranked staff satisfaction highest, followed by patient experiences and patient safety. Economy was stated as having least improvement potential (Table 6.9).

*Table 6.9. Improvement potential.*
Answers to the question: "How much improvement potential do you think your organization has due to"

| **Statement,** rank order | **Mean value *** (n=152) | **SD** |
|---|---|---|
| Staff satisfaction | 2.7 | 0.8 |
| Patients' experiences | 2.7 | 0.9 |
| Patient safety | 2.7 | 0.9 |
| Systematic improvement of internal care pathways | 2.6 | 0.9 |
| Information systems | 2.6 | 1.0 |
| Systematic improvement of care pathways that cross organizational boundaries | 2.6 | 1.1 |
| Patient access | 2.4 | 1.1 |
| Medical results | 2.3 | 1.0 |
| Changes to the organizational structure | 2.2 | 1.0 |
| Use of Evidence-Based Medicine | 2.2 | 1.0 |
| Systematic improvement of care pathways between municipality and county council | 2.0 | 1.3 |
| The economy | 1.8 | 1.0 |

* Mean value above 2 is positive (agree) and below 2 is negative (do not agree), answer scale 0-4

## 6.3 Instrument development (paper V)

To evaluate the long-term effects of the Breakthrough Series Collaborative (BC) program, there was a need for an instrument. No suitable instrument in Swedish context and language was found, so an existing survey, the Minnesota Innovation Survey (MIS), was used as a foundation with permission from its creators.

### *6.3.1 The Swedish Improvement Measurement Questionnaire (SIMQ)*

The Swedish Improvement Measurement questionnaire consisted of the two dimensions "Improvement Effectiveness Outcome" (n=3) and "Internal Improvement Processes" (n=24), the latter divided into eight sub-dimensions (dimensions and items fully written out in Table 6.12). The items consisted of both questions and statements, and were answered in a verbal five-point scale, mainly from "Very little" to "Very much" or "Not at all" to "A lot". There were items with different scales such as, "Absolutely do not agree" to "Absolutely agree". In some items the answer alternative "Do not know" was added. Likewise, some items had the possibility to write comments. The introduction text was adopted to suit the study and the Web layout and the survey was entered into the Web-based survey program esMaker NX2.

A total of 44% (n=92) participants answered the survey, 45% (n=77) county council employees and 38% (n=15) municipal employees. Seven of the twelve municipalities within the county council were represented. The age of the participants ranged from 24-63, mean age of 46.3 (SD 10.0). The majority, 86% (n=79), of the participants were women and 14% (n=13) were men. The participant length of experience in profession ranged from 0.5-41 years, with the mean of 19.2 (SD 12.0) years. The largest group participating were nurses (n=50), also showing the highest response rate of 54% (Table 6.10).

*Table 6.10. Participant characteristics and response rate.*

| **Professions** | **Sent out n** | **Answers n (%)** | **% of total answers (n/92)** |
|---|---|---|---|
| Physician | 19 | 9 (47) | 10 |
| Nurse (including midwife/other specialities) | 103 | 50 (49) | 54 |
| Assistant nurse | 43 | 12 (28) | 13 |
| Physiotherapist/Occupational Therapist | 18 | 10 (56) | 11 |
| Other ∗ | 27 | 11 (41) | 12 |
| Total | 210 | 92 (44) | 100 |

∗ Others are e.g. dieticians, psychologists, audiologists and administrators.

The questionnaire's psychometric properties were investigated through internal consistency scale analysis and an exploratory factor analysis, conducted for the Improvement Effectiveness Outcome dimension, and for each sub-dimension in Internal Improvement Processes dimensions individually (Table 6.11). Cronbach's alpha coefficients are presented at both dimension and sub-dimension levels for all dimensions consisting of two or more items. The dimension Improvement Effectiveness Outcome consists of three items and the Cronbach's alpha coefficient was 0.67.

The dimension Internal Improvement Processes is broad and divergent, consisting of eight sub-dimensions with a total of 24 items. Cronbach's alpha coefficient for the complete dimension was 0.72. The eight sub-dimensions are highly divergent and therefore the factor analysis was conducted at sub-dimension levels as well. In the two sub-dimensions consisting of less than two items, no factor loading or Cronbach's alpha was calculated. In two sub-dimensions there were only two items, consequently the factors will just be measuring correlations. The sub-dimension Expectations of Rewards and Sanctions consists of four items, two concerning individual level and the other two group level, for which reason this sub-dimension was divided.

Correlations were calculated between the Improvement Effectiveness Outcome item *"Overall, how satisfied are you with the progress that has been made in the work to develop the improvement idea during the past month?"* and all items in the Internal Improvement Processes dimensions. Only three significant item correlations were found. *"How much must your improvement idea compete with other activities within your unit, when it comes to: Time to work with the improvement idea?"* (r=0.34, p=0.029), *"The participants involved in the improvement idea are aware of their individual responsibilities"* (r=0.35, p=0.024) and *"To avoid causing disharmony I often feel I cannot say what I think about the work on the improvement idea"* (r=0.53, p=0.000).

*Table 6.11. Psychometrical tests for the Swedish Improvement Measurement Questionnaire (SIMQ).* Dimensions and items, Cronbach's coefficient alpha, factor loadings and floor/ceiling effect (n=92 when no other stated).

| | Construct SIMS | **Cronbach's Coefficient alpha *** (+/- needed items to reach 0.7 reliability) | **Factor loadings calculated at each sub dimension *** | **Factor loadings calculated at dimension level** | **Floor/Ceiling effect (%)** |
|---|---|---|---|---|---|
| **Item** | **Improvement Effectiveness Outcome (3 items)** | **0.67 (+1)** | | | |
| 22 | Progress satisfaction | | | 0.86 | 1 / 21 |
| 23 | Progress meeting expectations | | | 0.77 | 2 / 4 |
| 24 | Improvement attains organizational goals | | | 0.72 | 2 / 27 |
| **Item** | **Internal Improvement processes (24 items)** | **0.72 (-1)** | | | |
| | *Improvement Uncertainty (2 items)* | 0.28 ^^ | | | |
| 2 | Difficulty to know improvement steps | | 0.77 | 0.26 | 0 / 1 |
| 7 | Frequency difficulty problems arise | | 0.77 | 0.39 | 1 / 46 |
| 35 | *Resource Scarcity (5 items)* | 0.76 (-1) | | | |
| a | Competition for finances | | 0.73 | 0.20 | 4 / 46 |
| b | Competition for materials | | 0.75 | 0.19 | 1 / 52 |
| c | Competition for management attention | | 0.68 | 0.34 | 5 / 34 |
| d | Competition for personnel | | 0.81 | 0.48 | 10 / 24 |
| e | Competition for time | | 0.62 | 0.19 | 22 / 4 |
| | *Standardization of Procedures (1 item)* | * | | | |
| 3 | Details of rules and procedures | | * | 0.49 | 1 / 3 |
| 6 | *Decision Influence (4 items)* | 0.71 (0) | | | |
| a | Deciding on improvement goals (n=91) | | 0.83 | 0.65 | 0 / 38 |
| b | Deciding on work to be done (n=90) | | 0.88 | 0.59 | 0 / 39 |
| c | Deciding on funding (n=64) | | 0.57 | 0.11 | 42 / 4 |
| d | Deciding on personnel recruitment (n=71) | | 0.73 | 0.22 | 23 / 14 |
| | *Expectations of Rewards and Sanctions ** | 0.34 ^^ | | | |
| | *Individual level (2 items)* | 0.60 ( +1) | | | |
| 15b | Chance of individual reward | | 0.85 | 0.41 | 0 / 46 |
| 16b | Chance of individual reprimand | | 0.85 | 0.35 | 0 / 51 |
| | *Group level (2 items)* | 0.34 ^^ | | | |
| 15a | Chance of group reward | | 0.78 | 0.57 | 10 / 12 |
| 16a | Chance of group reprimand | | 0.78 | 0.02 | 29 / 2 |

Cont.

| | | | | | |
|---|---|---|---|---|---|
| | *Improvement Group Leadership (5 items)* ^ | 0.66 (+1) (0.76 (-1)) ^ | | | |
| 10 | Initiative encouraged | | 0.80 | 0.60 | 1 / 40 |
| 11 | Members clear about responsibilities | | 0.52 | 0.53 | 0 / 41 |
| 12 | Emphasis on task | | 0.88 | 0.66 | 1 / 42 |
| 13 | Leader puts trust in members | | 0.81 | 0.61 | 0 / 55 |
| 21 | Clear feedback | | 0.22 | 0.48 | 2 / 19 |
| | *Freedom to Express Doubts (1 item)* | * | | | |
| 14 | Freedom to "rock the boat" | | * | 0.14 | 2 / 65 |
| | *Learning Encouragement (2 items)* | 0.23 ^ ^ | | | |
| 33 | Failure not a career blight | | 0.75 | 0.22 | 0 / 34 |
| 34 | Learning a high organizational priority | | 0.75 | 0.37 | 2 / 5 |

* In sub-dimension with only one item no factor analyses or Cronbach's alpha are calculated.
** This subcategory is divided into two because of its divergence.
^ Only four items scale, item 21 deleted.
^^ Sub-dimensions with Cronbach's alpha below 0.6 no items needed to reach 0.7 reliability are calculated; due to their divergence this is not useful.

The questionnaire results showed that the majority of the respondents were satisfied with their work and what they had accomplished, the improvement idea had contributed to improve the work at the unit, and progress was above their expectations. The item "How much commitment do you feel toward the improvement idea?" showed a large engagement in the quality improvement initiative: 90% answered "Much/Very much", 9% "Moderate" and 1% of the participants answered "Very little/Little" (Table 6.12).

The five items concerning resource scarcity showed different views. A majority of the respondents stated that they had to compete for time to work with the improvement idea. Least competition was about materials, space and equipment. The items about decision influence show a high number of respondents of the opinion that they could influence the work with improvement regarding measurements and activities, but not regarding resources and colleagues.

*Table 6.12. The Swedish Improvement Measurement Questionnaire (SIMQ) results.*
Results from the dimensions "Improvement Effectiveness Outcome" and "Internal Improvement Processes" 27 items, n (%).

| **Improvement Effectiveness Outcome (n=92)** | | | | | | | |
|---|---|---|---|---|---|---|---|
| | **Not at all (0)** | **A little (1)** | **Some (2)** | **Quite a bit (3)** | **A lot (4)** | **Mean (SD)** | **Median** |
| [22] Overall, how satisfied are you with the progress that has been made in the work to develop the improvement idea during the past month | 1 (1) | 5 (6) | 16 (17) | 51 (55) | 19 (21) | 2.9 (0.8) | Quite a bit |
| [24] How much does the improvement idea contribute to improving the work at your unit? | 2 (2) | 6 (7) | 32 (35) | 27 (29) | 25 (27) | 2.7 (1.0) / 3 | Quite a bit |
| | **Far below (0)** | **Somewhat below (1)** | **As expected (2)** | **Somewhat above (3)** | **Far above (4)** | **Mean (SD)** | **Median** |
| [23] To what extent is your progress with the improvement idea below or above your original expectations? | 2 (2) | 6 (7) | 45 (49) | 35 (38) | 4 (4) | 2.4 (0.8) | As expected |
| **Internal Improvement Processes (8 sub-dimensions)** | | | | | | | |
| ***Improvement Uncertainty*** (n=92) | **Very easy (0)** | **Quite easy (1)** | **Moderate (2)** | **Quite difficult (3)** | **Very difficult (4)** | **Mean (SD)** | **Median** |
| [2] How easy is it for you to know ahead of time what steps are necessary to develop the improvement idea? | 1 (1) | 35 (38) | 45 (49) | 11 (12) | 0 | 1.7 (0.7) | Moderate |
| | **Not at all (0)** | **Once (1)** | **Every other week (2)** | **Every week (3)** | **Every day (4)** | **Mean (SD)** | **Median** |
| [7] How often in the past month did problems arise during development of the improvement idea? | 42 (46) | 27 (29) | 13 (14) | 9 (10) | 1 (1) | 0.917 (1.0) /1 | Once |
| ***Resource scarcity*** (n=92) | | | | | | | |
| How much must your improvement idea compete with other activities within your unit, when it comes to | **Not at all (0)** | **Little (1)** | **Some (2)** | **Quite a bit (3)** | **A lot (4)** | **Mean (SD)** | **Median** |
| [35a] Economic resources? | 42 (46) | 23 (25) | 16 (17) | 7 (8) | 4 (4) | 1.0 (1.2) | Little |
| [35b] Material, space, and equipment? | 48 (52) | 21 (23) | 16 (17) | 6 (7) | 1 (1) | 0.8 (1.0) | Not at all |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| [35c] Attention from the executive level? | 31 (34) | 26 (28) | 16 (17) | 14 (15) | 5 (5) | 1.3 (1.2) | Little |
| [35d] Personnel? | 22 (24) | 21 (23) | 23 (25) | 17 (18) | 9 (10) | 1.7 (1.3) | Some |
| [35e] Time to work with the improvement idea? | 4 (4) | 16 (17) | 24 (26) | 28 (30) | 20 (22) | 2.5 (1.1) | Quite a bit |
| ***Standardization of procedures*** (n=92) | **Very little (0)** | **Little (1)** | **Moderate (2)** | **Much (3)** | **Very much (4)** | **Mean (SD)** | **Median** |
| [3] To what extent is your work on the improvement idea supported by the methods used in the improvement program? | 1 (1) | 8 (9) | 42 (46) | 38 (41) | 3 (3) | 2.4 (0.7) | Moderate |
| ***Expectations of Rewards and Sanctions*** (n=92) | | | | | | | |
| How likely is it that the following will occur if the goals of the improvement idea have been achieved: | **Not likely (0)** | **Hardly likely (1)** | **Likely (2)** | **Very likely (3)** | **Totally likely (4)** | **Mean (SD)** | **Median** |
| [15a] Everyone involved, as a group, will be rewarded or recognized for their collective efforts | 9 (10) | 16 (17) | 29 (32) | 27 (29) | 11 (12) | 2.2 (1.2) | Likely |
| [15b] Only some participants will be rewarded or recognized for their individual efforts | 42 (46) | 37 (40) | 8 (9) | 5 (5) | 0 | 0.7 (0.8) | Hardly likely |
| How likely is it that the following will occur if the goals of the improvement idea have not been achieved: | | | | | | | |
| [16a] Everyone involved, as a group, will be reprimanded or told to “shape up” to improve their efforts. | 27 (29) | 34 (37) | 20 (22) | 9 (10) | 2 (2) | 1.2 (1.0) | Hardly likely |
| [16b] Only some participants will be reprimanded or told to “shape up” to improve their efforts | 47 (51) | 37 (40) | 8 (9) | 0 | 0 | 0.6 (0.6) | Not likely |

*cont…*

| ***Improvement Group Leadership*** (n=92) | **Absolutely do not agree (0)** | **Mostly do not agree (1)** | **Neutral (2)** | **Mostly agree (3)** | **Absolutely agree (4)** | **Mean (SD)** | **Median** |
|---|---|---|---|---|---|---|---|
| [10] The project leader of the improvement idea encourages the participants to take initiative | 1 (1) | 2 (2) | 18 (20) | 34 (37) | 37 (40) | 3.1 (0.9) | Mostly agree |
| [11] The participants involved in the improvement idea are aware of their individual responsibilities | 0 | 1 (1) | 7 (8) | 46 (50) | 38 (41) | 3.3 (0.7) | Mostly agree |
| [12] The project leader for the improvement idea places great emphasis on getting the work done. | 1 (1) | 1 (1) | 15 (16) | 36 (39) | 39 (42) | 3.2 (0.8) | Mostly agree |
| [13] The project leader has great confidence in the participants involved in the improvement idea | 0 | 1 (1) | 14 (15) | 26 (28) | 51 (55) | 3.4 (0.8) | Absolutely agree |
| | **Not at all (0)** | **Little (1)** | **Some (2)** | **Quite a bit (3)** | **A lot (4)** | **Mean (SD)** | **Median** |
| [21] Do those involved in working with the improvement idea receive feedback from "improvement support"/their supervisor on how they can improve their work? | 2 (2) | 12 (13) | 31 (34) | 29 (32) | 18 (19) | 2.5 (1.0) | Quite a bit |
| ***Freedom to Express Doubts*** (n=92) | **Absolutely do not agree (0)** | **Mostly do not agree (1)** | **Neutral (2)** | **Mostly agree (3)** | **Absolutely agree (4)** | **Mean (SD)** | **Median** |
| [14] To avoid causing disharmony I often feel I cannot say what I think about the work on the improvement idea. | 60 (65) | 17 (18) | 7 (8) | 6 (7) | 2 (2) | 0.6 (1.0) | Absolutely do not agree |

*cont…*

| ***Learning Encouragement*** (n=92) | **Absolutely does not apply (0)** | **Mostly does not apply (1)** | **Neutral (2)** | **Mostly apply (3)** | **Absolutely applies(4)** | **Mean (SD)** | **Median** |
|---|---|---|---|---|---|---|---|
| [33] If a colleague tries something new and fails, this is viewed as something that could harm her/his future career in the county council. | 31 (34) | 24 (26) | 36 (39) | 1 (1) | 0 | 1.1 (0.1) | Mostly does not apply |
| [34] The county council prioritizes experimenting with new ideas. | 5 (5) | 11 (12) | 54 (59) | 20 (22) | 2 (2) | 2.0 (0.8) | Neutral |

| ***Decision Influence*** How much influence have you had on each of the following decisions that might have been made during the past month? | **No decision made * (0)** | **None (1)** | **Little (2)** | **Some (3)** | **Quit a bit (4)** | **A lot (5)** | **Mean (SD)** | **Median** |
|---|---|---|---|---|---|---|---|---|
| [6a] Preparing goals and measures for the improvement idea? (n=91) | 1 (1) | 0 | 6 (6) | 7 (8) | 43 (47) | 35 (38) | 4.2 (0.8) | Quite a bit |
| [6b] Deciding which activities should be carried out within the improvement idea? (n=90) | 2 (2) | 0 | 4 (4) | 8 (9) | 42 (46) | 36 (39) | 4.2 (0.8) | Quite a bit |
| [6c] Deciding on economic funds and resources for the improvement idea? (n=64) | 28 (30) | 39 (42) | 13 (14) | 6 (7) | 2 (2) | 4 (4) | 1.7 (1.2) | None |
| [6d] Recruiting colleagues to work with the improvement idea? (n=71) | 21 (23) | 21 (23) | 9 (10) | 10 (11) | 18 (20) | 13 (14) | 2.9 (1.5) | Some |

* Answer alternative “No decision made” is excluded from mean (SD) and Median calculations.

## 6.4 Survey results and improvement project outcomes (papers VI and VII)

The Breakthrough Series Collaborative methodology programs (BC), as described in the empirical framework, are an important part of the improvement program. The developed questionnaire (SIMQ, paper V) was used to investigate the improvement processes and outcomes of the BC program (the *Designed Improvement Processes)*. The last study included in this thesis is an evaluation of the outcome of one important part of the improvement program; the free application projects (*Intrapreneurship Projects*). The question is whether such an initiative can contribute to positive, sustainable changes being implemented in the organization. Those two studies illuminate the outcome perspective.

### *6.4.1 Evaluating Breakthrough Series Collaborative program*

Data in this study consists of all participants participating in two improvement programs, ongoing from September 2009 until November 2010. Background data and differences between those answering only first [n=51] and both measurements [n=41] are shown in Table 6.13. A dropout analysis was made using Mann-Whitney U test, comparing the both groups; those who answered only first and those answered both measurements. The most striking difference between the participants answering only first measurement and those answering both first and second measurement is between the numbers of nurses; it has decreased to almost half as many in the second measurement. There was also a significant difference in working years. Those who answered only the first measurement had a mean working time experience of 21.8 years while the mean time was 15.9 years in the second measurement.

The age of the participants included in this study (i.e., answered both measurements), ranged from 24-63, mean age 44 (SD 10.8). A majority, 80% (n=33) were women. The participant professional experience ranged from 0.5-41 years, with a mean of 15.9 (SD 12.3) years.

*Table 6.13. Participant background characteristics and dropout analysis.*
Differences between participants answering only first measurement and those answering both first and second measurement.

| | **Only first measurement** (n=51) n (%) | **Both first and second measurement (**n=41) **(6 months between)** n (%) | **p value** |
|---|---|---|---|
| **Professions** | | | |
| Physician | 4 (8) | 5 (12) | n.s. † |
| Nurse (including midwife/ other specialities) | 30 (59) | 16 (39) | .05 (df2) † |
| Assistant nurse | 6 (12) | 3 (7) | n.s. † |
| Other ∗ | 11 (21) | 17 (42) | n.s. † |
| **Gender** | | | |
| Men | 7 (14) | 8 (20) | n.s. † |
| Women | 44 (86) | 33 (80) | n.s. † |
| **Age:** mean range, (SD) | 48 28-63 (9,1) | 44 24-63 (10,8) | n.s. ^ |
| **Professional experience** (year): mean, range, (SD) | 21,8 2-41 (11,2) | 15,9 0,5-41 (12,3) | 0,0173 ^ |

∗ Others, e.g. medical secretaries, physiotherapists, occupational therapists, dieticians, psychologists and audiologists
† chi2 test
^ t-test

In the first measurement the time spent on work with the improvement idea ranged from 3 to 80 hours and on average the participants spent 13 hours and 32 minutes on this work (Table 6.14). Most time was spent on own education, in average 3 hours and 15 minutes, followed by time for planning and administration. Least time was spent on acquiring economic funds and resources, on average 7 minutes. All participants in the first measurement had spent some time on administrative work, at least 30 minutes. In the second measurement time spent had decreased to about half. Time spent on working with the improvement idea ranged from 0 to 40 hours; on average the participants spent 5 hours and 34 minutes on the improvement work. Most time was spent on planning and administration, followed by own education. Least time was still spent on acquiring economic funds and resources, only 2 minutes on average.

*Table 6.14. Time spent on activities working with the improvement idea.*

| **Statement** | **First Measurement** Mean value Min/max value | **Second measurement** Mean value Min/max value |
|---|---|---|
| On average during the past month, how many hours did you work on issues related to the improvement idea? | 13h 32min 3h/80h | 5h 34min 0/40h |
| Of this time during the past month, approximately how many hours were spent on each of the following activities: | | |
| Supervising colleagues involved in the improvement idea? | 1h 22min 0/30h | 34min 0/2h |
| Working with or developing measurement methods for the improvement idea? | 2h 22min 0/10h | 14min 0/2h |
| Discussing the improvement idea with potential users or customers/patients? | 1h 23min 0/15h | 46min 0/5h |
| Acquiring economic funds and resources for the improvement idea? | 7min 0/2h | 2min 0/1h |
| Coordinating the improvement idea with other units or departments? | 48min 0/6h | 45min 0/6h |
| Preparing to summarize and report on the improvement idea? | 2h 15 min 0/10h | 34min 0/3h |
| Administrative work (planning, paperwork)? | 3h 4min 30min/15h | 1h 41min 0/10h |
| Personal education (reading and seminars to keep myself updated)? | 3h 15min 0/24h | 58min 0/25h |

Having prior experience working with improvements was stated as "Quite a bit/A lot" by 29% (n=12) of the respondents, "Some" experience was stated by 31% (n=13), while 40% (n=16) answered "None/A little". A majority, 51% (n=21) of the respondents stated having "No education" in improvement work beforehand, those who had prior experience answered; 35% (n=14) "Participated in courses/training", 10% (n=4) "University/college-level education" and 5% (n=2) "Other". Both of those answering "Other" had participated in earlier improvement programs.

The three items in the *Improvement Effectiveness Outcome* dimension were all found positive in both measurements (Table 6.15). The majority of the respondents were satisfied with their work and what they had accomplished (Fig. 6.4). The satisfaction had decreased in the second measurement although the difference was not significant.

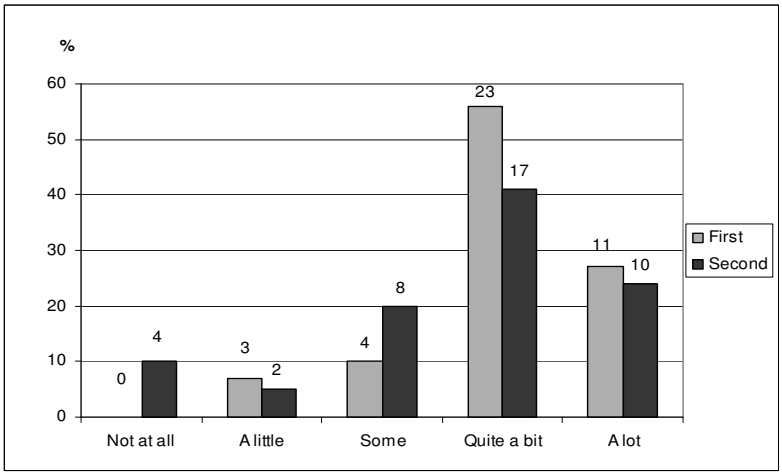


*Figure 6.4. Satisfaction with progress during development of the improvement idea.*
Answers to the question: "Overall, how satisfied are you with the progress that has been made in the work to develop the improvement idea during the past month?"
Figures in the graph are actual frequencies (n=41)

A majority of the respondents considered the improvement idea as contributing to improving the work at the unit; this was increasing but not significant. Only one respondent answered "Not at all" in both measurements (Figure 6.5). The progress was also found to be above the respondents' expectations.

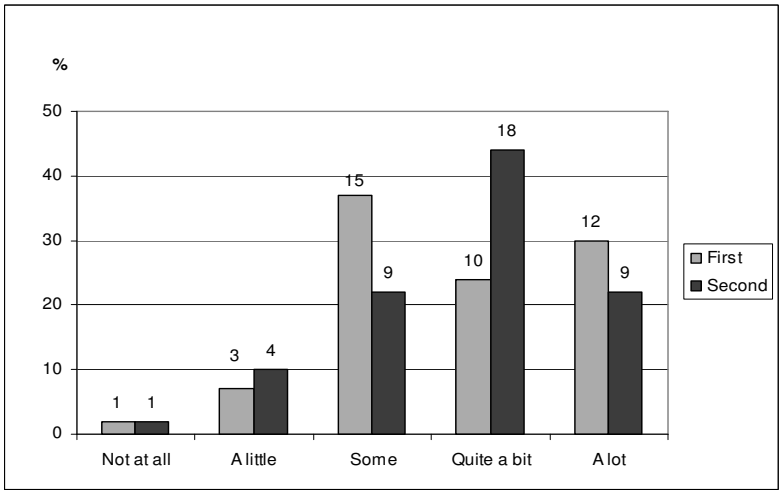


*Figure 6.5. Improvement idea contributes to improving the work.*
Answers to the question: How much does the improvement idea contribute to improving the work at your unit? Figures in the graph are actual frequencies (n=41)

The dimension *Internal Improvement Processes* consists of eight sub-dimensions (Table 6.15). The sub-dimension *Innovation uncertainty* showed positive mean values in both measurements, although problems were seen to arise more often in the second measurement. The items measuring *Resource scarcity* were considered to affect the work differently. A majority (73%, n=30 first and second measurement respectively) stated that they had to compete for time, and the item about time to work with the idea showed negative mean values at both measurements. The most common comments were about time; not having enough time to work with the improvement idea and that it was hard to find time because of regular tasks always intruded.

*Table 6.15. The Swedish Improvement Measurement Questionnaire (SIMQ) repeated measurements.* Items and mean value first and second measurement.

| **Improvement Effectiveness Outcome (n=41)** | **Mean ^ first / second** |
|---|---|
| [22] Overall, how satisfied are you with the progress that has been made in the work to develop the improvement idea during the past month | 3.0 / 2.7 |
| [23] To what extent is your progress with the improvement idea below or above your original expectations? | 2.4 / 2.5 |
| [24] How much does the improvement idea contribute to improving the work at your unit? | 2.7 / 2.7 |
| **Internal Improvement Processes (8 sub-dimensions)** | |
| ***Innovation uncertainty*** (n=41) | |
| [2] How easy is it for you to know ahead of time what steps are necessary to develop the improvement idea? | 2.3 / 2.4 |
| [7] How often in the past month did problems arise during development of the improvement idea? | 3.2 / 3.6 * |
| ***Resource scarcity*** (n=41) | |
| How much must your improvement idea compete with other activities within your unit, when it comes to | |
| [35a] Economic resources? | 3.0 / 3.2 |
| [35b] Material, space, and equipment? | 3.3 / 3.2 |
| [35c] Attention from the executive level? | 2.7 / 2.6 |
| [35d] Personnel? | 2.4 / 2.6 |
| [35e] Time to work with the improvement idea? | 1.7 / 1.7 |
| ***Standardization of procedures*** (n=41) | |
| [3] To what extent is your work on the improvement idea supported by the methods used in the improvement program? | 2.3 / 2.2 |
| ***Expectations of Rewards and Sanctions*** (n=41) | |
| How likely is it that the following will occur if the goals of the improvement idea have been achieved: | |
| [15a] Everyone involved, as a group, will be rewarded or recognized for their collective efforts | 1.7 / 1.8 |
| [15b] Only some participants will be rewarded or recognized for their individual efforts | 3.4 / 3.4 |
| How likely is it that the following will occur if the goals of the improvement idea have not been achieved: | |
| [16a] Everyone involved, as a group, will be reprimanded or told to “shape up” to improve their efforts. | 2.9 / 3.0 |
| [16b] Only some participants will be reprimanded or told to “shape up” to improve their efforts | 3.6 / 3.6 |

**Cont.**

| | |
|---|---|
| ***Improvement Group Leadership*** (n=41) | |
| [10] The project leader of the improvement idea encourages the participants to take initiative | 3.0 / 2.6 * |
| [11] The participants involved in the improvement idea are aware of their individual responsibilities | 3.3 / 3.2 |
| [12] The project leader for the improvement idea places great emphasis on getting the work done. | 3.1 / 3.1 |
| [13] The project leader has great confidence in the participants involved in the improvement idea | 3.4 / 3.4 |
| [21] Do those involved in working with the improvement idea receive feedback from "improvement support"/their supervisor on how they can improve their work? | 2.5 / 1.3 * |
| ***Freedom to Express Doubts*** (n=41) | |
| [14] To avoid causing disharmony I often feel I cannot say what I think about the work on the improvement idea. | 2.5 / 3.2 |
| ***Learning Encouragement*** (n=41) | |
| [33] If a colleague tries something new and fails, this is viewed as something that could harm her/his future career in the county council. | 3.0 / 3.3 * |
| [34] The county council prioritizes experimenting with new ideas. | 1.9 / 1.8 |
| ***Decision Influence*** ** | |
| How much influence have you had on each of the following decisions that might have been made during the past month? | |
| [6a] Preparing goals and measures for the improvement idea? (n=29) | 3.1 / 3.0 |
| [6b] Deciding which activities should be carried out within the improvement idea? (n=35) | 3.2 / 3.1 |
| [6c] Deciding on economic funds and resources for the improvement idea? (n=26) | 0.9 / 1.3 |
| [6d] Recruiting colleagues to work with the improvement idea? (n=25) | 2.1 / 2.1 |

^ Mean values above 2 are considered positive and below 2 negative.
* Wilcoxon Match pairs, $p < 0.05$.
** Answer alternative "No decision made" is excluded from mean value calculations.

The response to whether the use of the Breakthrough Series Collaborative Improvement methodology supported the work was mainly "Moderate" in both measurements (Figure 6.6). Slightly more respondents answered "Much/Very much" in the first measurement, although difference was not significant. There were free comments about the methods used, and suggestions of improvements were to get more knowledge and to use development days at the unit to work with this issue.

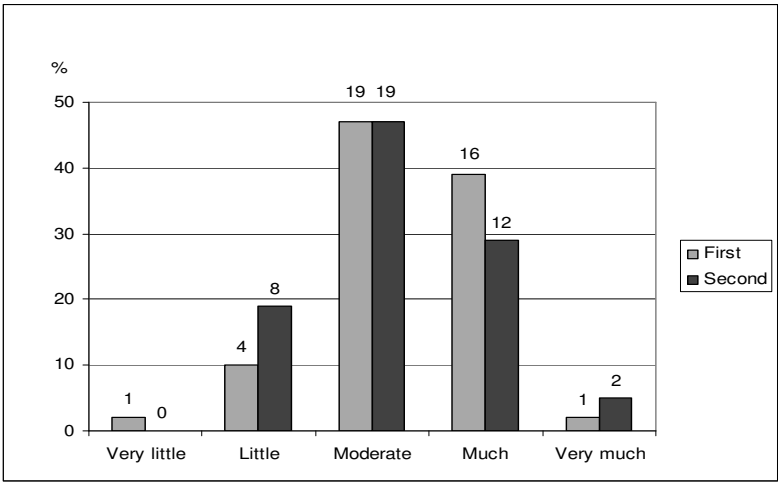


*Figure 6.6. Methods supported the work with improvement idea.*
Answers to the question: "To what extent is your work on the improvement idea supported by the methods used in the improvement program?"
Figures in the graph are actual frequencies (n=41)

The issues about group leadership were all stated positive mean values, but one measurement. The item about receiving feedback from the support personnel showed that the feedback decreased between the two measurements (Figure 6.7). The difference was significant (p 0.000). The improvement program was finished when the second measurement was done. Comments about manager support requested more support and help from (unit) managers to set aside free time and plan for time for the team to meet and work with the improvement. There were also comments on a clearer project (team) leadership as well as getting more response from project (team) leaders. One comment asked, "*Who is the project leader?*". The dimensions about freedom to express doubts and learning encouragement both show that participants thought they could give criticism and fail, without that harming their job or career. But, at the same time, they did not think that the county council prioritizes experiments and new ideas.

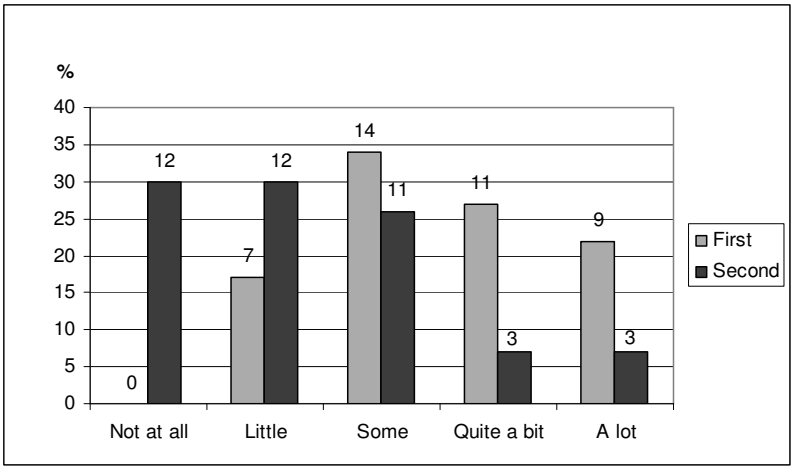


*Figure 6.7. Receiving feedback.*
Answers to the question: "Do those involved in working with the improvement idea receive feedback from "improvement support"/their supervisor on how they can improve their work?" Figures in the graph are actual frequencies (n=41)

### *6.4.2 Outcome of the practice-based improvement projects*

In total, 202 of the 232 applicants completed the interviews, giving a response rate of 87%. Applicants not participating in an interview (n=30), were evenly distributed between funded (n=16) and rejected (n=14) projects. The interviews with all the FA applicants took between five minutes (those who had done nothing) and 30 minutes. The applications were sorted in different categories depending on their outcome, whether they received funding or were rejected. The terminology was defined; *Implemented* project was seen as an achievement of positive, sustainable changes/improvements in the organization (Beer & Nohria, 2000a; Berwick et al., 2003). *Status quo* projects were those that had been realized but did not reach a new level of performance (Berwick, 1996), i.e., the way of working after the project was finalised was the same as before (Weick & Quinn, 1999). Projects categorized as *Failure* showed persistence (Schneider et al., 1996) or relapse (Weick & Quinn, 1999) into the same behaviours as before.

For improvement projects that did not get financial support from decision makers, two additional categories were included: *Done anyway* meant that the project team members finalised the project according to plan without financial support, and *Different action taken* that the team members decided to carry out a specific project with a different aim. The various

outcomes of the funded (n=98, 48%) or rejected (n=95, 47%) projects are shown in Figure 6.8.

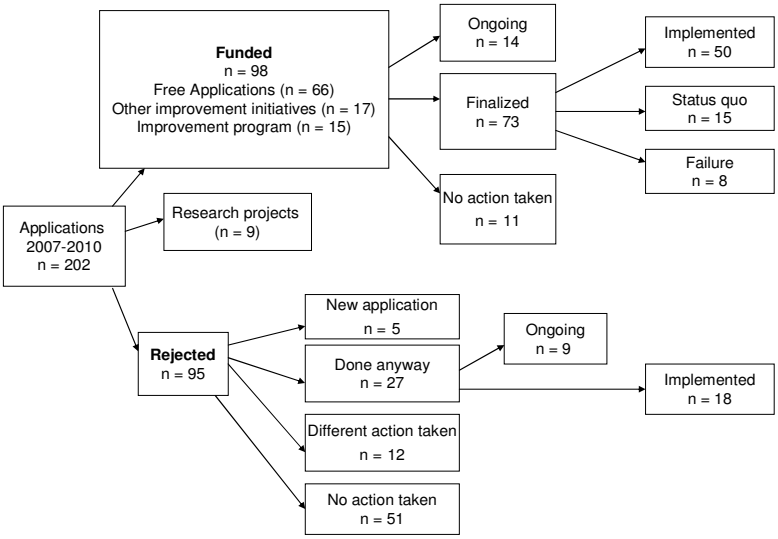


*Figure 6.8. Outcome of the improvement projects.*

When the interviews were conducted in January and February 2012, some projects were still ongoing. Of the funded projects, 50 (51%) were implemented and sustained two or more years after the project's finalization. The implemented improvement projects were on different levels in the organization, from micro level to macro level. In some cases, small projects were incorporated in large projects. Projects categorized as status quo (15 of the 73 funded, finalized projects) were accomplished according to the project plan. Their aim was not to implement an improvement; they did process mappings, hearings, study trips, or education. Therefore, no improvements were implemented, although the project was successfully accomplished.

Compared to the matrix built on the improvement intentions (section 6.1), most implemented projects (n=20) belonged to the Organizational Processes category. The Evidence and Quality category was second largest (n=12). It was a strategy from the county council to fund projects to encourage work with national quality registers. Projects in the Process Technology category developed methods and techniques that were not previously possible to perform in

the county council, such as Fetal Nuchal Translucency, Kangaroo-Mother Care Method and an internal electronic search system for healthcare personnel. The Competence and Development category projects (n=5) implemented different ways of continuing education. Proactive Patient Work projects (n=3) mostly developed and put information brochures to use.

The funded projects that did not start were categorized as no action taken (n=11). The main explanation was that the responsible initiating applicant had left the unit. Other reasons were that lack of time at the unit did not allow the project to start, or that the method to be implemented was no longer adequate. In the failures category (n=8) were projects that stopped mid-way, were never completed or implemented, or returned to the previous behaviour. One example was the project introducing evening consultations for young diabetes patients, but there was no demand for that service; no patients came.

Five of the rejected applications made a new application. Some of the projects, 27 (28%) were accomplished without funding, and 18 (19%) of those were sustained. Twelve applicants did not carry through the proposed project, but did something else (different action taken). The projects that were done anyway needed to make the improvement anyway. Explanations were that reallocation of existing recourses made the improvement possible without financial support. The projects that did something else found something more urgent to improve when they did not get funding. Some respondents stated that one reason for continuing without funds was that, by initiating this application intervention, the top management in the county council encouraged and permitted improvement work.

A majority of the rejected applications (54%) did nothing (Figure 6.8). There were various reasons for projects that had done nothing. Some stated that the idea was expensive, and the unit could not bear the project costs without financial support. Other reasons included shortage of time, not enough support from managers, and the applicant/initiator had left the unit. The rejected but implemented projects developed checklists and care plans that minimized the need for heavy documentation or introduced training educational visits at the chemistry laboratory. Another rejected but realized project provided smoking cessation support one day per week.

Of the rejected projects most (n=8) were about Organizational Process. The second largest category was Competence and Development (n=4). Two of the implemented rejected projects were about Proactive Patient Work. Only one of the rejected implemented projects was in the Process Technology category. That project did get help from one large, county council-wide initiative to implement electronic booking services. An explanation was that those projects often implied purchase of expensive equipment, and this was then not possible when the project was rejected.

# 7. Discussion

This thesis is based on a case, the Kalmar county council improvement program, an initiative to improve quality at all levels in the whole organization. The seven included studies all illuminate this initiative from different perspectives. First the results will be discussed in connection to and examined in relation to the theoretical frames. The top-down bottom-up change theory, described in section 4.1, will in the text below be called the *change model*. Then, the study setting and methods used in the studies in this thesis will be discussed.

## 7.1 Managing and integrating the paradox; finding the middle approach of how to become a successful micro- meso- macro system for healthcare improvements

*In this section two issues will be highlighted. First, strategies of importance for participation in improvement efforts will be discussed in connection with the three dimensions in the change model that mostly reflect this; Goals, Processes, and Use of Consultants. Then the encouragement, from the reward and/or sanction perspective, steering models and their impact on improvement will be discussed, in connection to the three dimensions; Leadership, Focus, and Reward System in the change model.*

The overall aim of this thesis is to contribute to increased knowledge and a broader understanding of factors and strategies for quality improvements in a county council-wide improvement program, and how quality improvement initiatives can be organized in healthcare settings. The purpose, which is threefold, is to find out whether it is possible to combine a top-down macro level management perspective with a bottom-up micro level practice-based perspective, manage and integrate the paradox to find the middle approach (Beer & Nohria, 2000a). Both theoretical frameworks used in this thesis could serve as a basis for this intention. The organizational framework (micro-meso-macro system thinking) can be used to explain the healthcare system organization. Almost all improvement methodologies emphasize the importance of system understanding to realize successful improvements. The micro-meso-macro system model also suits the top-down (macro level) versus bottom-up (micro level) perspective, describing the importance of all levels understanding their role in the improvement work (Nelson et al., 2007; Nelson et al., 2008).

Nyström (2009) points out the importance to successful improvement of long-term commitment at all levels of the organization. If there is system understanding awareness, might the combined top-down – bottom-up approach, work better? This would perhaps lead to an understanding in the organization, at all levels, of the duties of the other levels. Macro-

level top management would support and encourage, but not control in detail, and micro-system level participants would have an understanding that there needs to be coordination and control to some extent. Just letting everyone freely do exactly what they want is perhaps not the ultimate way to improve healthcare either (Svensson et al., 2008). Understanding the *change model* dimensions from the micro-meso-macro perspectives, healthcare organizations perhaps can find successful ways of working with improvements, and the findings in this thesis describe some important aspects that can facilitate improvement initiatives to become successful.

### *7.1.1 Strategies for participation in improvements*

The goal of the improvement program analysed in this thesis had a clear *Theory O* approach. The aim was to improve the organization and to spread improvement knowledge. However, looking at maximization of value as using available financial recourses in the most effective way, the combined strategy is visible, at least in the vision. In the micro perspective, the goals are not that clear. But on the same time, as the free project applications (paper I) show, almost all projects imply the wish to increase accessibility and give the right care to the right patient at the right level, which can be seen as an expression for effectiveness and efficiency.

Change processes are important. How do improvements "happen", and do they? Øvretveit (2003) argues that improvements need both to be started and to be fed; they do not happen "on their own". And if changes simply "happen", do we want them to? As Arenfeldt (2001) implies, it must be better to be proactive, steering the changes to be improvements. The difficult part is just to guide with moderation. The improvement initiative studied in this thesis tries to guide and encourage from the top, and at the same time let the organization evolve at the micro level. There are visions and aims stated from above, but participants are invited to come up with improvement ideas which are important on a practice-based micro-system level. This is clear in the result; respondents claim that they are allowed to work with improvements.

Although the result shows that improvements are seen as something positive and useful, difficulties remain to really take advantages of the full potential of all good improvements that have been carried through locally, how to spread them in the whole organization. This is not easy, as Weick (2000) argues, and even harder in a strong professional organization, like healthcare. According to different researchers (e.g. Nelson et al., 2007; Thor 2007; Conry et

al., 2012), the solution can be multi-professional teams. Using the learning organization strategy is another way, which will work out fine with the team approach. This is also one foundation in the Breakthrough Series Collaborative methodology, which has been used in the county council improvement program. Conry et al. (2012) suggest that one important aspect of improvements is to use a collaborative approach. Although, as shown in this thesis, to work fully, there is a need for more time set aside, both for multi-professional teams to be able to meet and work, and for reflection and feedback. This shows, as Pettigrew (2000) argues, that both a bottom-up emerging and a top-down planning force are needed.

The two main strategies used in the county council improvement program, the free project applications (FA) (*Intrapreneurship Projects*) and the methodology-guided Breakthrough Series Collaborative (BC) (*Designed Improvement Processes)* shows that different approaches can attract different staff categories, and in that way increase the participation of professions otherwise hard to bring along (paper II). It is often difficult, for instance, to get physicians to participate in such initiatives (Eklöf & Bildt, 2007; Gunningberg et al., 2010). In this county council initiative, however, physicians are well represented proportionately to their overall presence. One reason could be the possibility to choose how to work with improvements.

The fact that many managers participate is not surprising; managers were encouraged to drive and conduct improvement work. Assistant nurses participated to a higher degree in BC programs than in the free application projects, where one could chose a method. But in total, few assistant nurses were present, above all in the FA projects, but in relation to being the second largest staff group, even in the BC programs. At the same time, the respondents on the BC questionnaire (paper VI) thought that the methodology did not support their work to a large extent. But if the aim was to spread improvement knowledge, how is it possible to know that those who chose the free application projects acquired any improvement skills at all? The outcome study (paper VII) indicates nothing about methodology.

In the *change model* used in this thesis, the last component is Use of Consultants. In the county council improvement program, no external consultants were used like the *change model* intended. Instead, an internal facilitator organization was built, and those did get external training/education on some occasions. If not using consultants was a deliberate strategy I do not know, but instead the whole organization was encouraged to participate in

different efforts. Using change consultants often implies that a specific (management) strategy is implemented, like Total Quality Management (TQM) or Lean Healthcare. Not implementing a management strategy from the top was, however, a conscious choice. Instead, different models and tools are used, even if the main methodology is the Breakthrough Series Collaborative. Teams have been rather free to use what they think suits their improvement idea in the best way. This has, on the other hand, not facilitated the spread and diffusion of new best practices in the organization.

Perhaps the difficulties with spreading and diffusion are about the important question of ownership (Svensson et al., 2008), which is not clear. As it has developed, the local project owns their project, without any macro-system ownership. Perhaps a clearer planning for this from the beginning would have made spreading easier. As Nelson et al. (2008) stated, there are needs for the understanding of the responsibilities at all different levels (micro-meso-macro) in the organisation to become successful and to make the best of the improvements. Mohr and Batalden (2002) argue that it is the responsibility for the meso- and macro-systems to emphasize and facilitate collaboration between micro-systems. That collaboration could have been emphasized more from the beginning in this improvement program.

### *7.1.2 Steering model implications for improvements*

An important question about initiating improvement (and all sorts of change) is about how to guide, encourage and motivate. Which strategy is to be used; rewards, sanctions, or (perhaps) a combined approach (Lawler, 2000)? Must motivating efforts always have a macro-system top-down approach? Of course it can be argued that if the rewards or sanctions are financial, (top) management needs to be involved. But improvements can imply wanting to do a better job, and then the motivations are at micro-level. Nelson et al. (2007) emphasize the culture or climate at the unit, and the importance of staff members being proud to work at their working site. The result in this thesis indicates that many participants in the BC programs thought that their improvement intentions were useful for improving the care for their patients, and were at least proud of their improvement work and what they had accomplished. The FA project outcome study (paper VII), showing that projects were carried through even if funding was rejected, also indicates the engagement amongst (healthcare) staff.

Is it possible to tie together the two different focuses in the *change model*, structure and culture? Perhaps it is not only possible, but essential. Continuous improvements need, as

many researchers argue, a change in behaviour and thinking (Ahrenfeldt, 2001; Nelson et al., 2007). But at the same time, as an answer to the slow progress of improvement in healthcare settings (Leape & Berwick, 2005), some structure must occur. When a new best practice is developed, to ensure quality and equality some structure (standardization) needs to be agreed upon. This is not meant to be "forever", when there is need for new changes those standards will be used as baseline, making it even easier to improve further. In healthcare, being a hierarchic profession-driven organization (Eklöf & Bildt, 2007; Adler et al., 2008) I think it is difficult to attain a quick reconfiguration, as stated as the ultimate change approach by Galbraith (2000).

Changing culture is not easy, but probably the only way to become a successful high-quality organization (Nelson et al., 2007). The results in this thesis show that healthcare staff and managers both want to improve; they think the improvement work is useful and positive to their units and patients. But this study cannot tell whether there has been any overall organizational change in the culture. Many managers stated however that improvements are consistent with existing norms and values (Table 6.5), so the establishment of an improvement culture must have started, at least locally.

Many early QI pioneers and researchers argue that measurements are important. Otherwise, how can we know that a change is an improvement if there are no supporting data (Donabedian, 2003; Batalden & Davidoff, 2007)? Therefore, it is notable that only between 2-16% of the managers respond that they have data confirming their statement of the improvement being useful (Table 6.8). In the overall aim of the county council improvement initiative it is stated that managers are supposed to drive and encourage improvement work. How will they be able to do that without results? Another statement in the vision is "*all work units perform continuous measurements of QI work and show those in public*" (Kalmar county council website, author translation). If there are no, or at least very few, results from measurements, it is a problem when one of the QI parts are "decisions based on facts" (e.g. Batalden & Stoltz, 1993). And if QI and EBM should be able to interact (Glasziou et al., 2011), it is important to have measures to rely on. Measures are considered a driving force for improvements and patients can also make use of the results, in choosing a hospital or primary care centre that shows the "best" results.

In the county council improvement program, rewards are used as compensation, on the pre-incentive side of the governing model (Figure 4.1). This is not common; incentives are mostly used as rewards at the post-incentive side (Behn, 2003). The different studies and results in this thesis do not highlight rewards at all. In the BC questionnaire (paper VI) the statement about funding is ranked very low. The same results are shown when asking managers of driving forces for improvements (paper IV); financial support was found third from the bottom (Table 6.6). But on the other hand, some of the improvement projects not carried through due to not receiving grants (Figure 6.8), stated that they could not go on without funds. So, sometimes commitment needs some financial support, sometimes improvements are carried out anyway. This was stated as when the county council emphasized working with improvements it was allowed to do so.

What can be discussed is the problem with financial incentives, like the national governmental drive on stimulating some issues in healthcare, such as shortening healthcare waiting times and improving patient safety (Ministry of Health and Social Affairs website; SALAR website). What about everything else that needs to be improved? There is a risk that such drives will result in some improvements (what we get money to do) and some deterioration (what we do not get money to do must not be important) (see Norman & Fritzén, 2012). And what happens when the drive focuses on some other issue, will the achieved improvements stagnate or even decline in favour of the new drive?

An improvement project can not remain a project forever, to be a sustainable change it must be incorporated in the daily work (Brulin & Svensson, 2012). Therefore, motivators other than money are equally important, like staff wanting to do a good job, producing high quality care for their patients (Nelson et al., 2007). Norman and Fritzén (2012) have analysed how healthcare staff talks about improvements. Their analysis showed that if there were financial incentives connected to an improvement initiative, like the national efforts (available at SALAR website and Ministry of Health and Social Affairs website), the staff prioritized those at the expense of other important issues. Another question is, what happens when funds stop coming, or are invested in something else? The risk is that focus changes and the first initiative is reversed.

Looking at the leadership dimension, the county council improvement effort has tried to accomplish the combined approach from the start. Practice-based initiatives were encouraged

at the same time as managers ought to work with and for improvements, at least at the micro- and meso-system level. The directions from the top were quite free, with the vision stating that the county council should become a "*learning organization with the welfare of patients in focus*" (Kalmar county council website, author's translation). All administrations and staff were engaged to participate, not only healthcare core businesses (like hospitals, primary and psychiatric care). Either way, no specific change or management philosophy was chosen and "installed". The participants could choose which methods to use. The exception was the BC programs following the Breakthrough Series Collaborative methodology, but within the program, different tools could be used.

Perhaps the top-level leadership had been too open-ended? There is a need for some co-ordination to spread improvements, otherwise there is a high risk that they remain "local islands" (Stenberg & Olsson, 2005). Nelson et al. (2007) also emphasizes that an important responsibility for the meso (and to some extent macro) system level is to create prerequisites for the micro-systems to co-operate and share knowledge and learning. All levels in the system need to be aware of their roles, and as Dunphy (2000) emphasizes, both (top) management and staff participation are important, and which one plays the leading role could vary over time.

### *7.1.3 Concluding discussion*

So, is it possible to manage and integrate the paradox to find a middle approach to conduct changes, or is this only a theoretical utopia? The studies in this thesis are investigating a case, the county council improvement effort, from both top-down and bottom-up views, trying to find this combined middle approach to accomplish changes. I can not state that there is a single, best method to conduct improvements, but perhaps one could say that having the intention to provide encouragement from the top, letting the practice-based ideas develop at all system levels will stimulate and facilitate improvement work. The results in this thesis suggest that managing and combining top-down and bottom-up approaches could contribute to more successful improvement initiatives. In paper II, two different strategies for encouraging staff to participate are studied: methodology designed guided processes (BC programs) and free intrapreneurship projects (FA projects). This indicates that there is not a single best method, suitable for everyone. Quite the opposite, an improvement effort containing different initiatives, appealing to different participants and parts of the organization, will have a greater chance for success. This was also stated by Skytt et al.

(2011), who found that programs structured in more than one way give participants the opportunity to choose what they think suits them best.

Yet one part that is not that easy is missing or still remains to carry out: to spread and turn over all those good practice-based improvements in the whole organization. Driver and Watcher (2012) emphasize that learning from "better" performers is important in becoming a high-quality care performer. So, why is it so hard to learn from each other within a healthcare context? Why does everyone have to re-invent the wheel? One aspect of the Breakthrough Series Collaborative is the idea that collaboration will increase diffusion when teams work on the same problem and can learn from each other's best practice. However, in the BC survey study (paper VI) this is not shown. More effort will need to be put into this in the future.

I will end this section with a brief discussion of the concept "quality improvement". As stated in section 1.2, quality improvement is a complex concept without an all-embracing definition (Bessant et al., 2001; Riley et al., 2010; McIntyre, 2012). Perhaps the reason why there is no one best way of "doing" improvements is due to quality being a relative phenomenon, to use the words of Dahlgaard et al. (2011). Considering that all quality improvement models and strategies can seem overwhelming, it is important to consider the risk of projects that are too ambitious. Hackman and Wageman (1995) discuss some things worth considering, such as overly fundamental alterations of social systems, or the fact that in time changes becomes window-dressing more than useful tools. People revert to their old behaviours. The key is *"to achieve fundamental change without changing the fundamentals"* (ibid. p. 336). In Swedish healthcare, as stated by both Axelsson (2000) and Anell (2005), different management ideologies and healthcare reforms have replaced each other in a steady stream during the latest century. This has lead to weariness amongst healthcare professionals, resulting in a negative attitude against changes. Therefore, I think it is important to introduce improvements not as a new project that will end up as a new form of "window-dressing", but something long-lasting that will be incorporated in and seen as a normal task in the daily work (cf. Batalden & Davidoff, 2007). The county council decision not to implement a specific methodology (like Lean healthcare) has probably contributed to the improvements achieved. The importance of long-term commitment to accomplish successful improvements in an organization was emphasized by Nyström (2009).

## 7.2 Method discussion

*In this section the methods and study designs used in this thesis and the appended papers will be discussed. First, the overall study design in this thesis, the case methodology is discussed. Then a brief discussion of methods used in the appended studies will follow.*

### *7.2.1 The case study design*

This thesis is based on a county council improvement program, which is studied as a case. From this case approach, different studies from different views within the case are examined, aiming to explore a more comprehensive picture of the improvement initiative. The definition of Thomas (2011) stated that a case study aims to illuminate a phenomenon. In this thesis, the phenomenon is the improvement program, a single case, but consisting of multiple aspects, which, according to Miles and Huberman (1994), is a way to explore a bigger picture in a real-life context. Baker (2011) argues that case study methodology could add valuable methodological aspects to improvement research, but is, so far, underutilized.

Case studies are sometimes faulted for not being possible to generalize. Flyvbjerg (2011) means that even if results from case studies not are *"formally generalizable*" (p. 305), they can be transferred to similar contexts. Other ways of discussing validity and reliability, to use the terms of Gerring (2001) and his frame of social science methodology, are comparability, representativeness and replicability. Comparability and representativeness should be equal with validity, internal and external. Comparability can be both descriptive and causal, responding to the questions: How similar are the cases, and can differences be taken into account? Within the case, the different administrations taking part are quite different, seeing that both healthcare and support organizations are included in the initiative. At the same time, this is a strength in the project, letting everyone take part, not just healthcare practitioners, representing the largest part of county council organization.

Representativeness is seen as the external validity (Gerring, 2001). The studies in this thesis are only from one county council (single case). Could the result findings then have been found in another county council? I think, to some extent, yes, and to some extent, no. The county councils in Sweden are self-governed and therefore not exactly similar, but at the same time, healthcare is organized roughly the same way all over the country, so taking local discrepancies into account, similar results are most likely found elsewhere within Sweden. To generalise abroad is more difficult, since healthcare, and how it is organized, differs greatly around the world.

Another term used is replicability, compared to reliability (Gerring, 2001). The question is if the research and its design can be replicated. The studies in this thesis follow an improvement program, developed over time, so this is really difficult to answer. Of course, the studies can be replicated, but the results will (hopefully) not be the same. Miles and Huberman (1994) think that knowledge development (which hopefully is the case) has to be seen within a complex system, developing all the time, and therefore no absolute truth exists. So, in a social science context, no absolute truth always exists beforehand. On the other hand, as Flyvbjerg (2011) argues, there is no absolute truth in natural science either. The world around us is changing, and what we thought was true some (hundred) years ago, is no longer true today, even in the field of natural science.

What is important in the research field of quality improvements, and which, to some degree, can be connected to representativeness, is description of the context studied, the empirical framework. Research in the field of quality improvement is sometimes accused of lack of contextual clarity (Shojania & Grimshaw, 2005). Researchers in the field of QI state that the context in which the studies have been performed are often poorly described. In healthcare settings this can really be a problem, while healthcare organizations are divergent, both international and nationally, and between different administrations even locally (Blomqvist, 2007; Leviton, 2012). This makes it even more difficult to apply "best practice" just like that. Implementing what others have done requires some transformation to fit in and work in the local setting. On the other hand, Baker (2011) argues, case studies offer a great opportunity to learn about the relations between the context and the (improvement) processes which are to be studied. Furthermore, the case study approach could explore the connections between the context and which factors contribute to failure or success.

In this thesis the empirical base, the county council improvement program, is carefully outlined, aiming to help the reader decide if the results are possible to use in his/her organization, due to similarities or divergences. In qualitative research this is sometimes called transferability (Graneheim & Lundman, 2004). Aiming to contribute to a broader understanding of how quality improvement initiatives can be organized in healthcare settings, the overall aim of this thesis, descriptions of context are really essential. Although no "best and only way" is found, other (Swedish) healthcare organizations can probably recognize aspects that will work in their context, in some cases somewhat modified. Therefore, the description of the empirical base is important. So even if some can argue that it is quite

extensive in this thesis, there is a reason for that, to build on the earlier criticism of context descriptions in improvement research, or as expressed by Grol (2001), "*we particularly lack a good understanding of which approach is most appropriate for what type of improvement in what setting*" (p. 2583).

To end this section, I will briefly discuss my own role as a researcher. The fact that my appointment as a PhD candidate is funded by the county council must be considered. There are both advantages and disadvantages being part of the examined organization. When starting my research, I had no prior relationship to the county council, which helped me take an outside approach to this improvement program. But of course, being hired by the organization which was to be scientifically evaluated could influence the research. I think that being aware of those facts will minimize the risk of being partial and biased. The advantage of being part of the organization has exceeded the risks, I think. My connection to the university and external supervisors has also increased the possibilities to conduct objective research. However it is up to the reader to judge whether I managed to do so or not.

### *7.2.2 Included study settings and methods*

The studies constituting this thesis use both qualitative and quantitative research methods. Viewing a phenomenon from both a quantitative (measurement) approach and a qualitative (more subjective) approach can benefit the results (Miles & Huberman, 1994). In the first study (paper I) a qualitative categorization was made. This was done to get an overview of the improvement effort, which types of improvements were seen as important from a practice-based view at all system levels in the organization. The categorization of all application projects has been reused in some of the other studies, showing that those findings were applicable in different initiatives of the improvement program. The second study (paper II) compared participation from the two different main strategies: free application projects and BC programs. Some of those analyses focused on healthcare personnel only, due to the low number of participants in other staff groups and administrations. This illuminates that healthcare is the main activity within a county council, and it is not easy to encourage other staff to think that quality improvement is really that important. The same finding was shown in the study examining managers' views of the program (paper IV). In this study, only healthcare personnel were analyzed, which of course can be seen as a weakness, since the improvement effort involves everyone in the organization. The reason was that other staff

groups were few, so statistical analyses or comparisons between the groups were not useful or even possible.

Both in the manager's view study (paper IV) and the BC study (paper VI), questionnaires were used. The SIMQ questionnaire was developed, based on an existing survey, Minnesota Innovation Survey (MIS). The MIS is an extensive survey exploring innovation in different fields. The revision ended up being a very different questionnaire, so in the end it was not comparable with the original, and therefore used as a new instrument, the Swedish Improvement Measurement Questionnaire (SIMQ) developed and tested, described fully in paper V. The SIMQ was then used to follow the BC programs, measuring at the beginning and after six moths. Only 41 participants answered the questionnaire at the beginning and again after six months. A dropout analysis showed no important significant differences between the two groups. A weakness with this study is of course the difficulty of calculating statistics on such a small amount of data. In this study results are shown at item level, compared between first and second measurement. Differences were analyzed using Wilcoxon Match pairs, and then the sample size is not such a large problem since data are compared in pairs.

The second survey study used an existing survey, with just small modifications. The response rate was 47%, which must be considered low in response to the survey that offered the managers an opportunity to express their view of the county council improvement program. Since the county council vision stated that managers should drive and encourage improvements, one could have imagined that more managers would have taken the opportunity to express their opinion. Seeing that 92% stated that they had worked with improvements since the program was initiated one might think that only those positive to improvement work had answered. But the dropout analysis indicates some possible reasons why managers did not participate, such as not having participated in any activities, not having a manager position anymore, or simply forgetting or thinking they do not have time to answer.

The last study was a follow up of all the FA projects (paper VII). The respondents were interviewed and a categorization of the projects was done based on outcomes. In this study, the response rate was quite high, 87%. This was achieved by the interviewer being persistent. A model was built, illuminating the projects status (outcomes) at the time of the interview

(Figure 6.8). This illumination shows a simplified picture of such a large complex improvement initiative, but it still reflects the most important outcomes. Trying to evaluate outcomes of improvements, which are needed (Conry et al., 2012), a simplified picture can help.

# 8. Conclusions

In this section, first some conclusions, based on the empirical results, will be outlined, and then some practical implications will be discussed. Finally some thoughts about future research will be drawn.

## 8.1 Concluding remarks

The overall aim of this thesis was to contribute to increased knowledge and a broader understanding of factors and strategies for quality improvements, investigating whether is it possible to manage and integrate the paradox to find a middle approach of carrying out successful improvements. I have to conclude that the combined approach is not one method, but doing a lot of different things, offering different approaches, combining top-down, macro-meso-level initiatives and motivational strategies with bottom-up, micro-level activities and encouragement.

To compare to the related implementation science, there is no one way of doing things that suits every situation and every organization, or all of its participants (Wallin, 2009). But when offering different ways, the possibility to find something that attracts the participants or the organizational context will rise, and that will increase the possibility of success. Letting practitioners come up with their local problems, encouraging them either to work freely (FA projects) or learning a method (BC programs). This approach seems to facilitate positive sustainable project outcomes. In this thesis, the main success factors seem to be the improvement strategies, not choosing a philosophy or method from the top-down perspective, instead offering and encouraging everyone in the organization to participate in a way that suits them and their micro-level system, using incentives as encouragement, not rewards.

Still, there are some issues that need to be considered within the county council improvement program. This improvement program is still an ongoing project. Researchers emphasize the importance that projects become regular work, improvements being incorporated in the organization. This is a difficult step, going from a project to sustainability. When funding stops, or something else is prioritized, what happens then? So a new validation of this improvement program would be of interest in about five years, now that the project is running until 2014 at least, after which it is up to the county council delegates to decide how (and if) to continue. The other issue, still in its infancy, is how to “use” patients to make healthcare

better and safer. There is a great unused potential letting the patients become more active in healthcare improvements.

### 8.2 Practical Implications

Quality Improvement work is often seen as one way to make healthcare safer, more effective and efficient (Stenberg & Olsson, 2005; IHI website). The studies included in this thesis have shown different issues that are important to consider when initiating QI in a healthcare organization. An awareness of system knowledge from the practice-based micro-system level all the way up to macro management level could gain QI initiatives. Therefore the organization (macro level) should be aware of this and encourage practitioners to engage in this kind of learning and knowledge. Another part that has been found important is the spreading of best-practice improvement ideas in the organization. This is not easy, and as discussed earlier, much of that work still remains, but nevertheless, to continue to develop and be successful, there must be ways of learning from each other, including the patients, established within the organization.

### 8.3 Future research

QI content is of different parameters, some of which are found and discussed in the studies in this thesis. One important part is customer focus, in healthcare translated to patient participation, how to involve the patients/customers in doing healthcare more safely and with higher quality. Since the patient safety aspect has been incorporated in the county council improvement initiative, there will be a need for studies exploring the patient participation in these kinds of QI efforts. Another interesting part in this county council QI initiative would be to follow up the free application projects and the Breakthrough Series Collaborative programs after another five years. QI follow-ups are sometimes accused of being executed too early, if at all (Shojania & Grimshaw, 2005), and seeing that changing organization culture takes time and needs transformation (Hirschhorn, 2000), and that this QI effort still is an initiative ("project") designated special funds and not fully incorporated in the daily work, another follow-up would be interesting.

The fact that county councils in Sweden are politically governed organizations implies other aspects to large incentives like this. In this case, the delegates made the decision to set aside funds. Therefore, the political aspect would have been interesting to study as well. Another interesting study to do is of course to compare this effort (case) with the QI efforts of other

county councils and regions. There are a lot of different initiatives going on (e.g. SALAR website), and comparing some of those would benefit the knowledge base of how to successfully manage those efforts in (Swedish) healthcare settings.

## 9. References


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