Knowledge Intensive Service Activities (KISA) in Health and Social Care Innovation Process: Towards Seamless care for older people in Kuopio Home Care

Hannele Hyppönen, Ulla Saalasti-Koskinen,
Marja-Leena Perälä, Kristiina Saarikalle

OECD KISA / Health Care

Final report

SOSIAALI- JA TERVEYSALAN

OSAAVIEN KESKUSTEN VERKOSTO

NATIONAL NETWORK OF EXCELLENCE CENTRES

OSAAVIEN KESKUSTEN VERKOSTON JULKAISUJA

2/2005

www.oskenet.fi

ISBN 951-33-1784-6
Stakesin monistamo, Helsinki

Abstract

In this case study we examined the carriers of and barriers to systemic innovation in health care. The research is part of an OECD-project 'Knowledge Intensive Service Activities'. We focused on the role of experts (knowledge-intensive service activities, KISA) in enhancing implementation of a nationally important innovative idea that of seamless care for older people. In this case, we explore seamless care as a potential systemic innovation, requiring organisational change as well as change in work practices and technologies.

We focused on role of KISA in building up seamless home care in the city of Kuopio. We described how the process of this idea, which has many features of a systemic innovation, was supported in local, regional, and national contexts. We selected two projects with which to study the implementation of seamless care on a grass root level; the PALKO-project, where a model of integrated care was implemented by means of tailoring a generic co-operation model, and the VEGA-project, where a new patient data system over different divisions was implemented. We also describe a national and local context for the innovation. Our data incorporated interviews, documents and queries.

The findings suggest that the need for integrated services has been recognised, but strategic support and action plan to implement it has so far not been systematic. Administrative and technical integration has been realised, but this has not been enough to ring about a systemic changes in care of older people in Kuopio.

The systemic change required to implement seamless care in practise has been realised not by a radical shift from old to new, but by many small steps implementing minor innovations and extending over a decade. The journey has still only just begun. Three types of KISA were found, which all played an important role in implementation of the steps taken. External KISA and KIBS were important for generation of practical concepts related to change in work practices and training personnel. Internal KISA was important for tailoring the new working concepts to fit the context and transferring knowledge within organisations. Network KISA was required for obtaining new ideas and benchmark information.

The active and open culture seeking for change and feedback has been an important carrier to innovation. Another carrier found was the strong networks with the local university, research organisations, other municipalities and also national policy makers. This helped in keeping up with the development, and comparing own services and development with those of others. With comprehensive implementation of new technologies, IT has also had a big impact on the change in Kuopio.

The national support for the innovation has been strong but challenging for local actors. The study suggests that there may be need for external support for wider strategic learning and change management approach, which crosses boundaries of projects and organisations from local to national level. It also seems that local networking and a larger regional strategy may be required to promote the implementation of the studied systemic innovation in practice.

Executive summary

City of Kuopio as a context to the study

This is a case study about use of expert services in developing seamless information transfer and co-operation practices in one municipality in Finland, Kuopio. The city is located in the Central Finland. There are about 90.000 inhabitants. In 2000 the amount of people over 65 was 13,4 % those over 75 years of age was 5,7 % of the population (national averages 15 % and 7 %).

In Kuopio, basic social and health services are provided by Social Services and Health Department (SSHD). The SSHD was established in 1993 with administrative integration of municipal social and health care. SSHD is divided into eight divisions: open care, (community) hospital care, home care and elderly care, day care, social services, psychosocial work, dental care and administration. SSHD produces most of the basic health and social services by itself, but it also buys some services from private and third sector service providers. Specialised care is bought from the University hospital. There are two community hospitals, which provide short and long term care for patients not requiring specialised care.

The Kuopio study was part of a large OECD-project called KISA, Knowledge Intensive Service Activities. The aim of the OECD-project has been to analyse the role of expert services in creation of systemic innovations. In the OECD KISA-project, systemic innovations in health care, software and other industries have been studied.

We selected care for older people in city of Kuopio as our case for several reasons. Providing care for older people requires extensive co-operation between primary care divisions and primary and specialised care. There are also many private and third sector service providers participating in the provision of care.

In the last part of 1990's the city got into big economic difficulties. They lost nearly 60 million € of state benefits leading to a big deficit in the budget. Cuts in specialised care increased pressure in primary care. An external evaluation (1998) showed that the service structure was too institutional, home care needed to be developed and existing old technology modernised.

In order to do this, a comprehensive strategy work to reorganise care for older people was initiated in Kuopio's SSHD together with private, public, 3rd sector service providers and representatives of older people. The early strategies concentrated on structural change and later on service processes. Simultaneously with service strategies, a data management strategy was created for SSHD, which was based on service strategies.

The strategies stressed co-operation of different service providers. Municipal home care provider's role was seen to develop more towards a co-ordinator, who would be responsible for integrating services needed by older people.

Seamless care as a systemic innovation

Seamless care refers to the a model of activity, where different social and health service processes for a client are combined into a client-centred, planned and individual entity that crosses boundaries of organisations (Laki sosiaali- ja terveydenhuollon saumattoman palveluketjun kokeilusta 2000)(22/9/2000/3§).

We wanted to see how the planned organisational, technical and functional changes had contributed to seamless care for older people in Kuopio, which actors had supported the change, and what had been the carriers and barriers to change. The aim at local level has been to support Kuopio in their change process. At national level, the study provides one case about implementation of a nationally important innovative idea, which seems to call for systemic changes in provision of services - that of seamless care. At OECD-level, the study participates in discussion of role of expert services in provision and implementation of innovations in health care.

The change has proceeded in Kuopio through several projects. We calculated 12 different projects in care for older people during 1998-2004. Many of them ran simultaneously. Of these, we selected two which explicitly aimed towards seamless care to study the implementation of this innovation and role of experts in more detail. PALKO-project aimed at changing work processes. It was an action research project to develop home care driven care chain. In PALKO-project a generic co-operation model (process innovation) was implemented in primary care and university hospital. In VEGA-project, a common electronic client information system was implemented in management and five divisions of primary care in Kuopio's SSHD (technical innovation).

We study the entity of this change in care for older people as a possible systemic innovation. The innovative idea behind this change in Kuopio is an idea of seamless care: flexible, client-centred provision of services across the boundaries of service sectors.

We used administrative documentation like strategies, interviews and seminars for the workers to build an organisational level picture of the change process towards seamless care. Project documentation, interviews and queries were used to shed light in project processes and role of experts in them.

Findings

The results showed that development of seamless care for older people was only in its infancy in Kuopio in 2004. The projects did not co-operate systematically to support each other in reaching a common goal. The strategic support for seamless care was also not explicit. A radical change in services could not be detected. SSHD and University hospital had established joint meetings for planning integration of their services. Co-operation also improved within divisions in SSHD. The objective of the PALKO-project - to develop home care driven seamless care chain - was not fully met. The result indicated supported also by previous literature, see e.g. Leutz 1999), that seamless care requires changes on other levels and aspects in the system apart from work

processes, which was the main target in PALKO-project. VEGA-project tackled another aspect of the system - that of technology. A joint patient information system improved access to and timeliness of the client data, and reduced double recording and need for phone calls. The quality of data began to improve, when joint practices for recording have been set. None of the actors have got rid of the old systems entirely, because they still host features not existing in the new system. Implementation of new technology as such has also not been enough to change the system of care for older people.

Use of external expert services was abundant in both projects. In both projects the idea and concept for development came from external experts (KISA) – in PALKO from a research organisation and in VEGA from a consulting company. The role of external experts was important also in training related to project work and implementation of the idea. External experts (university, research organisation) also provided evaluation of the outcomes. It seemed that city of Kuopio was quite good at implementing ideas produced by external actors. Role of internal experts, that is, municipality's own staff, was important in selecting external experts, managing projects, tailoring the ideas to fit the local context and disseminating information of new practices within the organisation. We also found a third group of experts or expertise, that of network expertise. Networks proved important for learning from others, benchmarking. In PALKO-project, there were 10 municipalities implementing the model, which could exchange experiences. In VEGA-project, City of Kuopio representatives travelled to Turku to see how an extensive IT project had been realised there. In VEGA-project a network between other municipalities with the same client information system was also established in order to develop lacking features and functions.

We could identify some carriers and barriers to the change. Perhaps the biggest barrier seemed to be a lacking cross-sectional support for seamless care. It was not presented in elderly care strategies of City of Kuopio as a clear goal with action plan and projects to support it. The 12 projects, as well as the two we studied in more detail, did not co-operate to exchange information and support each other in a systematic manner. It seems that new kind of boundary - crossing strategic learning and change management skills are required in municipalities and hospital districts, someone or ones, who can look beyond any single project's or organisation's point of view to map the whole system, its key problems, vision an improved system and manage the change from old to new. There would perhaps also be need for a regional strategy and action plan, with which primary and specialised care providers' own strategies and action plans would abide.

There were also other obstacles, for example the dependence on political decision making. With elections, there are 4-yearly changes in emphasis depending on power relationships in the city council. Coupled with dependence on short-term national funding makes long-term planning quite difficult.

A third obstacle that we found was related to concrete co-operation between external and internal experts. Lack of common language, conception of change process and differing expectations from the co-operation delayed the implementation. It seems that within social and health care, more expertise may be needed to act as a demanding client for external experts like system providers, with clear requirements and terms for

purchasing the systems. Within external expert service providers, deeper knowledge is required about social and health service system and the practices which are to be supported.

We also identified many carriers for change. There was strong support for development in the SSHD as well as city administration. Also national policies, programmes and related funding offers strong support for implementation of seamless care. There was an active and open culture seeking for change and feedback. The personnel were committed to improve the services. Another carrier was the strong networks with the local university, research organisations, other municipalities and also national policy makers. This helped in keeping up with the development, and comparing own services and development with those of others. With comprehensive implementation of new technologies, IT can also be regarded as a potential carrier for change in Kuopio, provided that it will be used systematically to innovate seamless care practices in the future.

It seems that developing seamless care requires a mix of different types of KISA in order to succeed. Foremost, it requires strong internal expertise and networking in order to induce the concrete changes required in technical, functional and administrative level. External services may be necessary especially to support the management of change. In addition, integration between national, regional and local innovation system and strategies seems necessary in order to get the steering mechanisms to offer long-term support for the change.

Contents

FIGURES

TABLES

ABBREVIATIONS

ADP	Automatic Data Processing
SSHD	Social Services and Health Department
KELA	Social Insurance Institution of Finland
KISA	Knowledge intensive service activities
KIBS	Knowledge intensive business service
KUH	Kuopio University Hospital
OECD	Organisation for Economic Co-operation and Development
PALKO	Integrated services in practice of discharge and home care
RTO	Research and technology organisation
STAKES	National Research and Development Centre for Welfare and Health
TEKES	National Technology Agency
VEGA	Implementation of an integrated information system
VTT	Technical Research Centre of Finland
EUCS	End user computing satisfaction
HW, SW	Hardware, Software

1 Introduction

This case study is part of the OECD research project *Knowledge Intensive Service Activities* (KISA), which concentrates on carriers and barriers to systemic innovation in social and health care. Specific focus is on the role of expert services (KISA) in implementation of a innovation - seamless care - in the city of Kuopio elderly care. Typical activities that have been identified in prior studies supporting innovations include for example, services such as research and development, training, consulting, technological, financial, juridical and bookkeeping services.

The OECD KISA study included in addition to health care clusters for the forest industry, software industry, as well as culture and leisure time. The OECD project contained four steps, which have also been adopted in the Finnish work. The first step analysed key aspects of the public sector health and social care services in Finland by means of statistics. This step is reported in the publication of 'Profile and Trends of the Health Care Industry from a KISA perspective – the case of Finland' (Lith 2003). The purpose of the second step was to identify the existing innovation policy environment from the viewpoint of KISA; in other words, those policies, programs etc. that have an impact on the use of KISA. The third step in the OECD projects consists of in-depth case studies, while the fourth and final step presents the conclusions and policy recommendations.

This OECD project is led by the group on Technology and Innovation Policy (TIP) and the Committee on Science and Technology Policy (CSTP), whilst Australia is acting as the co-ordinator for the project. The Finnish KISA co-ordinator is TEKES, which also co-ordinates international studies on the health care cluster in collaboration with VTT (Technical Research Centre of Finland). Other countries apart from Finland who are conducting the Health Care study included Japan, Norway and Spain.

The health care cluster involves two in depth case studies in Finland; referred to as the Kuopio Case (STAKES) and the Pirkanmaa Case (VTT). This report deals with the Kuopio Case, which concentrated on implementation of seamless care in home-based services for older persons supported by KISA. We followed the implementation of seamless care on organisational level from strategies, action plans and annual reports. The Kuopio Social Services and Health Department (SSHD) had also carried out several projects supporting this innovation during the time period of the study (1999–2004). We selected two projects that explicitly targeted towards seamless care. In the first project, new seamless work process model was implemented, and in the second project a new technology to support seamless care was implemented.

In Chapter 2, we describe the starting points of the case study, seamless services as systemic innovation and the development of seamless co-operation and information transfer as a part of the construction of the systemic innovation. The research questions are also presented here. In Chapter 3, we describe the design and methodology of the study. Chapter 4 examines the national and local context in which the innovation implementation process took place in Kuopio and contextual carriers and barriers for

change. In Chapter 5, we study the construction of the innovation and role of KISA through two projects, PALKO and VEGA. In the last chapter, the results are summarised and discussed, and presented preconditions for the use and enhancement of KISA in health care.

2 Kuopio case: Starting points and research frame

2.1 Selecting Kuopio as the context for the study

We selected city of Kuopio as a context to the study for several reasons. The care for older people has faced large structural changes in the last decade. The Social Services and Health Department (SSHD) was integrated in 1993. An external evaluation of social and health care was made in 1998, according to which the structure of social and health services was too institutional and open care and home care needed to be developed. The existing technologies needed to be modernised.

At the same time the city got into big economic difficulties. They lost nearly 60 million € of state benefits leading to a big deficit in the budget. Cuts in specialised care further increased pressure in primary care. The budget was frozen for several years in 1998. These changes increased the need for integration of care.

The problems called for radical changes in service structure and processes. In order to do this, a comprehensive strategy work to reorganise care for older people was initiated in Kuopio's SSHD together with private, public, 3rd sector service providers and representatives of older people. The early strategies concentrated on structural change and later on service processes. Simultaneously with service strategies, a data management strategy was created for SSHD, which was based on service strategies.

The strategies stressed co-operation of different service providers. Municipal home care provider's role was seen to develop more towards a co-ordinator, who would be responsible for integrating services needed by older people.

We wanted to see how the planned organisational, technical and functional changes have contributed to seamless care for older people in Kuopio, which actors have supported the change, and what have been the carriers and barriers to change.

2.2 Seamless care as a systemic innovation - key concepts

2.2.1 Seamless care

During the last fifteen years, shortages in the continuity of care and services, and in the transfer of information from one place to another, have been found in national and international studies. A common trend found in the studies has been an increasing amount of service providers contributing to the care for older people, adding to the problem. Fragmented, duplicative services have led to inefficiencies and lack of availability especially for clients requiring chronic care (Wilberg and Alkema 2003).

The main solution for solving the problem has been the idea of a seamless or integrated care. The idea of seamless care has been demonstrated in the Finnish governmental strategies since the middle of the 1990s. The interpretation of the idea as well as the means to implement it have varied greatly between municipalities (Hyppönen et. al 2005). Different degrees of integration have been demonstrated in literature (by

improved co-ordination, partial or full integration), as well as different domains of integration, e.g. financial, organisational, functional or technical (Leutz 1999, Wilberg and Alkema 2003).

Seamless care has been defined as **t**he desirable continuity of care delivered to a patient in the health care system across the spectrum of caregivers and their environments. The principle of a seamless care chain is to strengthen flexibility, transparency and collaboration in service production from client's perspective. The preconditions of a seamless care are good practices and collaboration as an agreement of responsibilities between service providers. A flexible service entity is planned, led and co-ordinated so that information is transferred systematically and takes into account privacy protection. (Stakes 1999)

According to the flexibility principle, information should be in the right place at the right time (Stakes 1999; Kuusisto-Niemi 2002). Due to several health problems, clients/patients may belong to several care chains. In these cases it is very important from the viewpoint of patients' care that information transfer and co-operation help the co-ordination and integration of services. In this case study, we describe the implementation of the idea of a seamless care in Kuopio home care and KISA supported by implementation during the past decade, starting from administrative integration in 1993 to technical integration in 2004.

Integrated care concept has been used to define activity, where different service providers operate according to same principles, aiming to assure cost-effectiveness and quality of services and satisfaction of the users. Integrated care is the reconciliation of different expertise in multidisciplinary teams or of co-operation between separate organisations and units (primary health care, specialised care, private sector and the third sector). The network of the integrated care includes the producers, the service providers and the users (including the informal caregivers) (Hardy, van Raak et al. 2003).

As can be seen from above definitions, the idea is the same, but different concepts to describe it are used. “Seamless Care” is still a relatively new term in the health care literature. .Additional concepts used include 'integrated health care', 'service chain', 'integrated care pathway' and 'clinical practice guideline'. (Suomalainen Lääkäriseura Duodecim 2003).

In addition to conceptual variation, the regional implementations of a seamless care and service chains differ, and there is no information about their frequency (Ruotsalainen 2000a). As with any new term and new philosophy, there are some who have adopted the term and fewer yet who have adopted the philosophy in practice. Integration is still rare at the systems level. The philosophy has so far been adopted mainly by laying planks here and there across the gaps of a very discontinuous system of social and health care. According to recent study the hospital districts had on average eight (range 1-24) care and service chains in 2002 (Suomalainen Lääkäriseura Duodecim 2002).

2.2.2 Innovation in public services

Defining innovation in public services is not easy for several reasons. Firstly, within a purely academic sphere there is an enormous extent of varying discussion and heterogeneity of studies of innovation. Osborne (1998) has encountered 23 different definitions of innovation. Confining the discussion to the business management literature alone, there is a range of definitions. In addition, innovation studies have extended from economic and management sciences to sociological, political and psychological fields. The meaning has also been extended from a product or process, which gives competitive advantage to the entrepreneur over their competitors, to the ability of the organisations to innovate and learn (Komissio 1995; Miettinen, Lehenkari et al. 1999).

In public services, innovation is often seen as a process in which new products, processes, models of activity or systems have been created or the old ones improved. This definition is close to a definition of development ((Hartikainen 1995). Osborne has created four-dimensional typology of innovation, distinguishing between development (incremental innovations), evolutionary, expansionary and radical innovation. (Figure 1.)

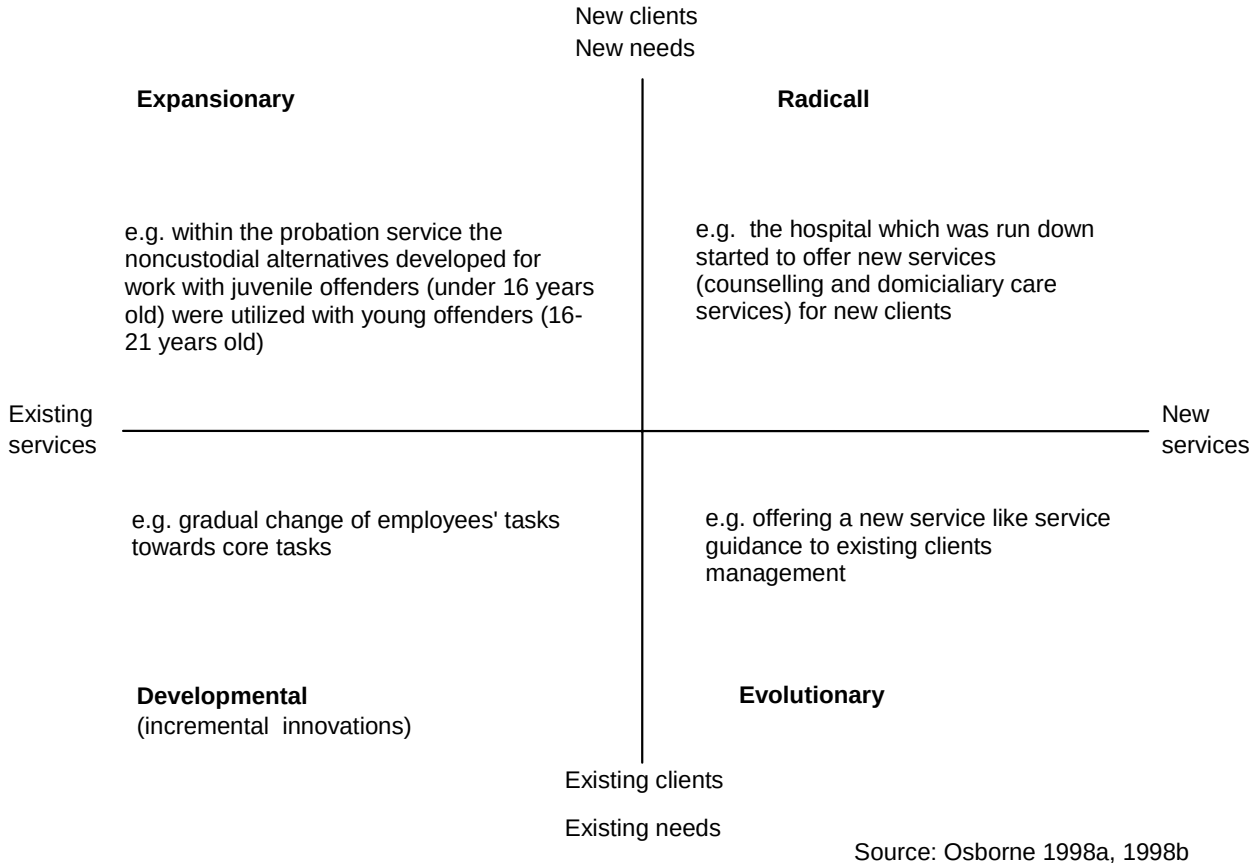


Figure 1 Typology of innovations ((Osborne 1998a; Osborne 1998b).

Osborne defines gradual revision of services to meet the particular needs that existing clients as "development". It can involve small everyday innovations. The development of a new service and its introduction to the existing clients is an "evolutionary innovation". When existing services are expanded to reach new client groups or needs, it is called "expansionary innovation". "Radical innovation" is developing new types of services are produced for the new client groups. (Osborne 1998a).

Where would idea of seamless care fit within Osborne's typology? It is based on a new need of clients - need to integrate services provided by an increasing amount of different service producers. It refers to a completely new way of organising and producing the services: change from sectoral, hierarchical organisation to cross-sectoral teamwork. It may require new services like service management or development and maintenance of regional reference databases. Thus, it has features of a radical innovation.

Osborne (1998) has set 4 additional criteria for identifying innovations in public sector.

1. Innovations represent newness, not as absolutely new, but new to the specific context or situation, irrespective of whether or not they are genuinely 'first use'.

2. There is no general consensus that the generation of new ideas would be an intrinsic part of innovation. Innovation can be seen as a process of adoption or implementation of a new idea (either its first use or its diffusion to a new situation, see nr.1).

3. Innovations are both processes and outcomes.

4. Innovations involve change or discontinuity. Here the key is to differentiate between development and innovation. Osborne (Osborne 1998b) differentiates development work from innovation with one criteria only: continuity. Development work happens within an existing product-service-market-paradigm (~business model); it is continuous improvements of existing services to existing clients. Innovation changes this paradigm, leading to change in the paradigm - e.g. service models or clientele. Innovation is the introduction of newness to the system, which produces a transformation, bringing along a discontinuity in service and/or its environment (organisation or society).

2.2.3 Seamless care as a systemic innovation

S*ystemic innovation* has been defined by the OECD KISA Health Care sector as changes in the whole health care system, which can be connected to services, processes, structures, ways of organisation, personnel and technology used. It covers all levels of hierarchy from individual actors to local and regional units and the whole national health care system (Saranummi, Kivisaari et al. 2005).

Kuusisto (Kuusisto 2004) has depicted relations between technical, service, organisational and network innovations as a pyramid, where systemic features of innovation increase when moving down the pyramid.

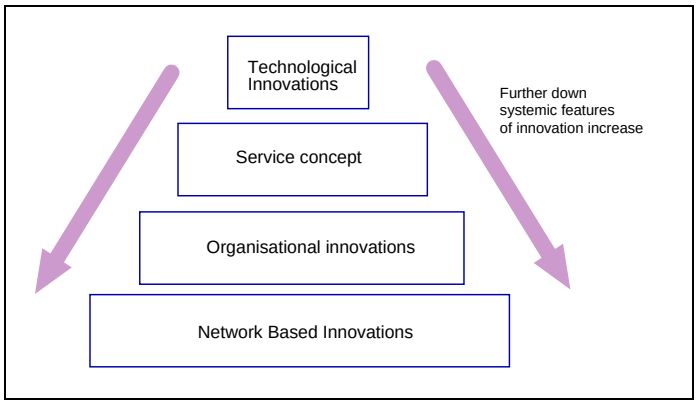


Figure 2 Innovation 'pyramid' (Kuusisto 2004)

Comparing definitions of seamless care, innovation in public sector and systemic innovation adopted for the OECD Health care studies it seems quite evident, that implementing seamless care requires systemic changes in different levels and domains of organisation, as well as networking. Implementation of seamless care can thus be studied as a potential systemic innovation.

2.2.4 Knowledge-intensive service activities

There was not a well-established definition for the term KISA (Knowledge intensive service activities) in public sector when this study was initiated. Defining the concept was further complicated by difficulties in defining the internal and external expertize due to many alternatives for drawing the organizational boundaries. We ended up with a definition presented in chapter 6.1.1. The concept has been defined during the process of this study through empirical work as well as numerous discussions and fruitful debates with fellow KISA researchers in Finland. The full definition and discussion about this concept is therefore presented at the end of the study as one outcome, rather than a pre-set definition.

In order for the reader to understand the use of the concept, a short summary of our interpretation is, however, necessary. We have chosen to explore the innovation from the viewpoint of Kuopio city. Thus, the expertise of the people employed by the city are defined as internal expertise (internal KISA), regardless of their working organisation within the city. The support offered by external public and private organisations is considered as external expertise (external KISA). As a part of external KISA there are expert services offered by private enterprises (KIBS, Knowledge intensive business activities). There is also a form of expertise, which can best be described as network expertise (Network KISA). This expertise has typically emerged in co-operation networks and in projects involving many partners.

3 Design of the study and methodology

3.1 The study approach

In this case study, we followed organisational, functional and technical change in home care and care for older people in City of Kuopio between 1993-1004. We studied the changes as an implementation of a potential systemic innovation - seamless care. The implementation originated from administrative change (integration of social and health care) and was forwarded as structural change from institutional to open care. The structural change is followed form historical documents. The functional and technical change has been more recent and taken place in several projects. We selected two which explicitly aimed at developing seamless care. In the PALKO-project, a generic model was used in the development and implementation of concrete integrated care processes. The VEGA-project was the implementation project of a new technology (hardware, electronic client and management information system). The role of KISA is considered in the life cycle of projects. The research frame is depicted in Figure 3.

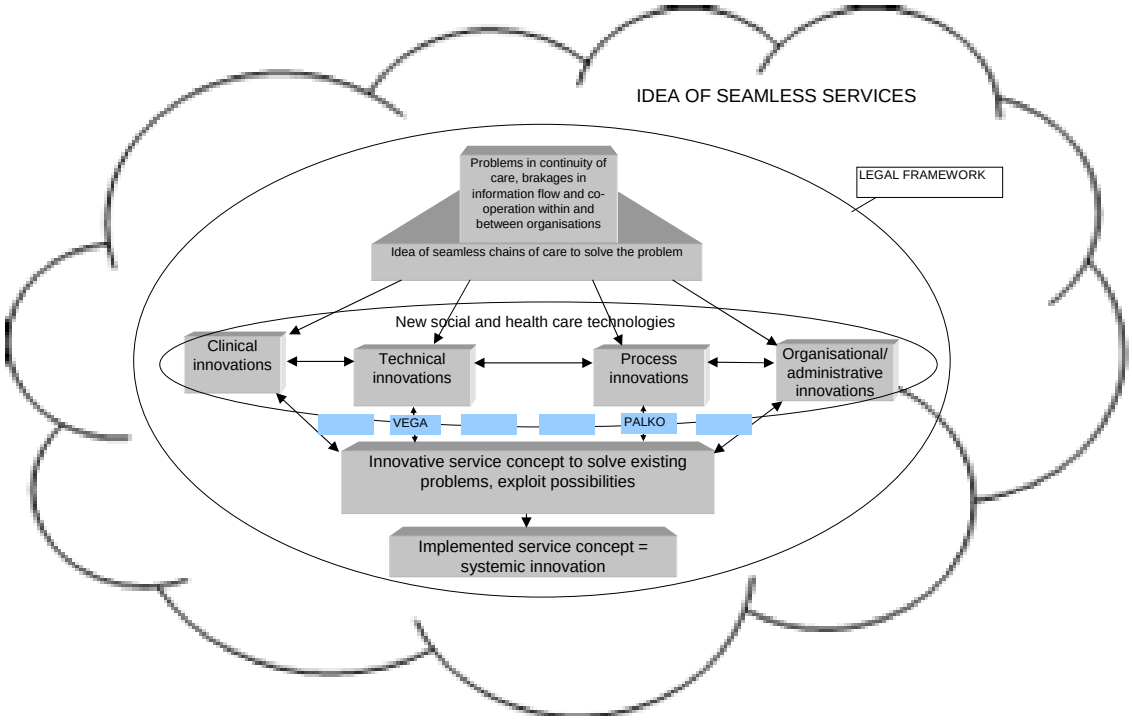


Figure 3. The approach to systemic innovation in the study

3.2 Objectives and research questions

The aim of the case study was to explore implementation of a nationally important innovative idea - seamless care in the context of care for older people in city of Kuopio. Specific objective was to study the role of knowledge-intensive service activities (KISA) in implementation of a systemic innovation. Seamless care was selected as a

potential systemic innovation to be studied. We wanted to see how the planned organisational, technical and functional changes had contributed to seamless care for older people in Kuopio, which actors had supported the change, and what had been the carriers and barriers to change. The aim at local level has been to support Kuopio in their change process. At national level, the study provides one case about implementation of a nationally important innovative idea, which seems to call for systemic changes in provision of services - that of seamless care. At OECD-level, the study participates in discussion of role of expert services in provision and implementation of systemic innovations in health care.

Our research questions were

- What was the role of KISA in the construction of the innovation (seamless care for older people in city of Kuopio)?
- What were the local, regional, and national carriers of and barriers to the implementation of seamless care?
- What instruments could support the innovation process and use of KISA?

3.3 Methods and data collection

To answer the research questions we studied the context of the innovation by collecting national and local level reports, strategies and policy papers about service production and development, and contextual features supporting and hindering systemic innovations (Chapter 4). Secondly, we studied the implementation of seamless care in two projects: PALKO and VEGA (Chapter 5) to study the practical support gained and needed to implement seamless care in practice.

Table 1 presents the data collected for both levels.

Table 1 Data collection for the study.

METHODS	**CONTEXTUAL SUPPORT FOR INNOVATION**	
Literature review, seminars	Laws; national and local strategies and programmes; reports of projects Starting seminar in August 2003 (sem1) and feedback seminar in August 2004 (sem2)	
METHODS	**PRACTICAL SUPPORT FOR IMPLEMENTATION OF INNOVATION**	
	PALKO	**VEGA**
Interviews, unofficial information	3 theme interviews of key actors in development process * home care (kh7) * community hospitals (tk8) * university hospital (esh9) E-mail * administration of SSHD (h10)	4 theme interviews of key actors in development process * data management (th1) * private sector (yks2) * ADP center (atk4) * administration of SSHD (hal5) One group interview (kh6) of key actors in home care development process Phone calls and e-mail * data management (th2) * data management (th3)

Queries	Home care personnel 2001 (n= 122), 2003 (n=122) Project members (N=31) 2004 Key persons in home care: Current practices in interfaces (n=3-5) 2001, 2004	Home nursing personnel (N=22) sample = all those who used Pegasos information system in one home care area in the time of the study (spring 2004)
Documents	Contract of PALKO-project (2000) PALKO-project plan (2001) Kuopio PALKO models and implementation plan I (2002), II (2003), III (2004) Minutes of meetings of project and small groups (2001-2004) PALKO guideline for development (2001 - 2004) Materials and memorandum of workshops at STAKES (2001- 2004)	Data administration strategy of SSHD of Kuopio 15.4.1999 (PriceWaterhouse Coopers) Evaluation reports on VEGA-project in Kuopio including 13 sector reports and minutes of meetings (Social and Health Information Technology Research Unit in University of Kuopio, SHIFTEC)

4 National and local context of the innovation

In examining of the national and local context of the innovation, a attention was paid to three main elements of social and health care system in Finland and Kuopio region: specific features of the demand, i.e. customers who need services, specific features of the supply, i.e. the services of social welfare and public health, and specific features for development of services in Finland and in the city of Kuopio.

As a summary, three conclusions can be drawn. Firstly, older people seem on average, to require and use multiple services provided by public and private health and social care. Home care has traditionally been an area, where support is sliced into many separate services provided by an increasing amount of different service providers. In previous studies (e.g. Hyppönen 2004), integration of home nursing, public and private home help has been challenging, and slicing the help has improved neither quality nor cost-effectiveness of care.

The dispersal of service system has over recent years supported disintegration more than integration. A real challenge is how to get an increasing amount of social and health service providers in public, private and 3rd sector to co-operate, cross horizontal and vertical boundaries in order to produce integrated, seamless services.

The national context offers support for integration in form of recommendations, experimental law and finances. The integration crosses, however, also traditional responsibility areas on national level, requiring integration of the technological and social innovation support system. There is a strong political consensus about the need for social innovations. Seamless care and service integration can be regarded as one of the most prominent of these within social and health care. However, there is very little hard evidence about concrete impacts on disintegration vs. integration from the quality as well as economical perspective. Investment in social and health care research is still very modest compared to investments in technology research, even if social and health sector is an important player in the current welfare societies with big impacts on the national economy.

The "evidence" for these conclusions is described below.

4.1 Clientele and demand for services for older people

The average age of the Finnish population is slightly below the European Union average, but will rise considerably over the next few decades (Järvelin 2002). At the end of 2002, the proportion of the Finnish population who were over-65 was 15%, over-75s was 7% and over 85s was 1.6%. It is estimated that the rapid ageing of the population will continue. According to estimations by 2030 the population share of over-65s will grow to 26% and the over-75s to 14% (Kauppinen, Forss et al. 2003).

The need for regular home care arises at the age of 76 years on average and the need for institutional care at the age of 82 years (Vaarama, Voutilainen et al. 2002; Kauppinen,

Forss et al. 2003). According to national and international estimations 30–50% of persons over 75 need at least some help, and 25–30% need regular help. The need of help increased with age so that half of those over 85 needed assistance. The help required often includes both nursing and care services (Vaarama, Voutilainen et al. 2002; Salonen and Haverinen 2004) In 2001, 6.6% of over-65s, 12.1% of over-75s and 21.3% of over-85s were receiving regular home care. Almost half of the clients were receiving home-help services only, one-fifth home nursing only and nearly one-third both home-help services and home nursing. Between 1995-2001 the proportion of older people with a high service use has increased and the proportion of those with a low service use has decreased (Kauppinen, Forss et al. 2003)

Clientele in Kuopio (population 86 651) fits the national profile. The amount of over-65s was 13.4% and the amount over-75s was 5.7% in 2000 (Tilastokeskus 2004). By 2012, the number of over-75s is estimated to increase by 6.6% (Kuopion kaupungin sosiaali- ja terveyskeskus 2003). In 2000, half of the home care clients (2923) were over-75s. Just under one-third (30%) of the over-75s were receiving regular home care, but they had most of the home care visits (70%). The proportion of over-75s in institutional care was 8.5% (Kuopion kaupungin sosiaali- ja terveyslautakunta 2001).

4.2 Provision of social and health services

4.2.1 Principles for organising and financing social and health care services in Finland

The Finnish health care system is perhaps the most de-centralised in the industrialised countries. In Finland there were 444 municipalities at the end of 2004 in which there were 5 100 inhabitants on average (smallest with 134 and largest with 550 000 inhabitants) .Each municipality is responsible for arranging social and health services for its own population. The municipalities produce services independently or together with other municipalities or buy them from private or third sector service producers. The services of primary health care are produced in 277 Social Service and Health Departments (SSHD), of which 75 are federations of municipalities. The services of the specialised care are produced in 20 hospital districts owned by the municipalities. The 20 hospital districts form 5 special responsibility areas around the 5 university hospitals in Finland. (Figure 4)

The supply of the services of the private sector is fairly minor but has, along with the supply of the services from the third sector, increased since the 1990's. The reductions of resources for social and public health care services have promoted the growth of the private sector from the regression of the 1990's (Suomen Kuntaliitto 2001; Kauppinen, Forss et al. 2003; Sinkkonen and Jaatinen 2003).

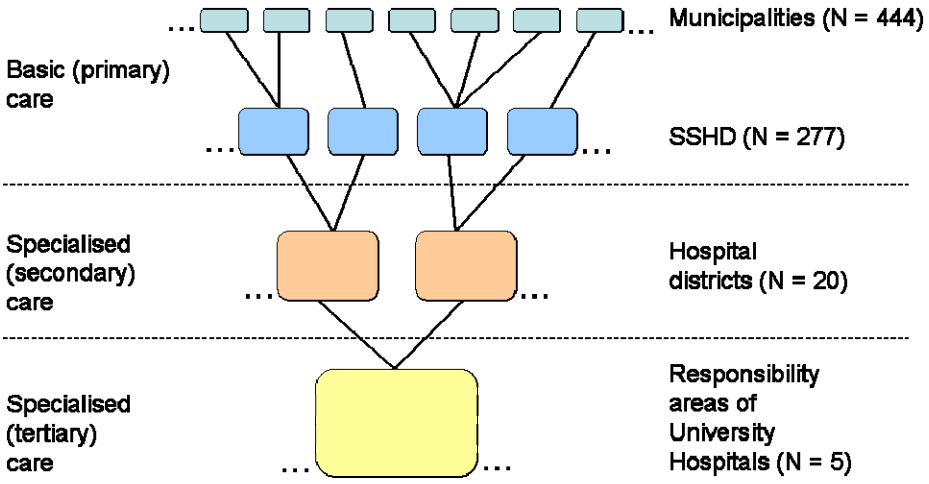


Figure 4 The three layers of care in Finland

The production of public services is supply driven. The legislation of social welfare and health care and health policy steer the arranging of services in the municipalities (Hämäläinen 1999). Secure provision of certain statutory services are considered so important, that the legislation gives citizens subjective rights to them. Many other services, including services for older people, are based on budget appropriations – citizens are entitled to services within the budgetary limits of the municipality. (STM 2001)

Decisions of organising the public health and social services are made in the committee of health and social services, in the municipal council, and in the municipal executive board. In 2000, a good third (38%) of the municipalities had merged their health committee and social services committee into a single committee (Järvelin 2002; Pöyry and Perälä 2003).

Social services and health care are mainly tax-financed. In 1999, 43% of public health services were financed by the municipalities, 18% by the state, 15% by the National Health Insurance (KELA) and about 24% by private sources (mainly households) (Järvelin 2002). The payment of households varied according to the municipality and to the service division. Older people paid the most; the payment was 21% in the institutional care for older people, 16% in home care, 7% in the specialised care and 15% in children's day care.(Vaarama, Voutilainen et al. 2002). The municipalities get the state subsidy according to the calculatory costs. The criteria of the state subsidy are the inhabitants' age, mortality and the number of unemployed. Half of the municipal budget will go to social welfare and the public health service (Järvelin 2002).

In Finland, the total expenditure on the public health service diminished between 1990 and 1999 (from 7.9% to 6.8% of the GNP); in 2002 the share was 7.3% (Järvelin 2002; Pekurinen 2004). During 2000, the operating costs of care for older people consisted of 65% for institutional care, 12% for service housing, and 23% for home care and support services (Vaarama, Voutilainen et al. 2002).

The care and services for older people are provided both in social and health care (Figure 5). The most important services offered to older people are home help service, home nursing, support services, support for informal care, service housing, institutional care and health services. The long term institutional care and the mix-type services are provided at community hospitals and in residential homes for older people. Day hospital services are provided by community hospitals. Social services, in turn, provide day centre activities, but also, service housing services and support services. The home help service and the home nursing are arranged either together or separately from each others. The co-operation between the social and health care sectors varies in the municipalities depending on the organisational structure or attitudes (Kauppinen, Forss et al. 2003; Perälä and Hammar 2003; Salonen and Haverinen 2004).

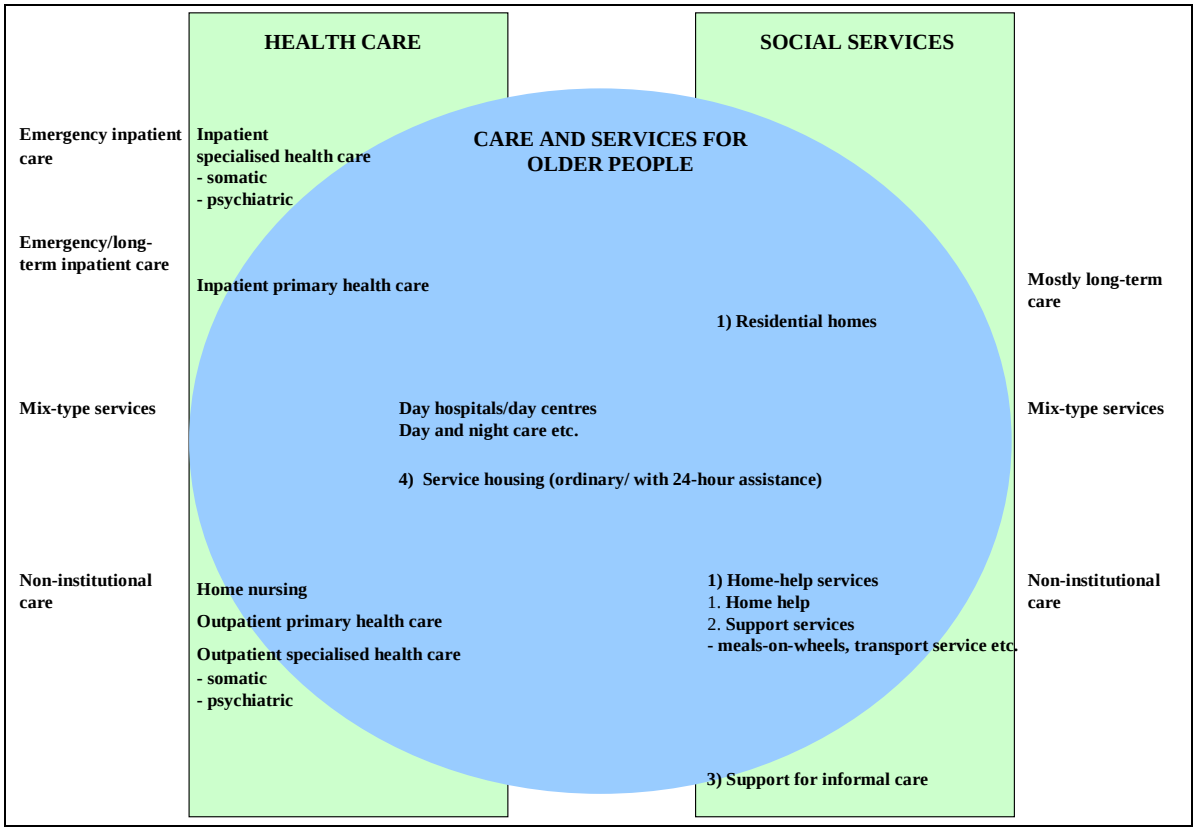


Figure 5 Service supply for older people in Finland (Noro 1998; Kauppinen, Forss et al. 2003).

The municipalities produce nearly 80% of the home help services for older people. Volunteer organisations produce about 13% and private companies about 10% of the home help services. The biggest organisation supporting the volunteer organisations is Finland's Slot Machine Association (Kauppinen, Forss et al. 2003). The number of the private companies producing home help services has increased during recent years. The reasons for this have been the growth of private services purchased by the municipalities, the growing number of the old persons who need services, and the

coming into force of a new law concerning the tax relief for home help services (Salonen and Haverinen 2004).

The municipalities buy most of the private social services, so the services can be considered as a part of the municipal social welfare (Kauppinen, Forss et al. 2003). The supply of private health care consists mainly of non-institutional care because, in Finland, private hospitals are situated only in the biggest cities. Older people use private doctors' services a lot, for example, 41% of people over 65-year-old visited a private doctor in 2002 (Kauppinen, Forss et al. 2003).

The responsibility of informal care has increased. The number of informal caregivers increased by one third from 1995 to 2000. The municipality can support the informal caregivers by paying the compensation for the care and by arranging the services which support them (Rissanen 1999; Salonen and Haverinen 2004).

4.2.2 Organizing the services for older people in the city of Kuopio

In Kuopio, a combined Social Services and Health Department (SSHD) is responsible for basic social and health services. The SSHD has been divided into eight divisions, or spheres of responsibilities: non-institutional care, hospital treatment, home care and work with the aged, day care, social work, psychosocial work, dental care, and administration (Figure 5). The management team of the SSHD of Kuopio consists of the director of Social Services and Health Care, the division leaders and a representative of the staff. The board of social welfare and health care is responsible for the political decision-making.

The city of Kuopio has two community hospitals for short-term and long-term care. Kuopio belongs to the hospital district of North-Savo from which it gets its specialised care services (Kuopion kaupunki 2004). Kuopio University hospital is the centre for one of the 5 special responsibility areas offering tertiary care. The municipality produces most of the basic services by itself but to an increasing extent it buys services from the outside producers of services to supplement its own operation (sem2).

> *Social Services and Health Department buys home nursing, comprehensive home care, temporary home care, alarm-phone services, night patrol services, support services (such as delivery of meals) and day centre services. The 'Residential Home Association of Kuopio' has access to the home care patient data system. Normally the access rights of data system can't be given to a private company because of data security. But the 'Residential Home Association of Kuopio' is an exception because the city of Kuopio is the sole customer* (hal5:2; sem2).

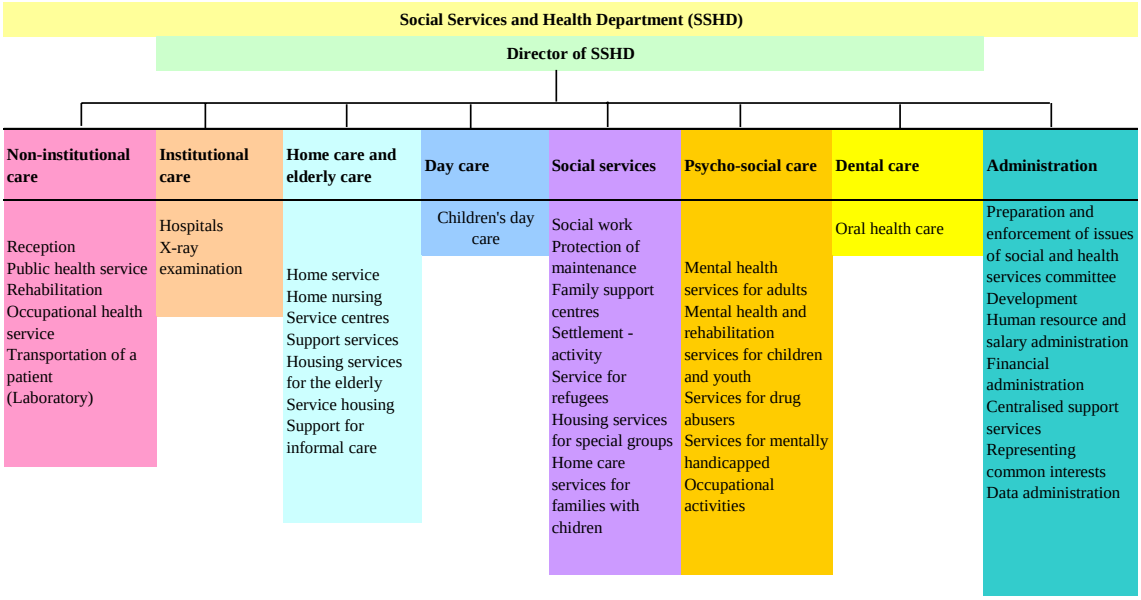


Figure 6 The organisation of the socialn services and health department of Kuopio since 1998

Division of Home Care and Elderly Care includes home care (home nursing and home help service), support services (alarm-phone services, catering services and day centre services), support of informal care, residential homes and service housing (ordinary and 24-hour assistance service housing, group homes)(Kuopion kaupungin sosiaali- ja terveyslautakunta 2001).

The home care supports the customer (and his family) in managing at home as long as possible. Home care is given to people needing primarily diurnal or partly diurnal care; the main stress is on the daytime service. The home care services required during night time are bought from a private company (Kuopion kaupungin sosiaali- ja terveyskeskus 2003).

Three residential homes offer long-term care for older people. The residential home services consist of service housing with 24-hour assistance, day centre services, rehabilitation, interval care and support services. One residential home also offer group home services (Kuopion kaupungin sosiaali- ja terveyslautakunta 2001). The ordinary service housing is maintained by the private companies, the 'Niiralan Kulma', the 'Residential Home Association of Kuopio' and the Lepola Foundation. Added to this, the city has one group home for older people and two family houses. Service housing with 24-hour assistance is also bought from private nursing companies. The town gives customer-specific bonds to these (Kuopion kaupungin sosiaali- ja terveyskeskus 2003).

> *The 'Residential Home Association' maintains service houses. The housing production is the most important thing for us. The clients of our service houses get municipal home care. The daytime activity, on the contrary, is produced as an outsourced service. Mäntylä and Pyöry are such units where our staff and municipal staff work together* (yks2:1).

Preventive activity in home care began in 2002, when a clinic for older people was opened. The objective of the clinic is to activate over 75-year-old people to promote their own health and to take responsibility for their own welfare. Another new home care activity was the phone information service (since 2001) (kh7).

In Kuopio, there has been a council for older people since 2000 which follows decision-making within the different divisions of the administration from older people's point of view. It also promotes co-operation between the municipality and different organisations of the older people. (Kuopion kaupungin sosiaali- ja terveyskeskus 2003).

The third sector has an important role in supporting the older people living at home. The church has arranged fellow services for about twenty years, and it has also arranged meeting places and serving telephones with the help of volunteers. Other important third sector organisations are the Alzheimer Association and the Finnish Red Cross whose Friend Service has operated for 40 years in Kuopio (Kuopion kaupungin sosiaali- ja terveyskeskus 2003).

The managers of the eight divisions are responsible for the operative management and the strategic development of the substance area of their divisions. The newly established IT Unit of Kuopio SSHD is responsible for the planning and development of information management in the SSHD. The IT Unit co-operates with the ADP unit of the city. The IT Unit also supports the main users selected from the staff responsible for peer support in IT related questions.

In the beginning of 2004, a new development unit was founded directly under the management of the SSHD. It supports the division managers in development of services. The development unit consists of the leader of the SSHD, the development managers, the financial manager, the IT manager, the planning officer of the City ADP Centre and a project staff. The development unit is still searching for its form. One objective is to review all the projects to assess the importance and commitment of objects and to integrate them (sem2) (Kuopion kaupunki 2004).

A developing committee has been operating in the SSHD of Kuopio already for years. In this co-operative organ different occupational groups are represented. The developing committee follows the development work on a general level. (sem2) (Kuopion kaupungin sosiaali- ja terveyslautakunta 2001).

In Kuopio, the social services and health care expenditure were EUR 1800 per resident in 2000. The home care expenses were 7.7% of the total expenditures from which nearly a fifth was covered by customer payments (Kuopion kaupungin sosiaali- ja terveyslautakunta 2001). The Kuopio's SSHD takes pride in its well-educated staff. In 2003, the SSHD invested 0.65% of the labour costs into education of the staff. The share of the home care was 0.25% of the labour costs of the home care in addition to which a separate allowance (€43 000) was arranged for ADP education. The whole staff had opportunity to participate in the education arranged by the human resources unit of the city. The cost of this education has not been allocated on different administrative divisions (Kuopion sosiaali- ja terveyskeskus/hallinto 27.8.2004).

> *In the employment announcements we emphasise that we provide opportunities for education. We have got the doctors' vacancies filled and there are dozens of applicants to the nurses' vacancies. Everyone is entitled to education for 3-10 days/year according to the recommendation. We train very much by ourselves and with the KUH (University hospital of Kuopio) (*sem2).

The development work in SSHD has greatly benefited from co-operation with the University hospital. Co-operation has been developed in order to reduce double work, develop the seamless care and service chains and improve the system of referral–feedback. Furthermore, a more effective distribution of work has been developed within different quarters, for example, by combining emergency activities into a common emergency with the University Hospital of Kuopio (KUH).

The development culture is optimistic in the SSHD of Kuopio. The challenge is found in the relation of the need for the services and the actual resources; "a more efficient and economical way to produce the services had to be found". The developing optimism of the leaders and of the whole staff as well as the high education level has affected participation in the new projects. Several co-operation projects have started because there are good connections between the City's human resources department and the Ministry of Labour. The effect of the University of Kuopio (especially health and social sciences) is important to development because many workers have graduated from the university and the network is already there. It seems that in the long run, establishment of the University hospital also affected to improvement of development (sem2).

4.3 Support for social and health care innovations

4.3.1 Social services and health care research and development in Finland

4.3.1.1 The national structure of research and development

The national guidelines of research and development have been presented in a science and technology policy. The objective of the policy is to develop the research system, to improve the international science and technology co-operation, and to exploit of information and know-how. The parliament has a significant role in the development and implementation of the Finnish science and technology policy. For this reason the parliament founded a 'Future Committee' in 2000. It deals with matters which are related to the factors of Finland's future and to international trends. It also carries out the assessment of technological development and the social effects of technology (Suurla 2001). Since 1990, the design of the national science and technology policy and the innovation policy has been the task of the Science and Technology Policy Council, led by the Prime Minister.

The central organisations which are responsible for the science and technology policy are the Ministry of Education and the Ministry of Trade and Industry. The Ministry of Education is responsible for education, science policy, universities and the Academy of Finland. The Ministry of Trade and Industry is responsible for the industrial and technology policy, the National Technology Agency (TEKES) and the Technical Research Centre of Finland (VTT) (Seppälä 2004).

The Ministry of Social Affairs and Health has a research and development strategy co-ordinated by the Committee of Research and Development of Social Security. It draws up a target programme of research policy which is based on the strategy and the government programme (Sosiaali- ja terveysministeriö 2004).

Some ministries finance sectoral research institutions and in this way they contribute to the research of social development in their field. One of these is the National Research and Development Centre for Welfare and Health (STAKES), which operates under Ministry of Social Affairs and Health. The Social Insurance Institution of Finland (KELA) conducts social security research. Social and health service research is also conducted by the universities. (Huttunen 2004; Sosiaali- ja terveysministeriö 2004).

The national system for developing innovations is complex. It consists of political decision makers, financers, national and local level innovators and implementers of the policies. These affect research and development and the use and scope of developing new technologies, products and services (Lievonen 2002). Innovation policy in Finland has long been mainly technology policy. Recently discussions about social innovations have increased dramatically, and co-operation between technical and social research institutes has been emphasised. Both TEKES and SITRA have initiated action to participate in development for welfare services as well as technologies.

Table 5 presents the actors of the national innovation system from the decision-makers to the financiers and implementers. The dispersal of decision-making, financing and actors in different levels and organisations is obvious, emphasising the need for vertical and horizontal co-operation.

Table 2 National innovation system and actors of social welfare and public health (adapted from Vähäjyrkkä 2003)

Sector	Role	Actors	
Public sector	Decision-makers	Parliament Government Science and Technology Committee Future Committee	Ministry of Education Ministry of Trade and Industry Ministry of Social Affairs and Health Other ministries
	Financiers	Ministries Academy of Finland Tekes Sitra	Finnish Slot Machine Association Municipalities External financing (for example EU)
	Implementors of the national level	Research institutions of ministries Universities Polytechnics	Social Insurance Institution Association of Finnish Local and Regional Authorities
	Implementors of the regional level	University hospitals Provincial governments Hospital districts	Federations of municipalities Municipalities
Private sector	Implementors Financiers Decision makers	Companies Research institutions Funds and foundations	Organisations Scientific companies

4.3.1.2 National financing of research and development

Finland has invested heavily in research and development during the last few years. Research and development expenses have trebled in Finland between 1993 and 2002 (EUR 3 375 million). At the same time, the share of expenses of the public sector has diminished. In the meantime, the share of companies has grown and the share of universities has stayed at the same level. The share of budget for research and development is lower in social welfare and health care than in other administrative divisions (Huttunen 2004).

Nearly 80 % of the financing of science and technology is channelled through the Ministry of Education and Ministry of Trade and Industry (Seppälä 2004). The Finnish National Fund for Research and Development (Sitra) finances research and development. Sitra is financed with the yields of a basic capital and enterprises. Research and development are supported by the financing of the ministries, for example, development programmes, researches and studies (Huttunen 2004).

The Academy of Finland has built research programmes to correspond to the information needs of the public health service and of society. In addition to the Academy of Finland, some other institutions (for example the ministries, the National Technology Agency, the Social Insurance Institution of Finland) are financing research programmes. The National Technology Agency (Tekes) grants financing to the research institutions, to the individual projects or programs. Research from different disciplines is supported by the Finnish Slot Machine Association (RAY) and Veikkaus (National gaming association). A significant financing source in health care is also the state's compensation to health care organisations for the research activities according to the law of specialised care (the EVO financing) (Huttunen 2004).

4.3.1.3 National and local steering systems for developing the services for older people

After the state subsidy reform in the 1990's, the operation of social welfare and health care changed from a centralised system to perhaps the most decentralised system of the industrial countries. Centrally planned regulatory steering and norm steering has been replaced with information steering (Kokko 2002) and in recent years, with program steering. The change in the steering system increased the significance of state and local strategies and policies (for example the old-age policy).

Since the shift of development responsibility from government to municipalities, the role of local actors has changed from passive norm followers to active service developers. Research shows that this change has not always been easy (Seppänen-Järvelä 1999; Hyppönen 2004b). Limited resources and increasing demand for services have led to increasing pressure for rationalisation and intensification as central objectives of development.

Municipality of Kuopio has not been an exception. The economic difficulties of City of Kuopio in the last half of 1990's called for new measures to develop especially the care for older people also in Kuopio. In Kuopio, development has proceeded mostly in internal projects or in co-operation with the hospital district, the university or other

research institution, for example with STAKES. Expert services have also been bought from the private enterprises. The development projects have been broad based; some of the projects have been internal projects of the SSHD, and some projects have been broader. The third and private sector have participated in the projects of the SSHD, and they have started their own projects, too. The city of Kuopio has given facilities and financing to the organisations which have trained persons for voluntary work (hal5:3; h10). Lack of resources for development is a problem:

> *The responsibility of the development has shifted to service producers but they do not always have development resources. Quite recently, I have heard some critical comments because the best and most active workers always participate in new projects. If someone leaves the 'line', others have to cover for her (th1:42).*

> *During the last few years these projects have become one concrete form of work. The public administration has given the municipalities more money for the development projects as part of 'Securing the future of health care'. At the moment, external money is reasonably well available, but half of the project funding has to always come from the municipality (sem2).*

The Ministry of Social Affairs and Health determines social and health policy and directs the development of the service system. The general objectives and measures of social welfare and health care are accepted for the whole government term for the target programme and plan of action for social welfare and health care. The ministry prepares the programs and projects and quality recommendations accepted by the government as the tools for development and steering. The Ministry of Social Affairs and Health draws up the program objectives, while the service producers choose their local and regional objects for development (Ohtonen 2002; Viisainen, Saalasti-Koskinen et al. 2002).

The aim of Finland's old-age policy is to take care of the quality of older people's care, to promote the older people's welfare and independent living at home. (Sosiaali- ja terveysministeriö 1999b). The government programme for 2000–2003 emphasizes developing the non-institutional care and the environment which supports the welfare, as well as the prevention of problems and the functionality of the services (Sosiaali- ja terveysministeriö 1999a). Furthermore, networking and multifunctionality,in other words the co-operation of public, private and third sector, has been emphasised in arranging of services (Sosiaali- ja terveysministeriö 1999b).

Since the beginning of the 1990s, the Ministry of Social Affairs and Health has, by means of recommendations, directed older people's care towards a non-institutional care-orientation. The first recommendations concerning care for older people were presented in 1992 (the report of services' structure by the Ministry of Social Affairs and Health). The implementation programme of old-age policy set targets for older people to live at home (Sosiaali- ja terveysministeriö 1996b). The Ministry of Social Affairs and Health and the Association of Finnish Local and Regional Authorities published quality recommendations for care for older people in 2001. It was recommended that each municipality should have an old-age policy strategy including a service development programme (Sosiaali- ja terveysministeriö 2002a). In 2000, 39% of the

municipalities had an old-age policy strategy and 27% were in the process of drawing one up (Vaarama, Voutilainen et al. 2002).

The SSHD of Kuopio have tried to integrate the views of service users and different actors into their old-age policy strategy. The SSHD has purchased consultation services from STAKES which has had a central role in drawing up the old-age strategy. The objective of the strategy (1999–2010) was that older people should live at home independently with the help of relatives, friends and neighbours using the services of different associations, organisations, companies and home care. The older people's capacity, independent initiative, and living at home should be supported by the work of all divisions within the administration. Independent initiative is supported by the aggregate of services which consists of home care and the support services which are related to it, from service housing, to institutional care and acute and specialised care. The old-age policy strategy was drawn up as an administrative co-operation with the organisations, the home care teams, the private service producers and older people. The older peoples' views were represented by the pensioners' co-operative commission (16 organisations) and by an older people's council (Kuopion sosiaali- ja terveyskeskus 1999; Kuopion kaupungin sosiaali- ja terveyskeskus 2003).

> *We developed this old-aged policy strategy over a year. There were representatives from different divisions of the city administration, for example the Social Services and Health Department, the technical office, culture and leisure. There were also representatives from the university, the Church, and the committee of social services and health care. Representation on behalf of older people was also called when necessary. The work was carried out in different small groups, and then the subjects were brought together in the older people's forum (hal5:4).*
>
> *The SSHD made its own ADP strategy based on the strategies of social services and health care (*atk4:33).

In many national programmes there are objectives related to the development of services for older people. For example, the national health programme 'Health in the 2015' includes an objective to promote functional capacity of older people (Sosiaali- ja terveysministeriö 2004b). The national programme of 'Securing the future of health care' (2002 - 2007) is focused on securing the access to the care, adding co-operation and distribution of work in the specialised care and emphasising the functionality of the basic services (Sosiaali- ja terveysministeriö 2002b). One focus area of the 'National development project for social services' (2004 - 2007) is the addition of regional co-operation in the production of social services.

The Ministry of Social Affairs and Health and the Council of State directs the developing of health care also through project funding. For example, state will allocate EUR 30 million for the project 'Securing the future of health care' yearly in 2004– 2007. The financing is granted to projects that introduce co-operation between the (five) university hospitals, (20) hospital districts and municipalities (Sosiaali- ja terveysministeriö 2002b). The 'National development project for social services' was

allocated EUR 4 million for projects carried out during 2004–2006 (Sosiaali- ja terveysministeriö 2004d)..

The Academy of Finland has financed health care research in its research programmes. The research programme of ITU (Finnish Research Programme on Ageing) (2000 - 2002) was allocated altogether EUR 3.4 million and TERTTU (Health Services Research) (2004 - 2007) EUR 7 millions (Jallinoja, Walker et al. 2003; Suomen Akatemia 2004).

The local and regional development of social and health care services is abundant and multiform. According to a study conducted in 2000 there were 386 on-going development projects related to social services and health care in Finland. Nearly half of the projects were done in co-operation with other organisations (local, regional, national or international). Three out of four projects were connected to seamless care and services (Paaso 2000).

4.3.1.4 Seamless care and services as a national objective

Integration of care and services has been a central objective in governmental activities since mid 1990's and increasingly in practice in developing social welfare and health care services during the last few years both in Finland (e.g. Hyppönen et. al 2005) and abroad (Hardy, van Raak et al. 2003; Leichsenring and Alaszewski 2004). The need for integrating services is increased when the network of providers is growing (Perälä, Rissanen et al. 2003; Sinkkonen and Jaatinen 2003). In Finland, the need for integrated care and services has been increased by ageing of the population and changes in the service structure; older people have more often several simultaneous health-related problems, non-institutional care and mix-type services (Sinkkonen and Jaatinen 2003).

In Finland, one form of integration has been combining administration and activities of the social services and health care. This has been done in many municipalities, including Kuopio. Other methods used have been regular and planned contracts (for example the SAS-group: Plan-Assess-Locate) between the multidisciplinary teams or the separate producers. A multidisciplinary care or service plan has also been used, seamless service chains have been constructed, quality management employed, regional reference databases and joint information and communication systems implemented and case managers appointed. (Sosiaali- ja terveysministeriö 2000a), Perälä and Hammar 2003).

Much of the development has been technology-led, and much of the implementation of information technology has been government-led. The governmental interest led to generating a data processing development programme in health care in the 1970s. The programme aimed to rationalise work and automate activities with the help of modern technologies. In the 1980s some experimental projects were carried out that aimed at rationalisation of work and administration and improving the services by implementing new information technology. The impact was not what was intended, and workers had difficulties in perceiving value of IT in everyday work. (Hyppönen 2004.)

In 1996, the Ministry of Social Affairs and Health published a strategy describing objectives and principles for applying information technology in social welfare and

health care. The strategy included a plan to apply and embed seamless chains of care and regional information systems. The aim of the strategy was to improve accessibility, quality and effectiveness of services. The action lines and concrete research and development projects were defined in strategy in order to study how the exploitation of information technology affects national living conditions, possibilities for supporting independent living, the service system, and the need for the education of personnel (Sosiaali- ja terveysministeriö 1996a). In the background there was an idea of renewing the care and service processes, thus increasing cost efficiency and supply of services. Information technology was foreseen as having an important role in change of the production processes of social and health care. (Sosiaali- ja terveysministeriö 1996a).

Since the strategy was published, there have been hundreds of IT application projects in social and health care. The funding of projects that accorded with the IT strategy of Ministry of Social Affairs and Health was suggested to be 10 million FIM for year 1997 alone (Sosiaali- ja terveysministeriö 1996a). From 1999-2001 the Ministry of Social Affairs and Health committed to the Macropilot project the sum of 19.35 million FIM (EUR 3.5 million). The experiment was later continued for a further six months, the project therefore receiving extra funding (Ohtonen 2002). In 2000, 60 million FIM was allocated from the future package by the Council of State's decision in principle to improve the service system of social welfare and health care by means information technology (Sosiaali- ja terveysministeriö 2000b).

The preparation for Finland's largest single project in the turn of the century, Macropilot, was done in the summer of 1998 also in Kuopio area in hospital districts of Northern and Southern Savo and North Karelia (Tolppanen and Yli-Olli 1999). One hospital district, Satakunta, was selected in Macropilot to pilot seamless care supported by new technologies. (Hänninen, Paaso et al. 2001). The Macropilot project aimed at developing and testing patient and customer-oriented seamless care and services based on technical tools and solutions (Ohtonen 2002) . The trial was supported by a specific experimental act (Ohtonen 2002; Sosiaali- ja terveysministeriö 2002a). Its term was continued, with the aim of getting a permanent law in the beginning of 2006 (Sosiaali- ja terveysministeriö 2004c). In 2001 the trial expanded to the hospital districts of Pirkanmaa and Helsinki and Uusimaa. In the beginning of 2004 all municipalities and federations of municipalities have been able to apply for the trial. (Tenhunen, Hämäläinen et al. 2005). Seamless services and service chains have been developed in hospital districts also outside the experimental act.

Macropilot showed, that achieving the administrative, functional and technological change required for seamless care turned out to be a demanding and slow process. Implementing technologies without renewing the service processes and structures will only increase the workload. The projects were too short for introducing both functional and technical change. Expectations were unrealistic, there were difficulties in reconciling of the expectations of different actors (Liikanen 2002; Ohtonen 2002). Other research show, that development of new technologies has often happened too apart from practical service activity and its development. (Whitten and Rowe-Adjibogoun 2003; Hyppönen 2004b)

4.3.1.5 Integration of care for older people in city of Kuopio

In Kuopio, investing in the development of specialised care has been a conscious political decision. Building the Kuopio University Hospital (KUH) as a multifunctional university hospital in the 1970's has had a big impact on social and health services in Kuopio. This has been seen to diminish resources allocated to primary care: Input in specialised care has directed attention away from primary care. Compared to other cities, the inhabitants of Kuopio have been treated more often in the KUH although patients didn't need treatment of university hospital level. (Kokko 1998).

The integration of the administration and functions of the Social Services and Health Department of Kuopio started as a part of the general reform of the administration of the city. The boards of social welfare and health care were combined at the beginning of 1993. The offices and the units were merged during 1994–1995. The purpose was to streamline the organisation, increase co-operation, multiprofessional work, customer orientation and effectiveness and reduce scaling of services (Kivinen, Sinkkonen et al. 1998).

The home help service and home nursing were merged into home care in 1994. At first, the organisation model was area based. After 1998 it was changed into a function-based model. Kuopio's home care contained three area-based organisations; central, southern and northern. The fourth area (Riistavesi) later became its own area. The features of the function-based (a primary organising principle) and area-based model were combined in this organisational model. In 2001, the Division was named as the 'Division of Home Care and Elderly Care' (Paljärvi, Rissanen et al. 2003). In this fusion several functions relating to the care for older people were connected under the same administrative unit.

The multiprofessional teams of home care were founded in 1997. The different homecare professions took part in the teams; the home aids, the home helps, the home help instructors, the practical nurses, the nurses, the public health nurses, the head nurses and the doctors. Furthermore, some functions which were earlier under the social services were integrated into the home care unit, among others, the older people's housing services. (Paljärvi, Rissanen et al. 2003).

The care/case management system was officially brought into use in home care in Kuopio in 2002. In this context the SSHD of Kuopio arranged an education with the University of Kuopio's Institute for Nursing Science during 2002 and 2003. In the community hospitals, the system had already been implemented earlier. The named doctor system was piloted during the 1990–1993 and will be established at the beginning of 2005. The service and care chains that accord with diagnoses are not yet implemented in care for older people, but they are being developed. A private consultant company HAUS conducted a study which is used to generate required service chains in Kuopio. (kh7). (Kokko 1998; Paljärvi 2004).

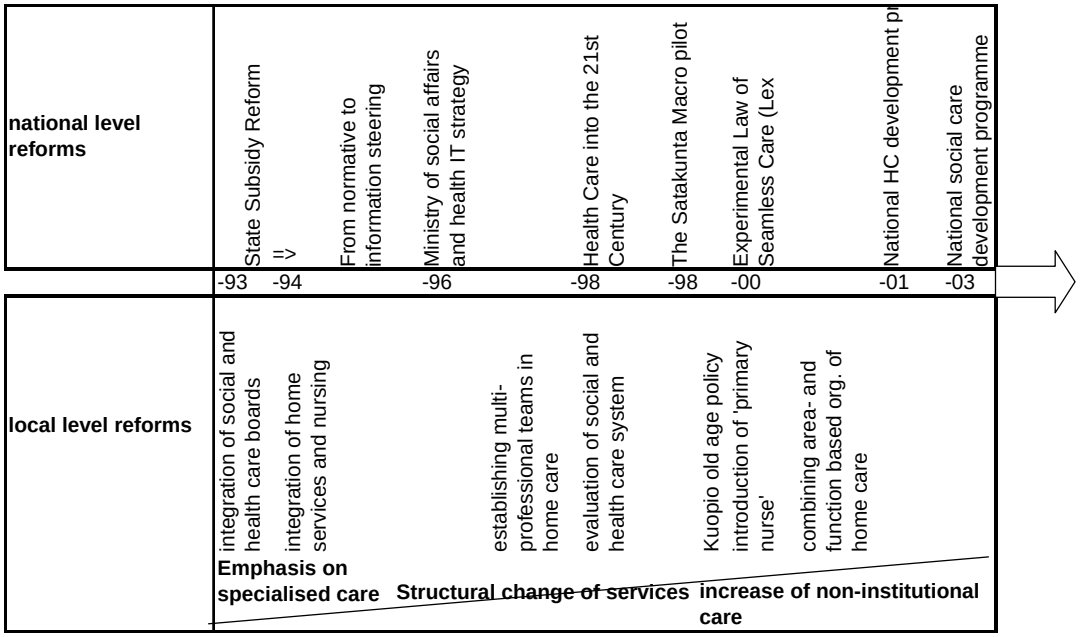
Social Services and Health Department of Kuopio ordered a large evaluation of the system from STAKES (1997 - 1998) (Kokko). According to the study, shortcomings in the care and service chains were perceived, as well as in the discharge to home, in the amount of the staff, and in the information transfer. Care for older people needed

considerable structural change. Emphasis on mix-type services and home care needed to be increased.

The development of integrated care has been speeded up by the service structure reform (from institutional care to non-institutional care) and by the organisational reform (from an area-based organisation to a function-based organisation). The realisation of the structural change of services is illustrated in statistics from the year 1998 to 2001; home care and ordinary service housing increased, and long term care and service housing with 24-hour assistance decreased. (Paljärvi Tekesin seminaari)

Some of the main reforms on national and local level are depicted in Table 3.

Table 3 Main reforms on national and local level



Attempts have been made to develop care for older people both internally and by participating in development projects supported by external experts (Paljärvi 2004). In Kuopio there have been several projects concerning integrated care (Figure 6) with parallel objectives. We calculated 12 different projects between 1998–2005, many of them run simultaneously.

Table 4 Projects for developing care for older people in city of Kuopio

PROJECT	1998	1999	2000	2001	2002	2003	2004
Development project in teamwork							
Controlled structural change in home care							
Rehabilitating homecare							
Patient's path							
VEGA							
PALKO							
Readjustment, support of funtional abilities and prevention of ignoring people with dementia							
Development of services centers in change of service systems							
PlugIT							
Named nurses and teamwork							
Supporting the people with dementia living at home and group activities							
New competence to elderly care							

In the next chapter we examine use of expert services on a grass root level in two projects (PALKO and VEGA) which explicitly aimed to integrate care by improving co-operation and information transfer in the home care of the city of Kuopio.

5 Role of expert services in construction of seamless care of older people in Kuopio

The PALKO-project in Kuopio is a part of a wider multidisciplinary research project by the National Research and Development Centre for Welfare and Health, STAKES. STAKES developed a generic, integrated care model (PALKO) which was based on the literature and on an action research of three hospitals and home care in one municipality in Finland. STAKES also generated a bottom-up type implementation and embedding method for transferring the model to home care in other municipalities (principles of guided action research)(Perälä and Hammar 2003). STAKES offered this generic PALKO model to other municipalities for the purpose of integrating services (e.g. home care in Kuopio: as reported in this KISA case). STAKES evaluated the implementation process (reported in this KISA case) and the effects of the PALKO model using experimental design (22 municipalities).

STAKES asked Kuopio's SSHD and the University Hospital of Kuopio (KUH) to be involved in the evaluation study. In this study, we describe the generating process of the local PALKO model based on the generic PALKO model where a participative (bottom-up type) development method was used (Table 5). This development process was carried out in Kuopio in 2000–2004.

Table 5 Description of PALKO-project

	PALKO research project	**PALKO development project in Kuopio**
Organizational form	An experimental research project of STAKES with subprojects in municipalities.	A development project of Social Services and Health Department (SSHD) of Kuopio as a part of the PALKO-project
Ownership	STAKES: research project and tools for development Municipalities and hospitals: development projects	SSHD of Kuopio and University Hospital of Kuopio.
Business idea	Provision of knowledge about the effectiveness and suitability of the generic, integrated care PALKO model and implementation method.	Provision of integrated care and services in a seamless care chain: seamless information transfer and co-operation between producers in services chain.
Volume	Total of 22 municipalities (754 000 inhabitants) of which 11 were in an experimental and 11 in a comparison group.	Primary and specialised care of the city of Kuopio (about 80 000 inhabitants).
Duration	1999 - 2004	2000 – 2004
Description of innovation	A generic PALKO model and an effective implementation method for the development of a seamless care chain.	A local PALKO model based on the generic PALKO model, and its implementation and embedding into practice.

The PALKO integrated care model is home–care-driven and focuses on patient care in the service chain and home care; improving the continuity of care, especially in the interfaces between specialised care and home care; between health care and social services in home care, as well as between public and private or third sector. The PALKO model consists of practices that promote different aspects of seamless care including (Table 6) (1) the flow of information from a care producer to someone else in clients' care and service chain (content and data transmission), (2) co-ordination of the services and patient care as whole (team and care/case manager) and (3) co-operation between care and service producers including home care and hospital personnel, informal caregivers and third sector actors (agreed practices; criteria).

Table 6 Content of PALKO model (adapted from Perälä et al.. 2004)

	PALKO model
Target	To support clients' well-being at home and to ensure that the clients get convenient services. To build up preconditions for seamless care, information transfer and co-operation by developing methods and procedures in the interfaces between services.
Content	Practices and methods of clear and non-delayed information transfer between staff, clients/patients and relatives, and also between different units. • Agreed data content and practices of information transfer • Instruments supporting seamless information transfer Co-ordination of integrated care in care and service chain • Named person(s) in charge in the home care (home nursing and home help services) and in the hospitals: care/case manager, / named nurse Responsibilities and practices in co-operation of care and service producers: home care, hospitals, private and third sector and informal care givers • Criteria of co-operation practices Proactive planning of discharging the patient from hospital to home care. • Criteria of co-operation practices
Service producers	The network of all care and service producers consists of public, private and third sector actors.
Target group	The clients/patients of the social welfare and health care who get home nursing or home-help services or other services at home
Intensity and duration of services	Duration of the care relationship is usually long-standing; from the definition of needs to rehabilitation or transferring to institutional care. The intensity of care varies according to heath status and clients' needs of care and services.
Support of implemen-tation	Generic PALKO model: easy to implement and embed locally in practice Criteria of the PALKO model: evaluation form Guidelines for implementation and embedding: participative approach of development as part of daily activity

The VEGA-project was initiated by questions raised by external evaluation, Department of social and health care management and City Data Management Centre in 1998 (Table

7). The out-dated hardware and software had proved inadequate to meet the increasing demands for information creation, storage and transfer. Old technologies had insufficient capacity to deal with the demands caused by an increasing workload and the pressure for increased efficiency. There were numerous different applications that did not work together. Most of the patient information was in paper-format. This made it impossible to realise a seamless care in practice. There were only a few PCs available in the whole of the social and health care sector in Kuopio, and most of the personnel had no experience of automatic information processing or information systems (Kiviaho and Turunen 2003). A key question was how to make modern technology realistically serve the key development objectives of social and health care in the city.

The Social Services and Health Department and the City Data Management Centre decided to solve these problems by creating a data management strategy, which was tightly integrated with social and health care strategies. The realisation of the data management strategy was arranged as a project called VEGA which took place during 1999-2003. It included the uptake of a new, integrated client and management information system with large investments in modern equipment. For workers, the implementation of new technology meant a change from paper–based records to electronic patient information and management systems (Kiviaho and Turunen 2003). About 1000 work stations were renewed and the personnel was trained.4:5 (103:112)

Table 7 Description of the VEGA-project

	VEGA-project
Organizational form	A client information system project of SSHD of Kuopio composed of several subprojects
Ownership	SSHD of Kuopio
Business idea	Implementation of information technology (Pegasos EPR and MIS, PC's) to support the seamless chains of care
Volume	8 subprojects, 4 data management systems, 700-10(Stakes 1999)00 personal computers, used by 2135 workers in SSHD, serving 86 651 inhabitants (31.12.2000)
Duration	1999-2004
Description of innovation	Implementation of service-driven data management strategy and a joint information system for care providers to support seamless services

5.1 PALKO-project: Implementation of the integrated care model

5.1.1 Decision of entry to the PALKO-project and starting point in Kuopio

In the city of Kuopio, the PALKO-project started at the initiative of an external expert, a research organisation STAKES. In 1999, STAKES (The National Research and Development Centre for Welfare and Health) asked the Social Services and Health Department (SSHD) of Kuopio about their interest to take part in testing the generic PALKO model together with 21 other municipalities (Perälä, Rissanen et al. 2003). The city of Kuopio was interested in the research because the project involved issues about development of home care for older people and seamless services. This fit in well with

Kuopio's political strategy of elderly care which stresses out-patient care and living at home as long as possible (kh7).

In august 2000, the contract for the PALKO-project was signed between the city of Kuopio and STAKES. The duration of the project was defined from the year 2000 to the end of June 2004. Agreements about duties, responsibilities, actors and financing were also included in the contract (table 6). The university hospital of Kuopio (KUH below in the text) decided to take part as a co-operation partner. Two project co-ordinators were named - one from the SSHD of Kuopio and the other from KUH - and two key persons of the PALKO-project from the city of Kuopio.

Table 8 Phases and timetable of the PALKO-process in Kuopio

SSHD of Kuopio (and KUH)	Time-table	STAKES
Entry of the city of Kuopio	1999	Contact
Entry of the university hospital of Kuopio (KUH)	2000	Contact
Contract, Naming of the project co-ordinators	2000	Contract
	2000-2001	Base-line evaluation
Participation in a STAKES work-shop • Planning of project organisation	2001/6	Holding of the work-shop Supplementary material • PALKO model, criterias, guidelines of implementation
Project planning meeting • Targets, timetable, organising	2001/8	Participating in the meetings • Targets, progress, support
Meetings of the small- and project groups	2001-2003	
PALKO model I to STAKES • problems and targets	2001/11	Feedback
Participation in a STAKESwork-shop	2001/11	Results of baselineevaluations and models of municipalities
PALKO model II to STAKES • resolutions and implementation plan	2002/1	Feedback
Self evaluation (small groups)	2002/1	
Implementation	2002-2004	
Information, education of implementation	2002/2	Providing some of the education and information
Self evaluation (project group)	2002/5	
Self evaluation (small groups)	2002/11	
PALKO model III, acceptance of the model	2004/1	
	11/2002-2004	Evalutaion of effectiveness and implementation
Embedding: follow-up group, small groups	2004/7	

1) STAKES evaluated the effectiveness of the PALKO model by means of an experimental study with 22 participating municipalities. Baseline research was done before the development work (in 2000), and follow-up took place after the development work (in 2003).

In the first STAKES workshop (2 days), in June 2001, the PALKO-project representatives from Kuopio (the project co-ordinators and key persons) and 10 other trial municipalities first came into contact with the PALKO model and its implementation. Before the workshop, the researchers from STAKES sent the representatives some written material concerning tasks on the workshop table. The workshop was the first meeting where the project's content, implementation and timetable were discussed. In addition, concrete planning of the development started

during the workshop. The responsibilities of central developers of PALKO-project are shown in the Table 9.

Table 9 Responsibilities of central experts in PALKO-project.

Organi-sation	Responsibilities in the development work
STAKES[1,2]	• Development and support of implementation: workshops and seminar (total 5 days), meetings in the municipalities (4 days per municipality), participation in planning and implementation • Tools of implementation: Generic PALKO model with criteria and implementation guidelines • Evaluation of effects and implementation of the project and reporting • Feedback to the municipality about the research results → the municipality can do further development work • Financing for the research
SSHD of Kuopio[1]	• With the support of STAKES; development and implementation in the Social Services and Health Department of Kuopio • Naming of the project co-ordinator and other persons in charge • Informing the personnel and co-operation partners • Financing for the development work
KUH [2]	• With the support of STAKES, development and implementation in the university hospital of Kuopio • Naming the project co-ordinator and other persons in charge • Informing the personnel of the KUH • Financing for the development work

[1] Sources: Kuopio's contract of PALKO-project and development plan of PALKO-project in municipalities (2001-2004)
[2] Source: Invitation letter of PALKO-project to the KUH.

5.1.2 Development process and the actors' roles

Organisation of the development work

Organisation of the development work started with the meeting of the planning group that was held in autumn 2001. The directors of the divisions of the SSHD of Kuopio selected members for the planning group after consulting the leaders of the working units. The people selected to be members of the planning group were from the SSHD of Kuopio (home care, in-patient care, out-patient care) and from the KUH. The members of the project group (12) and the members of the preparation group (4) for the PALKO-project were selected by the planning group. The targets, phases of progress and resources of the project were also determined in the planning meeting, as were the working methods, the number and combination of small groups, and their leaders and targets. The STAKES representative took part in the planning meeting and some project meetings.

The project group named five small groups, one for each care chain: the transfer of patients (1) from home to hospital care (emergency); (2) discharge from specialised care to the primary care (health centre in-patient ward); (3) discharge from specialised care to go home; (4) discharge from the health centre in-patient ward to go home; and (5) the

patient's home care. The members of the small groups were from the primary and specialised care sectors and from different occupational groups (tk8). They were selected by the planning group with the help of the directors of the divisions of the SSHD and the guidelines provided by STAKES (kh7).

The small groups described the current practice, defined problems, modelled the new practice (targets and procedure) and supported the leaders in its implementation. All members of the groups did their project work alongside their own normal work; only one secretary was detached from her normal work for a couple months so that she could work only on the project (tk8). Altogether 57 people participated in the PALKO-project as small group members and 12 as project group members (some people were members of both the project group and small groups).

The project group and the small groups had no members from the private sector or the third sector. Some discussions were held, but the private sector had no resources for participation (kh7). Later in the process, there was not much co-operation with the private sector or the third sector (tk8), but targets for development were redefined to include, for example, agreements on common principles of care with the private sector (the night patrol) and co-operation with volunteer organisations.

Definition of the problems

The small groups described the information transfer and the current co-operation practices of home care. They also identified problems in the interfaces of services and presented their output to the project group. For problem identification, STAKES sent an electronic prototype of the PALKO model, which the small groups used to describe the current care practice. The small groups had criteria for co-operation and information transfer that were based on an evaluation of the current practice conducted by representatives of the home care and representatives of the local hospital. Also, the small groups had the results of a baseline evaluation for the 11 cities participating in the PALKO-project (enquiries made among patients, informal care givers and designated nurses).

Representation of different knowledge types was ensured by taking care when compiling the small and project groups. Whether outside personnel were heard in the problem definition process depended on the activity of the small group members and the nurses in charge. Many of them took some items up for discussion in their own working units (esh9). In some units, some discussion about the plan for the PALKO-project occurred during ward meetings; in this way, the personnel supported the small group member in his/her development work. The project co-ordinator at the KUH used email to ask the nurses in charge at the KUH about the progress of the project in their units (esh9).

The project group approved the output (PALKO model I) produced by the small groups (including the current home care practice, definition of the problems and the preliminary targets). The resolutions of the municipal PALKO models were handled in the STAKES workshop, where the representatives of municipalities received some information and peer support. Before the workshop, the municipalities were sent the

drafts of all 11 municipal PALKO models and some results of the baseline evaluation (comparison of the municipalities). During the workshop the next step, i.e. planning of the implementation, was also dealt with.

Planning of the implementation

The small groups were in a central position in planning the implementation. They produced the modification plan indicating the targets, devices, persons in charge and timetable. The project group approved the modification plan, gave some feedback and supervised the implementation. It was planned to carry out the implementation between October 2001 and January 2002.

Planning of the modification and the implementation forged ahead step by step; solutions underwent experimentation in practice, they were evaluated and redeveloped already during the planning stage. The modification plan was discussed and approved in the project group, which had members from the executive level as well. Therefore some changes could be agreed already within the project group. When necessary, some items were also discussed in the meeting of nurses in charge. (tk8)

Two documents were produced as the output of planning. The first document was Kuopio's own PALKO model, including a description of the patient's pathway from home to (primary and specialised) hospital and from hospital to home, the current practice, problems and potential targets. The other document was the modification plan to pass on the new practice. It included the methods for reaching the targets, the persons in charge and the timetable for implementation and evaluation.

The changes entailed by the PALKO-project in Kuopio concentrated largely on the whole discharge process and care chain. They also focused on practices and ways of working in co-operation and on information transfer in the interfaces. One aspect of problem-solving was developing new tools and planning new action methods, testing and, finally, learning and teaching others how to use them. To carry out the development of new working methods, persons and groups in charge were named and timetables were set. The persons in charge reported to the unit leaders with regard to information transfer.

Implementation

The leaders of home care and institutional care had the central responsibility for implementation, which was included in their normal management work. The members of the project group at different levels of the organisation were named as persons in charge; they received support from the project co-ordinators and the key persons. There was also the possibility of consulting the researchers at STAKES as needed. The small groups followed the implementation and assessed how well the targets had been reached, and they kept the project group informed.

Different types of education were arranged for supporting the implementation of Kuopio's PALKO model. Additionally, STAKES arranged workshops for the project co-ordinators and the key persons of all 11 PALKO municipalities. In Kuopio, in

February 2002, the project group, together with the KUH and STAKES, arranged an (one day) information and education session for the personnel of the SSHD of Kuopio and the KUH. The education dealing with the implementation was targeted at the whole personnel of the SSHD of Kuopio and in the KUH, especially at unit leaders. Almost 100 people took part in the education. STAKES gave the education about management of change, and at the KUH advised the nurses in charge about the implementation of the project.

Information about implementation of the PALKO model was given and dealt with in the units, in meetings of head nurses, in team meetings (at the community hospital) (tk8) and in ward meetings (KUH) (esh9). At the KUH, the provision of information and processing differed in the units; the way of dealing with the tasks was left to the nurses in charge and to the head nurses of the units. Some of them actively supported the project; for example, one nurse in charge made a file about the project for the personnel (esh9). The KUH's representatives in the small groups also actively supported the implementation. The information was not sufficient, because some of the personnel did not know anything about the PALKO-project. (esh9)

Other *education* and projects, simultaneously arranged by the SSHD of Kuopio, supported development of the PALKO model: these were the VEGA-project, the Rehabilitating Home Care project and the compilation of quality criteria for home care, and education for named nurses (primary nurses) carried out in co-operation with the University of Kuopio. The whole home care staff participated in the education of named nurse.

Furthermore, *an informative meeting was arranged* for the press (esh9). Because Kuopio was one municipality participating in a wide PALKO-project and because the follow-up was unfinished, the information was limited to the units involved in development. Information about the project was released after the PALKO model was made public in December 2002. This may have been one reason why the provision of information was regarded as inadequate.

STAKES posted discussion pages for the 11 trial municipalities on the Internet. The municipalities did not use the pages at all, and communication between the municipalities was limited to the seminars and some single contacts.

> *The municipalities were very different. The only contacts have been with near-by municipalities. There should have been more contacts with different hospital districts. (sem2)*

Evaluation of achievement of the targets and implementation of Kuopio's PALKO model

There was structural practice where the project groups and small groups developed their work by themselves and evaluated the achievement of *the implementation.* Development, based on action research, included periodically redefining problems, reassessing targets and changing needs according to the evaluation. So, the development progressed in the way of iteration (Figure 9).

The majority of the implementation measures related to the model were carried out in the spring of 2002. The small groups evaluated their own work and how well the objectives were reached in January 2002, and again after follow-up in November 2002. Some of the objectives were reached totally and others only moderately.

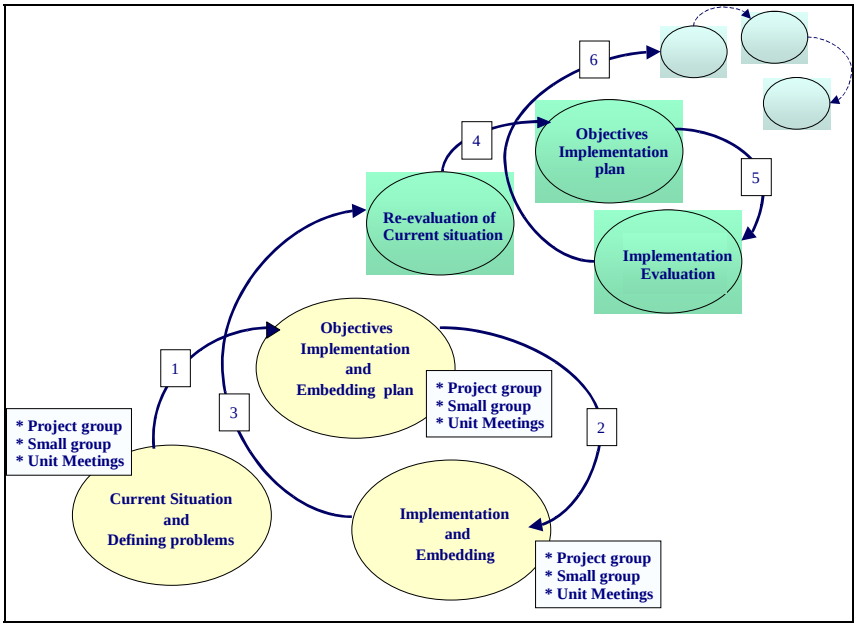


Figure 7. Iteration process of the PALKO-project.

Embedding

All parties of the care chain for older people attended the same round table session to make agreements on the practices to be followed. Although some co-operation had existed before between the SSHD of Kuopio and the Kuopio University Hospital, earlier there had been no co-operation of this type with common practices for pathways.

After the project ended, the project group decided to continue the co-operation that had got off to a good start with the present combination by changing its name to the PALKO follow-up group. The follow-up group gathers together twice a year. When the project ended in June 2004, the continuation of co-operation was considered necessary, and the follow-up group agreed that meetings between primary care (home care and the community hospital) and specialised care are to be held twice a year. The responsibility for arranging these meetings alternates between primary and specialised care. The purpose of the meetings is to identify problems and to plan further action.

Likewise, the small groups decided to continue their meetings after the end of the project (June 2004). The small groups are supposed to gather together once a year (timed a week before the project group meeting). The purpose of these meetings is to follow the common practices regularly.

> *The small groups had very active workers. The project was discussed a lot everywhere, but it is, of course, a full day's work to follow the project*

> *through a hospital the size of the KUH. No one is able to compile information about the project in addition to her own work*. (esh9)

5.1.3 Success of the implementation process

The success of the project was evaluated by analysing the minutes of meetings (2003–2004) and by means of key persons' interviews and questionnaires carried out among the members of the project group and the small groups (N=31). Some questions on the home care personnel's questionnaire (N=122) dealt with the project's implementation and results. The project and small groups also did self-evaluation of their own actions at regular intervals.

The first STAKES workshop did not clarify the entirety of the project and the participants from Kuopio felt that they did not get enough information about the project requirements. The workshop caused a bit of anxiety because of the information, guidelines and immediate actions.

> *The beginning seemed confused and it seemed that in Kuopio nobody had any conception of what's going to happen. The idea of the project cleared up when we got acquainted with the instructions. . (esh9)*

The invitation to participate came from outside Kuopio and the persons in charge did not have time to get acquainted with the project's frame of reference. In addition, the directed and scheduled development work started nearly immediately after the workshop at STAKES although people had not yet become acquainted with the project, and it committed a group of new personnel ones from the SSHD and the KUH to the development work.

Following the initial difficulties at the beginning of the project, the development proceeded well and rapidly, because the guidelines supported the development work and the right persons were selected for the groups (esh9). The choice of key persons succeeded and the members of small groups had solid expertise. They were also committed and active, but they were burdened by their own duties. (esh9)

The small groups had on average eight 1-hour meetings. Minutes of the meetings were drawn up, and the project co-ordinator was kept informed.

The project group evaluated its work in May 2002, and stated that the development work had gone well. *The members of the small group* experienced that mutual discussion among the members of the different organisation had increased understanding about each other's work. This would facilitate future co-operation. The small groups worked actively and smoothly. One small group that was bigger than most had some difficulties in agreeing on meeting times. (tk8)

Many workers experienced that the PALKO-project development work had succeeded. Nearly half of the home care personnel (48%, N=122) evaluated that the development work had succeeded in their own organisation fairly well or extremely well, but according to 13 per cent it had succeeded rather poorly or extremely poorly (the rest

could not say one way or the other). Half of the members of the project group and small groups (N=15) evaluated that the project had succeeded in supporting the development of seamless services fairly well or extremely well, but about a third (N=11) evaluated that the success had been rather poor. Differences in some members' commitment to the work of the small groups caused dissatisfaction.

According to the home care staff, the information about the project was not sufficient. Some of the staff hoped for more information about the project. Half (N=15) of all project group and small group members (N=31) experienced that the spread of information had been fairly or totally successful, and 7 members experienced it as rather unsuccessful. Some of them wished that the researchers would have taken a more active role in informing about the project. In the KUH, too, the provision of information was regarded as inadequate (esh9).

The simultaneous implementation of other projects was not experienced as a drawback; instead, the projects were regarded as supporting each other. 'Project fatigue' did not come out very clearly, but it was hoped that the projects would be connected with each other better.

> *Information from the PALKO-project can be utilized in other ongoing development projects. (Estimation 1014)*
>
> *National and regional projects transmit much information and lead to application of results. Matters are also discussed more. Valuable hints are received from other working units. (Evaluation 1039)*
>
> *It is difficult to analyse the cause of changes at a time when different development projects have been in progress. (Evaluation 1033)*

Relevance of the products and expert services used in the development work

The goal of STAKES was to evaluate the tools: that is, to evaluate the suitability and effectiveness of the generic PALKO model (1) and the suitability of the participative development model of co-operation and information transfer (2). These goals are investigated: i) among the members of project group and small groups (N=31); ii) on the questionnaire (N=122) that was sent to the whole home care staff; and iii) on the study of the experimental design (11 municipalities in an experimental group and 11 municipalities in a comparison group). Preliminary results for the last-mentioned study will be available in 2005.

Relevance of the contents of the generic PALKO model Three out of four members of the project group and small groups (N=31) evaluated that definition of the development targets had succeeded fairly well from the customer's point of view, and nearly all of them regarded that it improved information transfer and co-operation. The home care personnel also considered the project important and topical. About four fifths of the whole home care staff of Kuopio (N=122) considered the objectives of the PALKO-project to be useful and nearly 90 per cent of the staff were extremely interested in

developing the customer's care and home care. In the end, however, deeper understanding of the objectives of the PALKO-project remained rather poorly known. Only 4 per cent of the interviewees knew the objectives extremely well and a third knew them fairly well, while 22 per cent knew them either fairly poorly or extremely poorly.

Relevance of the PALKO-project's participative development model

The development method of the PALKO-project was regarded as good. The local modelling was considered to be a functional way to develop practices supporting strong control and documentation.

> *Development work where a project is not separated from practice and the personnel themselves are taking part in the project, is more practical and gives better possibility for embedding the project into practice. The matters are easier to process. The personnel conveyed an enthusiasm to me, and it was good to meet face to face the persons operating separately in the care chain.* (esh9)

Changes in co-operation, in practices of information transfer and in tools

The development work produced the PALKO model for Kuopio and a moderation plan (including objectives and expedients) to carry out the home-care-driven care chain. Based on these, an attempt was made to agree on common practices (about the data content, responsibilities and timing of co-operation) with actors participating in the care chain, and to develop tools for information transfer (for example data sheet of care, working as couple of care and the patient's own album). Some examples of the Kuopio's PALKO model are shown in the Table 10.

Table 10 Examples of problems and solutions in Kuopio PALKO model

Problem	Solutions
All information required are not in patient's own album	Home care personnel, patient and relatives agree together the continent of the patient's own album and the personnel update new information immediately
The patient's own album is forgotten to home when patient goes to hospital	Home care personnel inform patients, their relatives and other workers (including workers in ambulances) about taking the album with the patient
Information of the home care is documented different ways	PALKO small group plans a special data sheet of home care
Information about discharging comes too late and all information are not available	Named nurse informs about discharging as soon as possible. A phone report is called to patient's named nurse. Workers are informed about sending all information with the patient. Personnel of home nursing get the information (f.ex. epicrises) from PEGASOS and they send o copy of it to residential homes.
Nursing referral is lacking information	Patient's named nurse check that all information are in nursing referral

All the objectives included in the PALKO model for Kuopio were not yet realised in the desired way in home care. On the basis of the questionnaire directed at the home care

staff (N=122) in the autumn of 2003, the set objectives had been introduced partly according to 43 per cent and totally or nearly totally according to 11 per cent, while 8 per cent felt that the objectives had not been introduced at all. Nearly all of the objectives had been taken into use in the home help service (17%) and in home nursing (20%). Introduction of the objectives had succeeded the worst between home care and the third sector (not realised at all: 19%), between home care and the private sector (14%) and between home care and specialised care (12%). The results for the evaluation done by the project group and small group members (N=31) in the spring of 2004 were same; one member felt that all the objectives set for the had been realised, 12 members felt that a good majority of the set objectives had been realised, and 12 members felt that only a small part of the objectives had been realised.

Development work on the matters agreed in the PALKO-project for Kuopio was still unfinished. The decision to continue the PALKO-project had been made at the end of 2003 at the meeting of a project group; but at the time of the questionnaire (spring 2004), a major share of the project and small group members did not yet know how the development work would be continued. In the embedding, joint meetings between home care, community hospital and specialised care personnel were considered important.

According to the Kuopio home care staff (N=122), the effects of efforts to develop co-operation and information transfer were seen the clearest in the improved mutual co-operation among the Kuopio SSHD personnel (Table 11). Co-operation within (inside) home care and between home care and the local hospitals improved, as did co-operation between home care and patients. This, however, is merely an indication of the beginning of change, because the majority of the home care personnel felt that the situation has remained unchanged. Over 10% of the respondents felt that co-operation and information transfer between home care and specialised care, and between home care and the third sector, had been impaired. One reason for these assessments can be that with the project drew attention to deficient flow of information and to shortcomings in co-operation, and that it improved the readiness to perceive inadequacies.

Table 11 Evaluation of changes in information transfer and co-operation by home care personnel (N=122)

Information transfer	Im-proved	Un-changed	Got worse	Cannot say
Inside home care	49	42	5	4
Between home care and customer/patient	39	55	2	4
informal care givers	25	65	3	7
SSHD	27	63	2	8
specialised care	20	60	11	9
service house	20	66	1	13
support services	24	68	3	5
private services	27	62	4	7
third sector	10	66	12	12

Conceptions of the modifications entailed by development differed among the project group members (N=29). Only one project group member assessed the modification as being very far-reaching in scope; ten members as being fairly far-reaching, seven members as being fairly limited and nine members as being very limited in scope. Two project group members could not say. The effects of the PALKO model concerned the content of data, the exactness of the information given and timing (Table 12).

Shortcomings in transfer of the nursing referral (nursing forms) to home care were reported. In particular, there were shortcomings of the referrals from KUH to home care, but there were great differences between the clinics. The KUH has worked to make improvements in this regard, so that it would serve the needs of all parties. The lack of nursing referrals was regarded as a problem because the patient's care at home is based on this information. The project led to agreement on common practices to improve the situation; for instance, briefings (telephone calls) were adopted in addition to written information. (sem2)

In addition to shortcoming with regard to nursing referrals, problems were encountered with regard to patient epicrises, which were received only after a delay or only on request. The delay in receiving epicrises stems from a shortage of typing staff at the KUH. The hospital also has difficulty recruiting staff with the expertise needed to type up the epicrises. Digital dictation handling and younger doctors' efforts to write the epicrises themselves brought relief to the matter. Improvements in the data transfer were expected when an electric patient data system was to be implemented in VEGA-project. (sem2)

Table 12 Estimated effects of the PALKO-project on co-operation and information transfer by members of the project group (N=31)

Effect	Im-proved n	Un-changed n	Weakened now n	One cannot say n
Data contents	12	8	-	10
Exactness of information	13	7	1	9
Presention of information	8	9	1	11
Clarity of information	9	10	1	9
Timing	13	7	-	10
Updating	13	6	1	9
Cooperation of service producers	5	14	-	10

5.1.4 Use of the expert services in PALKO

The internal experts (internal KISA) of PALKO-project were five divisions of the SSHD of Kuopio (administration, home care, non-institutional care, in-patient care and psychosocial care). The KUH and STAKES were external experts in the project and 10 other PALKO municipalities were network experts.

Five small groups were created according to the care chain. These included multiple skilled persons, and all occupational groups had representatives from every level, starting with nurses (Table 13). Different expertise added new know-how, the use of practical (innate) knowledge was made available, and this approach helped the process of embedding. Almost all the inside actors participated in every stage of the development process. The representatives of administration of the SSHD participated the project only in the beginning. According to members of project and small groups, internal and external KISA were committed to and supported the project work, but it was hoped that the role of actors in the KUH would be intensified.

Table 13 Internal and external experts of the PALKO-project

Internal experts Social Services and Health Department of Kuopio					**External experts**	
Administration	**Home care**	**Non-institutional care**	**Inpatient care**	**Psycho-social care**	**University Hospital of Kuopio**	**STAKES**
Director of SSHD	Director of home care	Chief physician	Director of inpatient care	Dir. of psycho-social care	Management board	Research Director
Management Board	Physician	Charge nurse	Leading dir of nursing serv.	Head nurse	Leading chief physician	Researcher
	Home-help instructor		Head nurse	Nurse	Administr. director of Nursing S.	
	Head nurse		Nurse		Charge nurse	
	Nurse		Social worker		Hospital researcher	
	Practical nurse		Physiotherapist		Head nurse	
	Home care assistant				Nurse	
	Social worker				Social worker	
	Physiotherapist					

Participation in general varied because of lack of time. Members (N=31) felt that participation was more active among the home care personnel the community hospital staff than among personnel of the KUH. Members of the PALKO-project evaluated participation of their own personnel (N=27) and the management of the unit (N=27) as more active than that of the management of the organisation (N=15).

> *It was good to have representatives from different units at the same table to puzzle over seamless chains of care.*
>
> *As workers we have given thought to junctures and found practical solutions. (Personnel 10339)*

KUH representatives participated in all stages of the project; they were small group members and they planned and carried out the PALKO-project in the KUH. STAKES was the project 'activator', and conducted project-related research and participated in all the stages of the project. The University of Kuopio participated in the training. There was virtually no co-operation with the private sector or the third sector. The experts participated in different phases of the project as shown in table 10.

STAKES was important expert actor in the PALKO-project because it presented the idea of launching the project, started the development process, co-ordinated the project, educated the project's key persons and evaluated the project. STAKES offered the development tools (the generic model with its criteria and handbook in electronic form), provided support and monitored the development work (seminars and visits to Kuopio). The researchers also produced research data and comparison information about the present situation and transmitted it to municipal actors. Likewise, compilations about the models and plans of municipalities were produced. The municipalities were responsible for the development work, and had the researchers' expertise at their disposal if desired. The researchers organised the education sessions (4 days) with the municipality and participated in some project group meetings. They also gave feedback on the plans and could be contacted as needed by e-mail and telephone. The researchers working in the 11 municipalities simultaneously had the possibility to use the information in education sessions and other discussions. (Table 14)

Table 14 Roles and input of experts in PALKO-project (Extent of input: *minor; **moderate; ***major)

Action	**Internal KISA: SWHCS**	**External KISA KUH**	**Stakes**	**Network KISA**
Generating generic PALKO model				
Content and criteria of the model			***	***(1
Participative implementation			***	**(1
Offering Idea of the project to Kuopio	*	(*)	***	
Offering Directions of the development work			***	*(1, 2
Organising project	***	***	***	
Informing about project				
Outside information	***	**	***	
Inside information	***	**	*	
Evaluation of project outcome				
Baseline evaluation	*		***	
Effectiveness of the PALKO-project	*	*	***	
Education and support				
Workshops	**	**	***	*(2
Visits in municipalities	***	***	***	
Reference data				
• research results			***	*(2
• resolutions and practices	**	**	***	*(2
			**	
Consultation: e-mail, phone	*	*		
Embedding	***	***	*	**(2

(1 The network consisted of actors of primary (consist home care) and specialised care of 11 municipalities of PALKO-project

(2 The network consisted of actors of 10 other municipalities of PALKO-project

The SSHD of Kuopio was responsible for co-ordination of the development work and appointed a project co-ordinator to handle this, as did the KUH for their part. Other project work was integrated in order to meet the target of practice in interfacing, and as a result of good co-operation between the co-ordinators the work went well and successful outcomes can be attributed to both parties. Confrontation between primary and specialised care did not exist, both sides spoke the same language and familiarity with STAKES on the part of both co-ordinators facilitated their work.

In the KUH, the role of the co-ordinator, who knew the organisation well, was pivotal in the small group work. She had knowledge of the clinical and administrative work, and the members of the small groups were experts in their own fields. It can be said that better co-operation inside the organisation could have existed. The KUH did not get any doctor commit to the project. The commitment of other managers and charge nurses varied from unit to unit and from clinic to clinic. Active participation was needed also between the units to harmonise discharge practices, but it was impossible to invest much time in one project because of limitations – such as other ongoing projects and the personnel involved being overworked. There were other simultaneously projects and the personnel was overworked. (esh9) Some new needs of development emerged, but the co-ordinator did not have resources to organise the work required to meet them.

This approach made use of tacit knowledge possible in the development and helped the embedding. Almost all internal actors participated to all stages of development process. The role of actors in the KUH was hoped to be intensified.

> *It was good to have representatives from different units to same table to puzzle over seamless chains of care.*
>
> *As workers we have thought over points of junctions and found practical solutions. (Personnel 10339)*

The participation in the project of the members of the project and small groups varied because of lack of time. Participation in the development was more active among the personnel of the home care and the community hospital than of the KUH.

5.2 KISA in implementation of modern IT systems supporting seamless care

5.2.1 Characteristics of old technologies and need for an integrated IT system in Kuopio's SSHD

At the end of 1990s there were several information systems in different divisions and for different purposes in City of Kuopio SSHD. Kuopio and six other big cities had been working together to develop a program/system called "Pallas" with TT-Kuntapalvelut since 1980's. The development work had been funded by the cities (Turunen 1998).In 1991 social care started to use the PALLAS program/system. Invoicing was the basis for this terminal-based program. The program consisted of the following system parts: children's day care, child welfare, family care, institutional care,

home care, and the care and service plans. The institution part consisted of invoicing of institutional care with preceding the decision-making and a care register system.

A health care program called TAVA was used in client data administration, in the reception, and in creating work schedules for physicians. TAVA could also have been used to record outpatient visits and it was the user interface for a laboratory database. Information was transferred to a program called "TEHO+" for the compilation of statistics. Information on inpatient care periods was saved in the institution part of the Pallas program. Rosters of nurses were made by a program called "TYKO". The TYKO program was linked to the calculation of salaries and personnel administration systems (Turunen 1998). In addition, Teho-kunto was used in the distribution of care equipment (sem2).

In the home care system, there was invoicing for home-help services, visits of home-help services and an outpatient care register. The care and service system consisted of different functions to serve for the outpatient care for older people. There was information about housing, medication, social circumstances, health condition, diagnoses etc. The service and care plan was also saved in this care and service system and it could be updated from all the workstations. In 1998 when the evaluation of data systems used in social and health care in Kuopio was made by STAKES, the care and service system part of the Pallas program was heavily used by old-age homes, hospitals, sheltered homes and home-help, but the use of the program had only recently started in home-nursing (Turunen 1998).

The evaluation about the social and health services of Kuopio city social and health care (Kokko et al.. 1998) included an evaluation of the SSHD IT-systems. The report listed some bottlenecks of the systems used. The age of the systems was seen as a cause of problems because they were not properly supported anymore (e.g. crashes of TAVA program), development of PALLAS would be coming to an end in the next 5 years, there were no tools for staff to follow up service and care plan, cultural differences between health and social care hindered the integrated use and consolidation of the programs/systems, and a system based on terminals was not seen as user-friendly (Turunen 1998). Most patient information was still in paper format. There were only a few dozen PCs available in the whole of the SSHD in Kuopio, and most of the personnel had no experience in automatic information processing or information systems (Kiviaho & Turunen 2003). The change was speeded also by the fact that equipment and systems were so advanced in neighbouring municipalities that Kuopio felt compelled to renew their systems in order to communicate with them. (sem2.)

A new information system was seen as a necessity in the near future. The evaluation report named a couple of relevant choices for new client data management system providers besides TT-Kuntapalvelut. According to the evaluation report, buying the system from a smaller provider could lead to problems when the system needs to be enlarged (Turunen 1998).

The evaluation report highlighted that an electronic data management system with versatile and convertible reporting tools could offer new possibilities to follow the care process and evaluate the consequences of administrative decisions and the quality of

services. The city of Kuopio should reserve resources for these changes in the near future (Turunen 1998).

5.2.2 Planning the implementation of a new system

The City ADP Centre IT director and SSHD IT manager started to plan how to improve the state of the information technology. The starting point was to dispense with the old systems.

Learning from the experiences of the Turku SSHD

In the 1980's and 1990's several client data management systems were developed in Finland, (e.g. Sinuhe, Provita+ and Pegasos)(Saarelma 1999). Turku was the first of the big cities to adopt the Pegasos client data management system. It was implemented in the Primus project in 1998-2002 (Koivisto, Aaltonen et al. 2004; Turun kaupungin terveystoimi 2004).

As the pioneer among the big cities, Turku had many visitors from other cities during 1999. Representatives of Kuopio visited Turku in 1999 to get information about the ongoing project (Turun kaupunginhallitus 2000). The point of the visit was not just to get information about Pegasos and its functionality, but also to learn about how to manage a big technology implementation project. In Turku, Pegasos was implemented in almost all the sectors of primary health care. Kuopio representatives were particularly interested in questions related to implementation and control of the IT system. (sem2.)

Creation of a data management strategy for Kuopio SSHD

Instead of simply investing in new technologies, the IT managers of the City ADP centre and the SSHD decided to tackle the question by first creating a data management strategy for SSHD, which was tightly integrated into social and health care strategies, and which would be used as a plan for implementing the new technologies.

> *We had to decide between two plans of action: either let a system provider like TietoEnator update our old data systems or decide that instead of merely updating or providing a new system we'll create a data management strategy for social and health care. Luckily we chose the latter alternative. We maintained old systems throughout this change period.* (atk4:6)

The IT director of Kuopio ADP Centre selected the consultants from a private consulting company, Mecrastore Pricewaterhouse Coopers to write the strategy. The company also participated in managing the strategy implementation project (VEGA-project). The IT director recalled making the choice of consulting company.

> *Q: How did you discover this consulting company?*
> *A: I have an acquaintance who works in a health technology firm and he recommended two consultants.* (atk4:6)

In July 1998, the SSHD and ADP Centre made an agreement with Mecrastor Pricewaterhouse Coopers Oy (PwC) to produce a data management strategy that was based on social and health care strategies. The strategy involved anticipating the future state of technology, organisation, architecture and investments for the following few years (Tolppanen and Yli-Olli 1999).

The strategy was not only a paper exercise; it involved gathering information from 40 key actors in the SSHD about the current state of technologies and the needs for its development. The strategy was created in close co-operation between the Kuopio City ADP Centre, the consulting company, the SSHD , the Hospital District and information systems providers (Tolppanen and Yli-Olli 1999).

The input offered by the consulting company was considered by the SSHD as extremely important. The actors involved were very pleased with the work of the company. They thought that it was essential that the consult knew both data administration and the health care system.

> *The manager of the consulting company has worked as a clinician. He has also had a position in data administration management so he knew both fields. He succeeded in motivating personnel of the SSHD in the project because he knew the jargon. He was quite irreplaceable in making the strategy and getting support for the process from the city administration.* (atk4:6)

> *Afterwards I was very satisfied with the choice of consultant.* (th1:16)

5.2.3 Organisation of VEGA-project to realise the data management strategy

City council allocated funding

Starting the new project would not have been possible without support from the Kuopio city decision makers. The city government and mayor were well informed. The project plans had to be approved by the City Council because it lasted for over one year and the funding came from Kuopio city.

Approval for funding the development work in accordance with the strategy was made in the City Council. The strategy formed the framework for the development (sem2). The project launched to realise the data management strategy during 1999–2003 was called VEGA-project. It was a large-scale project to renew the hardware and software in the Social Services and Health Department (SSHD) of Kuopio. Up to 1000 new workstations were installed and the employees were trained to use them and the basic software. Five different divisions of the SSHD and the administration implemented a new common client and management information system called Pegasos, which was meant to replace all the old software. The project had investment costs of €3.4 million in 1999-2002 and running expenses of €5.8 million (Tolppanen and Yli-Olli 1999). It was thought by the SSHD in Kuopio that such a large project could not be carried out

on their own. The IT manager of the SSHD was satisfied that knowledge outside the SSHD had been obtained for this project.

> *I am satisfied that we have carried it out this way, because we did not have the required know-how. We would also have been forced to settle for a notably smaller staff without the additional staff e.g. from the ADP Centre. The ADP Centre also serves the other administrative branches within the city [Kuopio]*. (th1:49)

For many of the workers, especially in the care for older persons, implementation of the new technology meant a change from a paper-based to an electronic patient information and management system. (Kiviaho & Turunen 2003) About 1000 workstations were renewed and the personnel were trained to use them. (atk4:5)

IT management of City ADP centre and SSHD organised the project

It was seen essential, that the key actors would be represented in the steering group of the project. The SSHD IT manager was appointed as a project manager supported by the IT director of city ADP centre (whose normal responsibilities cover projects like the Vega-project)(th1:71). The SSHD management group formed a steering committee to oversee the project. A second group (advisory board) was formed to advice the steering committee. It comprised of the ADP centre IT director, both the director and the development manager from the SSHD, one of the consultants by whom the strategy was written, the IT manager from the hospital district and the administrative manager. The deputy mayor was the Chairperson, whilst the Secretary was the SSHD IT manager. (th2)

> *The key roles within the city were held by City management (deputy mayor), the management team of SSHD, and the project manager. The supporting role of Kuopio City ADP Centre was also important.* (atk4:27)

> *The ADP centre and SSHD IT managers and SSHD development manager were essential in planning the project. There were many people from the SSHD involved posing questions in the tendering process: What do we ask for? What should we emphasize in the project plan and subprojects? It was the social and health department representatives that had to answer these questions. They decided to form a project around it and they got two project managers from the ADP centre to manage the work.* (atk4:3)

The VEGA-project was divided into 8 subprojects (Figure 7). Home care had representatives in four subprojects (home care and care for older persons, outpatient care, hospital care, psychosocial care). Four divisions of SSHD were allocated the same system. The system was foreseen as supporting seamless care and services in future (th2).

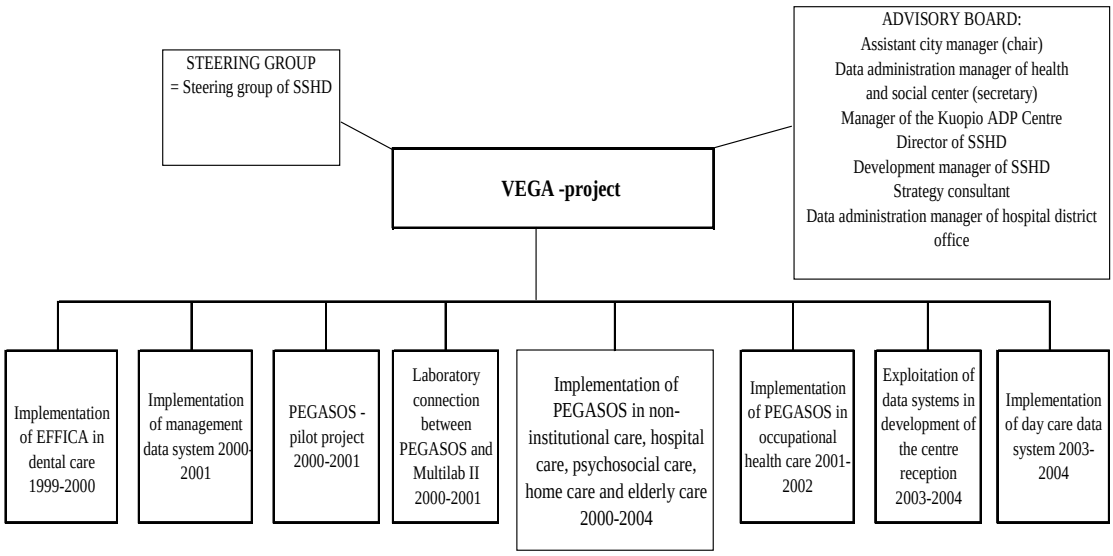


Figure 7 Organisation of VEGA-project

According to the IT director of the ADP centre it would have been wise to also have representatives from some municipalities in the district in the board as some of them will have to implement the same data management system in the near future. (atk4:31) The hospital district afterwards chose another data system called Oberon-Miranda. When Kuopio city made the choice, there was no discussion about the specialised and primary care having the same system (sem2).

The subprojects went ahead according to different schedules. The implementation started in dental care in 1999. This was followed by management information system project, laboratory interface, children's day care, home care and child welfare. The home care subproject opened up a good opportunity to examine the expertise needed not just in implementation but also in the further development of a joint information system. In the VEGA-project, the aim was not to develop a new information system, just to implement an off-self product. This succeeded elsewhere but not in home care. During the home care pilot project, the Pegasos (2000-2001) turned out to be unsatisfactory. A deal was negotiated with the system supplier to develop the missing functionalities. According to the SSHD IT manager, Kuopio was forced to take part in the development work, as there was no complete, functional product available. The development work was initiated because the SSHD wanted to keep home care in the same system with other divisions. That made it possible, among other things, to utilise information in horizontal processes like care for older persons.

According to ADP centre IT director, the development work was difficult. The system supplier's knowledge of the processes of home care work turned out to be poor. (th2;h10) Therefore the home care subproject has taken longer than any other subproject.

The participation of home care employees

The director of the Home care and care for older people were members of the advisory board for the home care project. The key persons in the project group were the home help instructor, the visiting nurse and a clerk from the SSHD administration. (th2) These home care project group members were chosen by the management from those, who had participated in previous projects. They were given time off their core duties in order to work on the VEGA-project: 4 months during the implementation phase, 1 month during previous phases. Substitute workers took care of their core duties during this time. The ADP Centre funded the substitute workers. (sem2)

The participation of employees was not always easy, especially for those who did not get substitutes. They found it hard to take care of both responsibilities.

> *The time spent in VEGA-project has been time off our core tasks, which we and our colleagues have also had to take care of. When we were testing the computers, we were not able to do our own work; we would have needed more time. When Novo always asked those questions in the meetings, they always sent requests for more information by email; I think that we had too little time to enter into those kind of discussions and answer them.* (kh6:49)

> *Those people who participated in the development project should be clearly detached from their main work, and all should have had substitute workers taking care of the core duties.* (kh6:50)

The project managers of the VEGA-project worked full-time, the main users of the new patient and management information system were periodically detached from their core responsibilities to the project work. Also the rest of the staff had substitutes, if possible, when they were trained in the basics of IT skills or the system. (th2)

5.2.4 Training, technology selection and implementation

The Kuopio City ADP Centre carried out basic IT training for the employees

Originating from the data management strategy, the project included massive training of personnel (atk4:38). Most of the core service providers did not have even basic IT skills. Uptake of a new, electronic patient and management information system meant that all workers required adequate IT skills in order to be able to add and retrieve information from the system. The Kuopio City ADP Centre organised the basic IT training for all employees. The training took a long time since the basic skills needed to be practiced until everybody was familiar with them.

The consulting company carried out the project training

Most of the workers were very practice-oriented, and had to be trained in methods of development work. The project training was given by a training company, WM-Data Oy (th1:10). It lasted for nearly a year, with working days that some core service providers described as very hard but fruitful. The training aimed at teaching a method of

project work to core service providers. During the training, existing work processes were outlined, a task that interviewees said they could not have done without the training. The outlines were later used as a basis for defining technology requirements.

> *The project training took a year. It was a very tight schedule. The training was very demanding because most of us had no prior experience in project work, we had to also learn a new vocabulary.* (kh6:27)

The project training seemed by many informants an essential step in a well-managed project of this magnitude.

> *We could not have done those process outlines without the training.* (kh6:28)

> *It was very good that we did those processes in training.* (hal5:17)

> *The project training was good. I think that things we learned there were crucial for the success of the project.* (th1:66)

Only the first subproject participants were trained by a training company, WM-Data Oy. When the next project started, project training was not purchased from outside any more. Instead, the knowledge was transferred from the first project. (sem2)

Employees tested alternative systems

The Kuopio City ADP Centre then organised a call for bids for information systems from four systems providers. Two of them (Novo Group and Tieto Oyj) were selected for testing. Prior to the testing, the system providers gave a short training for the three main users who tested the systems. The main users commented that the training period for the different systems was far too short and cursory to learn the different functions of the systems, whilst a 3-day testing period was too short to try out the different functions in practice.

> *Three days testing period was far too short. It was really hard for me because I was not so used to any kind of programs. Many of us had no experience of using a PC. Albeit we got some training, the systems were so extensive that it was really hard in so short a time to figure out what they were all about. That is why the selection between different systems was really difficult.* (kh6:31)

Already in the testing phase it became evident that neither of the systems measured up to what the sales speeches had promised. One of the systems was closer to being ready and had previously been selected by other divisions in SSHD. Even if it lacked the specific functions required by home care, it was the only system that could in practice be selected. This new client and management information system was Pegasos and it was provided by Novo group.

The Kuopio City ADP Centre implemented the hardware and software

The Kuopio City ADP Centre was responsible for implementation of the hardware and software. Implementation of the technology was regarded as a major effort for the ADP Centre.

> *The Kuopio City ADP Centre has had a real job to organize all the training, installing the PCs, supplying servers, setting up and securing data networks, updating programmes and systems, organizing data communications. This has been a huge job.* (atk4:26)

The training and system support provided by the main users

Three staff members were trained by the system provider to test the system. After the selection of the system, they acted as main users responsible for training their peers and providing a help desk and usage support for them. There were two clear advantages in using internal trainers: knowledge of their own work practices could be applied during the training situation and the costs were lower. (th2)

5.2.5 Development of work practices with help of information technology

The data management strategy did not explicitly state how the development of the new technology and seamless care processes would be mutually realised, in spite of the integrative objectives of the data management strategy. According to the data administration experts, the VEGA-project did not include concrete goals for developing work practices. A development Laboratory was foreseen in the data management strategy, and it was established in the project. The purpose of the laboratory was to support the development of work processes using new information technology (Tolppanen and Yli-Olli 1999).

Utilising the laboratory was, however, limited to training sessions that took place there. In practice, the laboratory was turned into an IT classroom.

> *We did not have any development other than the technical within the strategy implementation project. Even though the development of processes is strongly connected to implementation of technologies, the Vega-project did not include change of processes like new care practices.* (th1:17)

New work practices were thus not developed in VEGA-project. A systematic development work would have required closer internal co-operation between the SSHD service providers, personnel in data administration, the city of Kuopio and the system provider. This would have required new kind of thinking.

> *There are managers in charge of provision, change and renewal of the services. Then there are the so called data administration people, who say what kind of systems are needed to support this or that service and also to provide IT services and build infrastructure. The problem still is that many of the latter are old ADP people, who look at ADP when they should look*

> *at service processes. So they should change their perspective from technology to services.* (th1:6)

The significance of developing service processes was not understood well enough in data administration or in the whole organisation. Development would have been such a massive task that extra resources would have been needed. (th2) It would probably have helped if in the beginning the project would have been more closely connected to simultaneous service development projects (like PALKO), where new seamless work practices were modelled.

Instead of fitting the new IT system to new, seamless care processes, the system was fitted to the existing work practices. This began already in the project training. During the training, existing work processes were outlined and later given to the system provider to be used as a basis for defining the technology requirements.

> *We used the existing process outlines and templates of all our most important forms; everything that could possibly be needed in that system.* (kh6:36)

When the system did not cover all the functions home care needed, the employees of home care had to take part in developing the lacking features and functions. The Kuopio City ADP Centre remembered requesting the system provider to organise a national development group to develop the functions that were lacking. Those municipalities that had the same system created a network which started to produce common requirements for updates for the system.

> *We requested when the deal was made that it has to be included that Novo Group organises the national development group. Users of Pegasos have to be involved in it and the group has to have meetings systematically and carry out development projects.*

The cities that used Pegasos then were Turku, Helsinki, Lahti and some other smaller municipalities. According to the development manager, the co-operation between municipalities went well. Co-operation with the system provider was not altogether unproblematic. In the beginning, the service providers and system providers did not speak the same language and their modes of action were not similar. The service providers did not understand what the system provider expected, and felt that their proposals for change were not noticed.

> *At first we felt that they really took our thoughts into account, but always when some advances were made, we felt that our proposals did not materialise even though we thought they would. And all those documents, even though we already had given those things…and done those forms. We felt that everything needed to be sent there three or four times. We became frustrated because we did not progress fast enough.* (kh6:37)

> *The system provider always sent us these request letters, but we did not always understand what they meant. And then they asked us in meetings in*

> *Helsinki why we hadn't read the letters. We said that we had read them, but we did not understand everything. But we had to answer to the questions in those letters and we did not have the right answers, because we did not understand the questions. Or then we asked what this means.* (kh6:47)

> *People, who work in that field, they speak with language of data administration. That data administration is a difficult part for me (…) because I have always done just nursing.* (hal5:18)

> *If I now had to do the same thing again, I think I could relate to it better. I could give regard to both the usability and technology and maybe I could perceive the entity in a different way and I could ask and test better.* (kh6:31)

If the users had not understood the system providers, the system providers had not necessarily understood the development wishes of the users either.

> *We have a test bench for about 1000 users, and they have invaluable understanding about everyday work and the tools needed in it. Service providers register the needs for development as problems they have experienced. It takes a lot of time and money to transform problems into system requirements and further to technical definitions. There are a lot of choices in every step. Every well-implemented change costs a lot of money to the system provider. This can be one reason why the system provider does not always take into account those development ideas that users bring to them.*(th3)

Understanding was improved with staff in Novo (system provider) who had background as nurses. With their mediation, the service providers felt that they were understood better.

It has taken several years to develop the functions that were lacking for home care. In spring 2004 the core service providers were hopeful of introducing the final version of the system in the same year.

5.2.6 What changed and how has the change been verified?

Status of implementation of the new IT system in 2004

The Pegasos client and management information system had in the spring of 2004 about 900 users in non-institutional care, institutional care, psycho-social care, home care and care for older persons, administration and joint emergency unit in Kuopio. There were 700-1000 workstations. The features of Pegasos were implemented widely. According to the SSHD IT manager, 98 per cent of functions are in use (th2). The diffusion of Pegasos by the spring of 2004 is depicted in Figure 8.

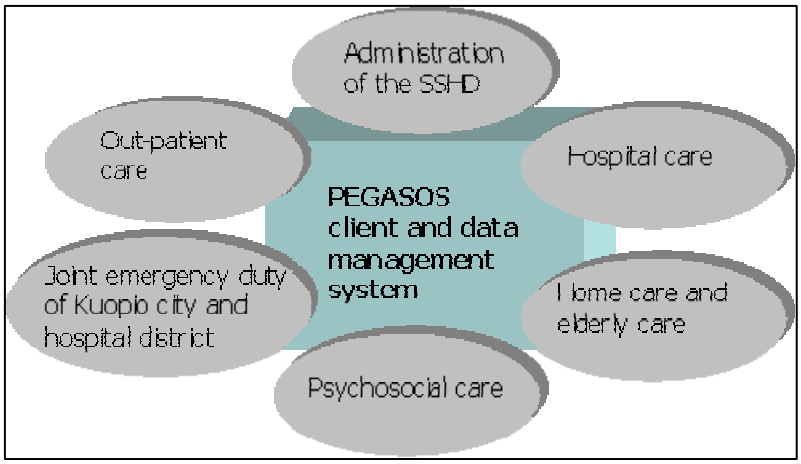


Figure 8 Diffusion of Pegasos client and management information system in pring 2004

Home care and elderly care were not completely covered by the system. During our data collection in the spring of 2004, the home help staff was still outside the system due to a lack of content. The specialised hospital, private and most 3rd sector service providers were also outside the system. When the University Hospital of Kuopio moves on to electronic patient information system (Miranda, Oberon), the dialogical connection to non-institutional care will be improved in this respect. The consolidation between Pegasos and the University Hospital system will be done by the year 2007. The referrals have been transferred electrically already since the beginning of May 2004, and some other operations since the beginning of June 2004. The information system (Effica) in the Laboratory is also compatible with Pegasos. The feedback function from nurses and hospital epicrisis are still lacking in home care; an incorporation of these is foreseen by 2007 (sem2). The home help features developed with other municipalities were finished during 2004 and made available for instructors, but not yet for ground staff. The wish is that the ground staff can also use the system in the autumn of 2004.

How did the services change due to implementation of modern IT systems?

It is too early to evaluate the actual change in the care for older people whilst the home help staff have not yet gained access to the system. According to the employees the implementation in the community hospital has changed everyday work, because client information is updated: overlapping of registers has been reduced and telephone inquiries have been reduced too as staff does not have to phone to check every detail. The co-operation between community hospital and home nursing has improved and time has been saved, since the information on the patient returning home from hospital is available instantly for home care. Almost the whole SSHD has changed into real-time recording of client data. The only problematic area is home care, because there is no possibility to record data into the system at the client's home. There are plans to develop mobile use of Pegasos to remedy the situation. Still, the SSHD IT manager also sees further needs for development. (th2)

One clear change has been the improved quality of information. (sem2). In the spring of 2004 the staff estimated, that the work practices have gradually started to change, even though changes depend on the division as well as the individual workers.

The home care personnel have had positive attitudes towards the new data management system.

> *Our home care employees have been interested in working with this new system Pegasos. There hasn't been resistance on that score.* (kh6:14)

> *One of our strengths here in Kuopio is that the personnel are very active and enthusiastic to take part in development work and projects.* (kh6:53)

As learning the system takes time, the satisfaction of the visiting nurses was checked a couple of years after implementing the system. The modified version of End User Computing Satisfaction, EUCS -instrument (Doll & Torkzadeh 1988) was used in a small enquiry to visiting nurses in one area of Kuopio's home care service (n=22) in spring 2004. According to the enquiry most of the respondents were satisfied with the Pegasos client data management system. However, nine of the respondents had suggestions for improving the system: they complained about missing functions, usability problems, missing information from those service providers who do not have the same system and missing information in the sections for home nursing (Lassila 2004).

Self-evaluation and the evaluation done by the University of Kuopio

The data management system was partly internally evaluated. The final reports of every subproject included a self-evaluation. Two Master's Theses were completed as external evaluation carried out by the University of Kuopio. The city also commissioned external evaluation from the University of Kuopio evaluation unit (Siftec). It was emphasized that in addition to internal evaluation, the external perspective would be necessary to verify the success of the system's implementation. The management of the SSHD chose the University of Kuopio to do the evaluation because the evaluation unit was well versed in the field.

Shiftec employed JSOP-Interactive Oy, an evaluation service provider, to make web-based questionnaires (Kiviaho and Turunen 2003). The service providers were very pleased with the results, even though they saw that the evaluation should have happened a couple years later in order to allow users to become familiar with the system, and been more critical.

> *I am very pleased that we also have had external evaluator's perspective and sometimes I have encouraged evaluators to have more critical comments. I see the criticism as very essential to progress for this kind of project. It is wise to take advantage of critique.* (th1:6)

Shiftec started the evaluation in spring 2002, and the final report was ready in October 2003. The evaluation results showed some problems with the usability of the information system. A major obstacle to prevent seamless co-operation and information transfer was that not all actors participating in care for older persons had access to the system: home-nursing employees had access but not to care-specific content. The specialised care hospital (University Hospital) had a different system. Private and 3rd

sector service providers (apart from one) were denied access to the system due to data protection regulations.

Challenges for further development

The transition from the old, separate systems to a new one has not been without problems. In practice, the old systems were only partly removed. The Tyko-system used in the follow-up of doctors' working time is still in use, as is the care register system. The concurrent use of old systems and the new costs a lot of money according to data administration. For example, the care register does not work automatically, because the new system does not cover all the statistics that the old ones did. The provider of the new system (Novo) has been informed of the shortcomings. (sem2)

The municipal board of social services and health care in Kuopio accepted a new data management strategy for 2004-2008 in October 2003. The key objectives of the new strategy are listed below. In a way they show what has not yet been achieved, and what issues still remain to be solved. The objectives were:

- all the central client and management information system parts must be implemented
- productivity, quality, functioning and user-friendliness of implemented systems must be improved
- users must be able to use the systems in a collectively agreed and determined way
- new customer-oriented services (e.g. web-based) have to be piloted and implemented in a certain sphere of operations
- co-operation with the hospital district and with municipalities in the region must be improved. (Minutes of city government of Kuopio 2004.)

5.2.7 Summary of KISA used in different stages of life cycle of VEGA-project

The VEGA-project process phases, types of KISA and the phases at which they operated are depicted in Figure 9.

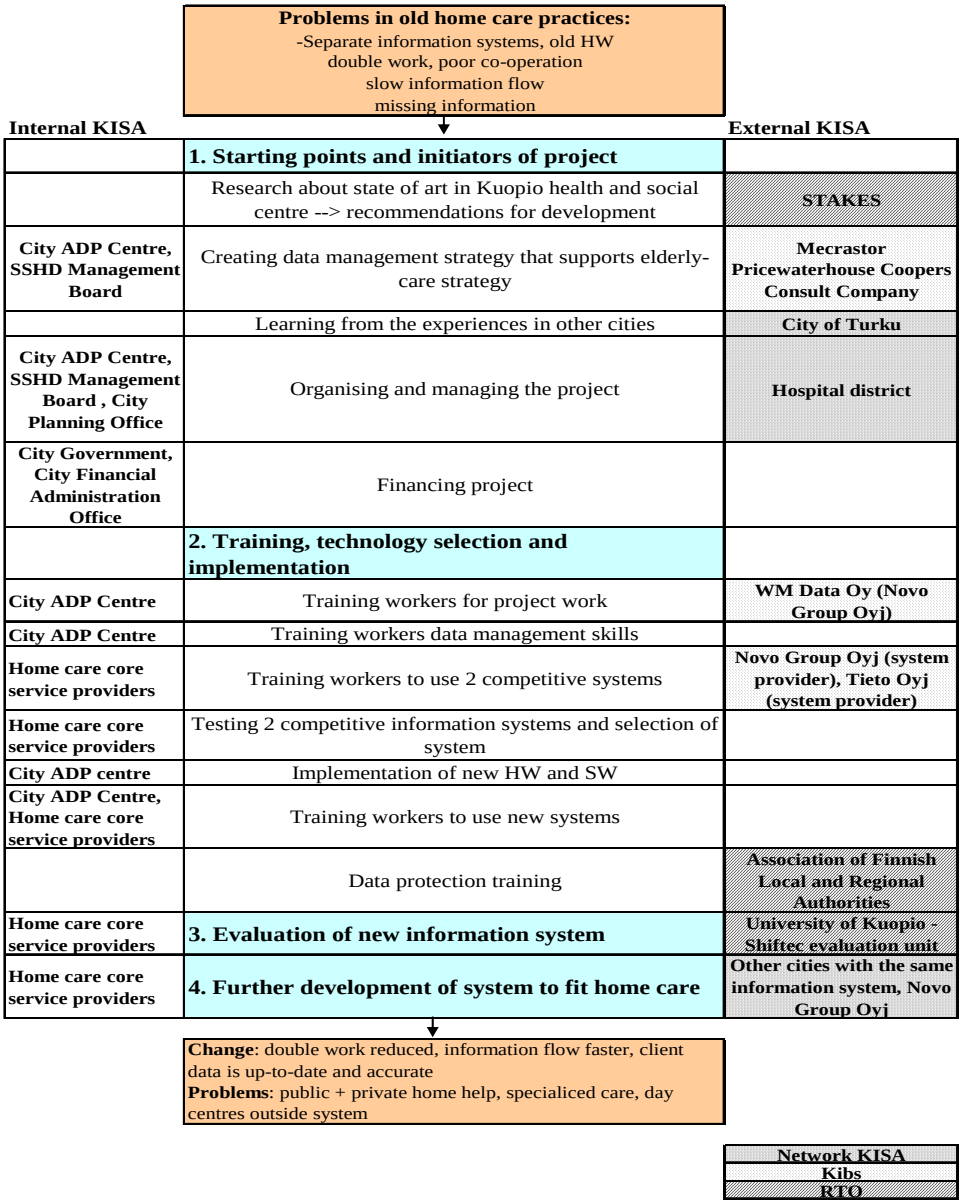


Figure 9 Phases of VEGA-project and KISA used .

Internal KISA (Kuopio City ADP Centre and the IT unit of the SSHD) can be considered as essential initiators of the VEGA-project. Their operations were influenced by the evaluation done by external KISA, (STAKES) in 1997-1998. In the evaluation project, STAKES gave recommendations for how social welfare and health care services and information technologies should be developed in Kuopio (Minutes of city government of Kuopio 2004).

The project was initiated and led by internal KISA. KIBS (Mecrastor Pricewaterhouse Coopers Consulting Company) had an important role in the very early phases of the project in creating the data management strategy, on which the whole project was founded. The project participants considered it as very important that this work be done, and that it was done by somebody who understood both the technical and clinical environments.

The next phase of the project comprised a massive training programme. The Social Welfare and Health Care Services employees had to be equipped with basic IT skills in order to be able to exploit the new technology. This training was done as internal KISA (by Kuopio City ADP Centre).

In addition, a thorough training was given to workers on the basic project work. This training was provided initially as KIBS (WM-data Oy), later by internal experts, when the knowledge was transferred within the organisation from one subproject to another. Project participants thought that the training was demanding but essential. For example, it helped them to model their work processes, which they could not have done without the training. These processes were used later when discussing with the systems provider about the work and its technological requirements.

Three workers from home care were selected as main users who received short training from two systems providers (KIBS) in order to select a suitable system for home care. The training was regarded as too short and brief for a thorough evaluation and comparison of the systems.

When the system was selected, these three workers had very important role as main users (internal KISA) training other workers and acting a help-desk and first contact point to their peers.

From the start, already while selecting the system, the main users noticed that the system did not host all the required functions for home care. Therefore, they joined a network (Network KISA) of other cities which had bought the same system, starting to induce requirements for change for the systems provider. The home care workers who took part in the system implementation also participated in this network.

5.3 How systemic was the change in care for older people in Kuopio?

The care for older people in the city of Kuopio has undergone structural, administrative, functional and technical changes within the past 10 years, which we described in this chapter. The changes have been based on a need to improve efficiency and cost-effectiveness of social and health care services in Kuopio. Administratively social and health sectors have been integrated, institutional care reduced and home-based services developed. Developing service processes by improving co-operation and information transfer between service providers has been raised as one of the goals for development in elderly care strategies. However, construction of seamless services for older people in the city of Kuopio seems to have only just begun.

In August 2004 the city of Kuopio ordered a study on the effectiveness, functioning and economy of the welfare strategy of Kuopio from Efektia (a consultation and research company owned by the municipalities). Its materials had been collected from 2000–2002 (Vohlonen 2004). According to the study, the continuity of care and the distribution of work between primary and specialised care and social services still do not function well (Savon Sanomat 20.8.04), after several years of development work. According to the national study of implementation of the experimental law of seamless care, the Pohjois-Savo hospital district is piloting a multi-professional care and service plan, but

integration of technologies between basic and specialised care level to transfer information is still on the drawing board (Hyppönen et al. 2005)..

According to our study, seamless care has not been raised as a strategic goal with action plan and projects to support it. Several projects have been realised in order to develop care for older people, but their work has not been integrated to support a common goal. On the grass root level, several small steps have been taken. Primary and specialised care providers have established joint meetings in which they plan integration of their services. Within divisions in primary care, joint development has increased understanding of what others do. The objective of the Palko-project - to carry out home care driven care chain - was not fully met. The result indicates that seamless care requires changes on also other levels and aspects in the system than targeted at in Palko-project. VEGA-project tackled another aspect - that of technology. A joint patient information system improved access to and timeliness of the client data, and reduced double recording and need for phone calls. The quality of data in municipal home care began to improve, when joint practices for recording had been set. Specialised care and much of the private sector are, however, still outside the system. None of the actors have got rid of the old systems, entirely, because they still host features not existing in the new system. The technology itself was also not enough to change the services and create seamless care for older people.

Concrete situation in co-operation and information transfer in 1999 and in the spring of 2004 after the end of the two projects is depicted in the Figure 10. It illustrates some changes, as well as shortcomings in integration.

The change on information transfer and co-operation has been most clearly seen in the improved co-operation between actors within the SSHD of Kuopio: within home care, between home care and community hospitals, and between home care and the client. Co-ordination of patient’s care and services was as a whole improved when home care by named nurse was included in the system. There are still shortcomings in co-operation and information transfer between home care and specialised health care, as well as in the co-operation between home care, voluntary organisations and private service providers.

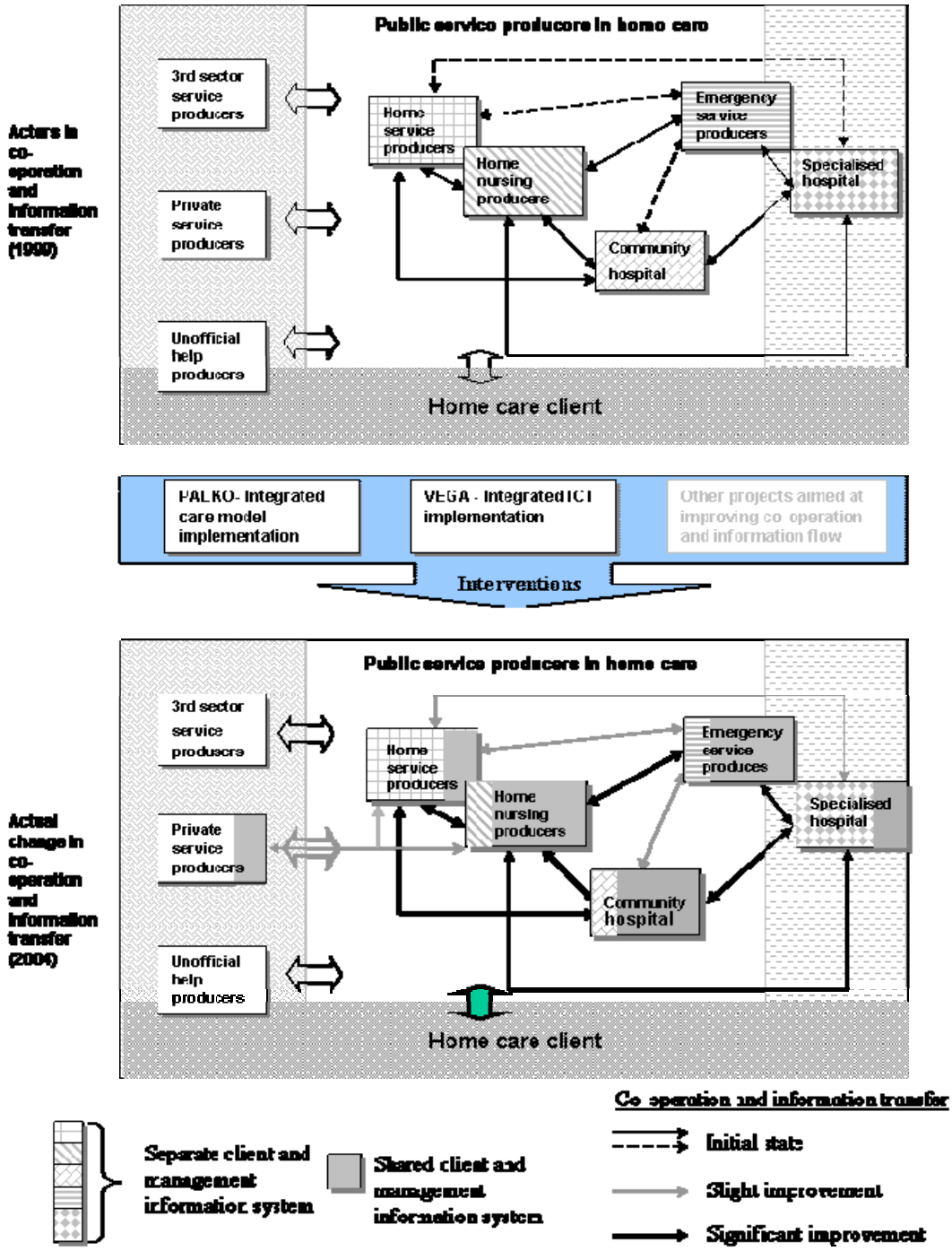


Figure 10 Information transfer and co-operation in 1999 and 2+004

The information content has become more accurate, the information is more well-timed and up-to-date, but these features also need further development. There are still shortcomings in transferring the feedback of nursing to home care and epicrisis is often late or is obtained only on request from the University Hospital of Kuopio. There is significant variation between the different clinics of the university hospital. The new

electronic client and management information system was expected to solve these problems.

The project group decided in the end of 2003 to continue the PALKO-project and changed the name of the group to the follow-up group. In particular, the meetings between home care, the community hospitals and the university hospital were found to be important, where the situation would be addressed and solutions to the problems could be searched for.

The figure also illustrates the diffusion of the new Pegasos-system. The clearest impacts have included change to real-time information between community hospital and home care, reducing need of phone-calls and double recording. Information is also more up-to-date. The lack of possibilities for recording data into the system at client's home makes real-time registration more difficult.

The SSHD had not managed to get rid of all the old systems by spring 2004. Employees in home help service still did not have the system in use due to a lack of information content for the home help service. Simultaneous use of many systems and functions that were lacking in Pegasos has made it difficult to see the full benefits of the system yet. The specialised hospital, the private and most 3rd sector service providers were also outside the system. Of the private service providers, only the Residental Home Association had access to system, as the city of Kuopio is their only customer. The referrals have already been transferred electronically since the summer of 2004, and also the information system in the Laboratory is also compatible with Pegasos. The feedback from nurses is still lacking in home care, as is epicrisis. When the university hospital moves to an electronic patient information system, it plans to adapt it to the Pegasos system used in the primary care, and so the information transfer will be improved.

6 Discussion and conclusions

We have studied the use of expert services in the implementation of a governmental innovation – seamless care. Two perspectives were applied: First we studied the national and local context of the innovation. Secondly we focused on a five-year period, during which two major implementation projects took place in the municipality of Kuopio. The purpose of the latter perspective was to study grass root level implementation of the innovation and the expert services used.

6.1 Use and role of expert services (KISA) in implementing seamless care

6.1.1 Dividing experts into internal, external, network and commercial experts

The concept of KISA implies, that organisations can be clearly and unambiguously defined and categorised as users and producers of internal or expert services. In public services this is not necessarily the case. We had several options for defining the organisation. We could have selected the whole municipality, the city of Kuopio, as the 'organisation' to provide us with the perspective we required in order to study implementation of the innovation. Consequently, all services provided by the municipality would have been defined as internal expert services. Another option would have been to categorise all services provided outside the SSHD of Kuopio as external services, including those provided by other municipal institutions and experts. A third option would have been to define as the 'organisation' the network of all actors participating in the provision of home care services for older people purchased by the city of Kuopio. We selected the first alternative. The selected "organisation" (city of Kuopio) is outlined with a thick black frame. Experts are pointed out with yellow background. Internal experts are those within the black frame, others are defined as external experts. This definition is depicted in figure 11.

The figure also illustrates the complexity of organisational levels in public sector, and thereby complexity of defining the KISA concept. In our definition, the Social Services and Health Department (SSHD) of Kuopio (Figure 12, light grey) is one producer of home care services. The employees and the management of the SSHD of Kuopio took an active role in the development of both projects. Their expertise about the everyday work practices and services was a prerequisite for change. We have called this expertise internal expertise (internal KISA).

Other municipal offices and institutions (such as the Kuopio City ADP Centre) had an important role in supporting the development of home care services. They have also been classified as the producers of internal expert services (KISA) in our definition.

Some of the municipal home care services have been outsourced (the third sector, private service providers, unofficial help), and some are produced in co-operation with the University hospital. Part of the University hospital personnel and actors from the private sector and the third sector who give home care services participated actively in the projects. Since they are not directly employed by the city, their expertise was defined as external KISA.

Other expert services provided by bodies such as the university and research institutions are called external KISA. Commercial consultant and technology companies' services are called KIBS.

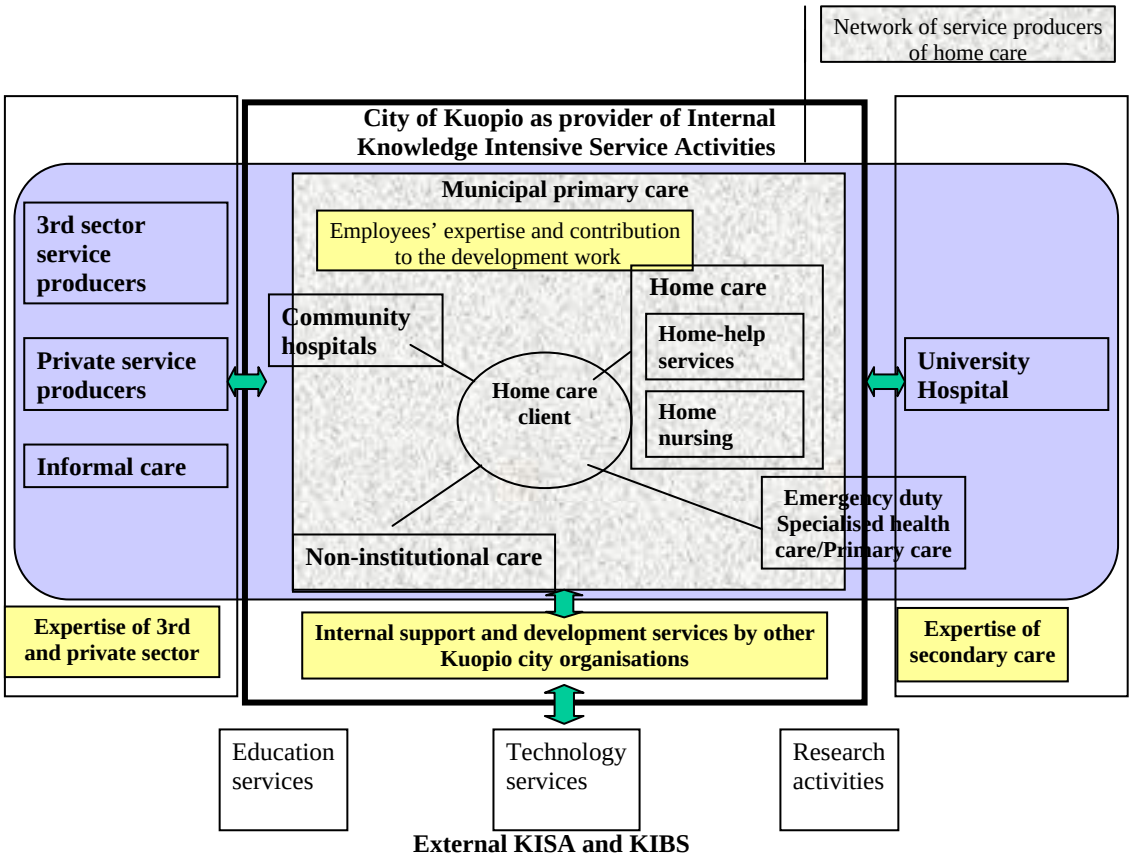


Figure 11 Defining internal and external expertise in the Kuopio case study

6.1.2 Use of KISA in implementation of seamless care

In light of our study it seems, that different forms of expertise is required in order to implement systemic innovations in social and health care. All of them need to be supported in order to enhance the innovation process. In the following, we discuss the role of external, internal and network expertise in implementing the changes studied.

External experts as producers of ideas

Proposals for seamless services had been presented already in the mid 1990s in national strategies. The idea of a new operation model (PALKO) and the technology strategy as well as the information system itself (Pegasos) which supports seamless care came from outside the SSHD of Kuopio. In the case of the technology implementation, the project was, however, much stronger in the hands of the city experts. Whereas the PALKO model was developed by STAKES, who invited the city of Kuopio to participate in the evaluation study along with other municipalities, numbering altogether 22 (Perälä 2003 et al.) the start-up of the VEGA-project was not as clear. There had been problems in Kuopio with the old system, according to the STAKES report (Kokko et al 1998), in which this was described together with its proposals for action. The city of Kuopio was not short of well-educated people with plenty of ideas and strategies for affirmative change. Development ideas were also forthcoming from the city planning office as well

as external experts – the Department of Health Sciences of Kuopio University and the University hospital of Kuopio. In addition the Social Services and Health Department of Kuopio had experience of taking part in national development projects.

Internal experts as modifiers ,disseminators and implementers of the ideas

External expert services activated internal experts in the projects studied. The roles of internal experts were to tailor the tools produced by the external experts, to motivate employees to participate in development work, and to implement the model of action and the associated new technology. The roles of internal and external experts differed in PALKO: external experts brought the content (a model/a technology) and the instructions. They were also responsible for explaining how to apply the innovation in such a way that it meets local needs. The producers of external expert services further supported the work of internal experts who had to implement the model and the technology into work units. In VEGA, internal experts had a more active role even if a consult company created the 'manuscript' for the project (the IT strategy).

A common feature of the PALKO and VEGA-projects was the strong commitment of personnel and management, and the use of individual areas of expertise (internal KISA) in the development work. In the VEGA-project the use of internal services that stretched from the SSHD to Kuopio City ADP Centre, which had a significant role at all stages of the project. According to interviews we made, the use of in-house expertise was favoured in order to restrict costs and tailor external ideas into the context where they were to be implemented. Use of in-house expertise was justified by their invaluable knowledge of the everyday services that was essential when the objective was a change in work practices. This kind of expertise cannot be bought.

The city of Kuopio and its environment have tried to be innovative and progressive and to encourage a spirit of openness in the critical evaluation of the activities and further development based on the reviews. The atmosphere has been positive, and supported the personnel’s enthusiasm and commitment to the work itself. The SSHD of Kuopio takes part actively in national, local and internal projects.

Project-specific differences in the use of external experts

The two projects' starting points as well as nature were different, which created differences in the implementation process and expertise required. The PALKO-project was a research project conducted by STAKES, and it was based on the use of an experimental-comparison design. The project included the implementation of the PALKO model in 11 municipalities. The implementation of the model in Kuopio is described in this report. STAKES issued instructions concerning the progress of the project, but the municipalities had the responsibility for co-ordinating and implementing the development phase of the project. In Kuopio, a project co-ordinator and a project group took care of that, whereas the role of STAKES was to produce internal expert activity at grass-roots level, for which they had developed tools to be tested in the project. In the PALKO-project the actors remained the same during the whole process, for reasons related to the research work. VEGA-project was in nature very different: it was supposed to be a clear-cut technology implementation project run by the Kuopio City ADP Centre. The management team and the data administration of the SSHD took

care of all the sub-projects after the external consultant had made the data administration strategy, which was the basis of the VEGA-project plan. In the VEGA-project the external expert services (project management services, educational services, evaluation services) and KISA, KIBS and Network-KISA were used selectively in the different stages of the lifespan of the project, when own expertise did not suffice.

Different kinds of expertise were needed for the projects, which influenced the use of external and internal expertise and in the network activity. The SSHD personnel lacked data processing skills. Their strength lay in a thorough knowledge of their own work areas; besides, technology expertise could be imported when needed. In the PALKO-project the external expert generated internal expertise which was of central relevance to their own internal work.

There were also differences in the network expertise used. In the VEGA-project the city of Kuopio took an active role in networking with other municipalities, first to collect benchmarking information from City of Turku and then to develop lacking features for the implemented information system. In the PALKO-project the external expert had the job of encouraging municipalities to take part by forming networks and offering possibilities to do so. The idea of networking was to generate ideas for internal development, to produce comparable information (benchmarking) and to function as reference criteria with which to consider one's own solutions and to pick up ideas at different stages of the process. The leader of the project (STAKES) arranged opportunities for mutual communication (work meetings, discussion forums), produced different kinds of comparable information (research results, municipality-specific models, plans for an alteration) and encouraged participants in networking by various methods, such as sharing contact information, providing written information about the development process, and establishing a web page discussion forum. The latter generated very little communication, whereas the network meetings invariably received good feedback and attracted a high level of attendance by all the municipalities taking part in the PALKO-project. There was little spontaneous network activity; the underlying reasons behind that can be, that the amount of co-operation arranged was regarded as sufficient, that the municipalities were not used to co-operating in matters related to the development of models of activity, or that there was just not enough time for co-operation.

6.2 Preconditions for and obstacles in using expert services in the innovation process

In the following chapter we examine preconditions for and obstacles to the development and implementation of an innovation (seamless care) in care for older people from the point of view of using expert services.

6.2.1 Governmental support for seamless care

The Ministry of Social Affairs and Health (STM) has contributed significantly to innovating and implementation of seamless care since the mid 1990´s. The change in the Finnish social and health care processes from hierarchical to seamless care and services was one of the core goals in the STM strategy for implementing information

technology in social and health care (1996). To support the strategy an experimental law was passed in 2000. The ministry has since the publication of the strategy supported several national projects and programmes in order to test and develop seamless care in municipalities. The term of the experimental law was continued in 2003 in order for all the municipalities in Finland to join the change process. There has been several high level working groups since the publication of the strategy to steer and support the work.

The government has supported the change with tens of millions of euro in the last ten years. The Ministry of Social Affairs and Health has supported local and regional development projects by granting financing (Ministry of Social Affairs and Health 9/2002). The Public Health Programme (2002-2007) supports functional changes in the social and health service system (Sosiaali- ja terveysministeriö 2002). In 2003 alone, the municipalities, federations of municipalities and hospital districts sent altogether 164 applications, out of which 40 regional projects were financed to the sum of 6.4 million euros (Sosiaali- ja terveysministeriö 2004). The large number of the applications indicates that project financing has created the motivation for municipalities to network with different areas.

In light of the history of seamless care in Finland, it appears safe to conclude, that seamless care has been an idea strongly nurtured and 'pushed' into the municipalities by the government. However, it has not been easy in the municipalities to turn the governmental ideas and concepts into working practices. In municipalities, much effort has been made in the past 10 years especially to implement new information technologies, changing patient information from paper to electronic format and implementing electronic patient information systems (as in VEGA-project in Kuopio). Other changes required for implementing seamless care have been less clear as well in Kuopio as in other municipalities. Regional information systems are still quite rare, and advances in terms of reorganisation of work and services from sector-specific, hierarchical to seamless practices have been modest. (Hyppönen et al. 2005.) Thus, there seems to be a wide gap between governmental strategies and goals and concrete practices and development work in the municipalities.

Why is it so difficult in the municipalities and hospital districts to implement a systemic innovation like seamless care in practice? One possible explanation for the difficulties could be that governmental steering based on financing development projects abiding national strategies might not necessarily be enough to support the development. Could it be, that the disintegrated innovation system has had an impact on disintegrating development in the municipalities? Each branch of administration has responsibility for developing technology in co-operation with TEKES and with the other state research institutions. The development of social innovations has, however, been seen as the responsibility of the public sector and the ministries. Only recently has this division of work been questioned, and service innovations emphasised as an integral goal for technology development. An increase in co-operation between different organisations and sectors of the innovation system could promote the development of systemic innovations in social and health services. (see also Valtion tiede- ja teknologianeuvosto 2003 19). Also, a clear development strategy for social innovations could be useful.

From municipalities' viewpoint the governmental steering with programmes and related funding requires strong municipal-level and regional-level co-ordination in order to support parallel change in municipal, hospital district and other organisations and neighbouring municipalities on technical, administrational, social and clinical level. Also, the projects' terms are often short, and this makes continuation of long-term change insecure. Separate projects can lead to an increasingly fragmented service system in the absence of an overall municipal and regional strategy. (see also Teperi 2004). This finding indicates a need for expert services to support the process.

A further explanation might be the national and regional emphasis on outsourcing services. Changes in the focus of municipal policy affect the municipality's way of arranging services. The emphasis can shift from own service production to outsourced services from one term of city council to another. These changes make the long-range development of the service system more difficult. Outsourcing of services also increases the complexity of the service system, thus setting more challenges for co-operation. There is some evidence, that outsourcing can in some cases lead to further fragmentation of services instead of integration (e.g. Hyppönen 2004). Transferring responsibility of service production from municipalities to organisations and market-based actors has also made the social and health services seem random (Myllymäki 2002). Much more evidence is, however, needed about impacts on integration.

In Kuopio, we found evidence of the changing political emphasis between own and outsourced services hampering the long-term planning. We did not find evidence of fragmentation of services even if some of the home care services, i.e. night patrols and a safe phone service, were replaced with outsourced services as a result of the economy measures taken by the municipality during the recession of the 1990's. Since 1997, the private sector and the third sector have been providing home care services together with the public sector (Paljärvi, Rissanen et al. 2003). These actors have developed their joint service in different projects. The networking of the Social Welfare and Health Care Services with the private sector and the third sector, as well as with other municipalities, has enabled competition of services and the implementation of benchmarking. Networking has also taken place with producers of technology services.

One further explanation might be the several simultaneous demands from different directions to the municipalities: the change seems to have become a rule rather than an exception, shaking the very foundations of the service system. The fact, that the demands from clients, policy makers, workers, financiers are sometimes contradictory (e.g. Hyppönen 2004) does not make the situation any easier for the municipal decision makers. This explanation indicates a need for expertise to manage a multi-voiced change process.

6.2.2 Innovative culture in implementing organisations supporting the change

The results of the grass root level change indicate the importance of internal and network expertise in the change process. Kuopio SSHD seemed as an organisation open to new ideas and change. The staff was well educated, and participation in projects was abundant. The significance of the managers in the creation of an innovative atmosphere was stressed by interviewees in Kuopio. Especially the experience of the director of the

SSHD of Kuopio through participation in national projects was seen important. The director's affirmative influence had a significant effect on the creation of an innovative atmosphere in the organisation.

Integration of the departments for social welfare and health care lowered the threshold for start-ups and participation in new development processes. Interaction on the part of the entire personnel gave them the experience of ways to manage in a changing environment, and made it possible to become acquainted with other divisions. It also increased co-operation inside the organisation. Internal co-operation was essential, since systemic innovations in social and health care seem to require multiprofessional teamwork and strong internal expertise.

6.2.3 Networking added innovativeness and supported the implementation

Strong networking on the part of the SSHD of Kuopio together with external expert service producers facilitated the dissemination of information about new ideas, supported the implementation and helped find external experts. The proximity of the university and the polytechnic, which are specialised in health sciences, has been important in supporting research and development. Especially University of Kuopio has made a significant contribution to regional development (see also Husso, Karjalainen et al. 2000). Many people working for the SSHD of Kuopio and the KUH have graduated from these institutions and they already had a good co-operation network in place.

In Kuopio, the older peoples' services are produced in a network formed by the public sector, the private sector and the third sector. The actors of the network actively develop these services through participation in various co-operation projects. Networking with the private sector and the third sector, and with other municipalities, has enabled the SSHD of Kuopio to use comparative information in the area of service provider competition. Kuopio is quite a small municipality; the fact that subscribers and producers know each other also helps when looking for suitable experts.

6.2.4 Need for strategic support for implementing seamless care

The Kuopio development strategy emphasises health and welfare and its development (sem2). Care and services for older people were highlighted in the development plan for older peoples' services (1996), in the subsequent strategy (1999), and in the political strategy (2003). These all emphasised non-institutional care, functional ability and the independent initiatives of older people, as well as their ability to live at home. Still, investing in specialised care has been a calculated political decision in Kuopio., influencing the directing of resources (sem2).

In the strategies, a systematic support for change on municipal and regional level seemed to be lacking. Seamless care was not presented in SSDH strategies as a clear goal with action plan and projects to support it. The 12 projects, as well as the two we studied in more detail, were not integrated in order to support a common goal. Since seamless care requires systematic co-operation not only within municipality service providers, but also between the municipality, hospital district and private and third sector service providers, a joint strategy would also have been required. This would

indicate a need for a new kind of boundary - crossing strategic learning and change management skills in the municipalities and hospital districts: someone or ones, who can look beyond any single project's and organisation's point of view to map the system, its key problems, vision an improved system and manage the change from old to new system.

In the beginning of the year 2004, a development unit was established in the SSHD. One of its tasks is to envisage future development and fit different projects together. Even if this indicated a more co-ordinated development approach in Kuopio, it seems, that the management might benefit also from well-tailored external support (external KISA and/or KIBS) to develop skills and competence needed to manage a cross sectoral change with multiprofessional teams and several simultaneous development projects. Integrating different working cultures (especially primary and specialised care) has traditionally been challenging. It is time-consuming to accomplish visible or tangible changes even in one functional unit. When there are several units functioning under different principles, the commitment to common operating principles will take considerably longer. The operating principles differ e.g. in specialised care and primary health care, as well as in municipal vs. private organisations.

6.2.5 Adequate resources needed for implementing systemic innovations

Also adequate amount of trained staff is needed to participate in the multi-professional development work. The project training was regarded essential in VEGA-project. The work units also need persons who are competent to manage development projects and integrate them with each other on the grass root level. There were several simultaneous projects in progress within the same work units in the health and social services of Kuopio, and binding these projects together was found to be challenging. The posts of nurse in charge, i.e. the persons who had previously acted as development work co-ordinators, had been reduced in the community hospital in Kuopio, as a consequence of cutbacks. At present no one has been reappointed for this task. The development work in the hospital has concentrated on very concrete problems. Experience has shown to the hospital staff, that it is not always wise to take part in all new activities, they seemed to need a visionary who would be able to see the bigger picture and future needs. (tk8, th3)

Even though the employees in Kuopio were well trained and interested in participating in the development work, there appeared to be some kind of ‘project fatigue’ with several seemingly separate projects going on. For example, the model of co-operation and information transfer was developed as part of the PALKO-project. However, the model was not used in the VEGA-project to produce system requirements. These two projects could have supported each other well, if they had been interfaced more closely during the implementation, perhaps also increasing motivation of the staff.

The information management strategy attempted to support integration of technology and care projects. It was based on the strategies of different branches of administration and highlighting the development of working practices as a goal of the information technology implementation. The VEGA-project remained still mainly an implementation project on information technology. Existing work practices were used as a basis for system requirements instead of the new practices developed in PALKO.

This has been shown to be problematic since the new technical system will be constructed based on the old work practices supporting them instead of being constructed to support the new work practises (cf. Hyppönen 2004).

During the VEGA-project a development laboratory was founded in the SSHD. Its purpose was to serve in the developing of new work practices. However, until the spring of 2004, it had only served as the ADP class where the staff was trained to use the new system. The reason for this was that there was insufficient understanding about the importance of developing work practices in a technology implementation project. According to IT managers, additional expertise would have been necessary to change traditional ways of implementing IT.

Adequate financial resources are also required. Rationalisation and economic efficiency have been significant factors in the development work done in Kuopio. The city financed both the reviewed development projects. In the VEGA project, some service producers were detached from their core duties to participate in the development as internal experts. They did not get substitutes for the whole time of their absence. The lack of manpower made the change at grass-roots level more difficult. The internal experts did not have enough time for learning required, since the actual daily work took up much of the working hours.

In the PALKO-project, the development was intentionally carried out as part of the normal workload. Working hours were reserved only for the time it took to write the PALKO model for Kuopio (just a couple months). The staff was bound to the continuous development process and to participation in definition of the needs and the planning. In return they acquired development know-how. This required the co-ordination of the leaders, follow-up and the adjustment of workloads and duties. In all respects, this was not realised. In Kuopio, the execution of projects would have been intensified if the external producer of expert services and the management of the sector had strengthened the role of internal expert services by investing more in education.

Project funding has been scarce even for bigger projects where change takes time. With limited resources, there is a danger that there will be too little time to take full advantage of the work done in projects. Lack of resources is often seen also in the reporting and evaluation of the work done. For this reason, it is difficult to state the benefits and market and exploit the innovations.

6.3 KISA in organisational learning and diffusion of innovation

Both of the projects we studied included massive training of personnel. The training included basic IT training, project work training as well as training for implementing the PALKO model. However, implementing seamless care requires more deep-reaching changes than this type of training can achieve. Simultaneous changes across organisations on different levels and domains are not easy to accomplish. In terms of the types of learning required, classic division of organisational learning into single loop and double loop learning (Argyris & Schön 1978) is useful. Single loop learning is adaptive problem solving without questioning the basics of operation. Double loop learning can be compared to strategic learning, which is innovative, creative learning

(Dogson 1991). It questions the very basics of operation, its objectives, clients, workers, tools rules, processes and division of work.

There is evidence, that hierarchical organisations are more efficient in implementing externally created innovations than open expert organisations with low hierarchy Creating innovative ideas requires flexible, open organisations. (Osborne 1998). Social and health care organisations are traditionally very hierarchical. This may be the reason for strong input on external experts also in our case study. It can be claimed, that the learning that took place in the two projects, was more adaptive than creative.,

If creation and implementation of systemic innovations requires questioning of the very premises of the organisation, seamless care implies simultaneous questioning of several service organisations. With hierarchical organisation structures this can hardly be done within existing organisational boundaries. External support and expertise seems essential.

Innovation related learning takes place within organisations as well as between organisations, when innovations are diffused from one context to another. Diffusion of the innovation we studied can be looked at from two perspectives. On one hand it is a question of diffusion of the idea of seamless care and its implementation. On the other hand there is diffusion of several minor innovations supporting the systemic innovation

Implementation of the idea of seamless care has been strongly supported by the government. By the end of 2004 nearly all of the municipalities in Finland had applied for implementing the experimental law of seamless care. The implementation has taken many forms and advanced in different domains and on various levels. Co-operation takes place between municipalities within hospital districts, between hospital districts and special responsibility areas in order to exchange experiences. (Hyppönen et al. 2005). In Kuopio, key methods have been the implementation of a joint information system (Pegasos) a generic co-operation model. The diffusion of these two innovations outside Kuopio depends essentially on the activity the "owners" of these innovations as well as the implementing organisations' social networks (see also Greenhalgh et al. 2004).

In PALKO-project 10 municipalities created a network for exchanging information. Networking was not very active, since each city tailored the model to fit their own activities. Due to the active network of the city of Kuopio interest in the model was spread into neighbouring municipalities.

Networks were exploited also in VEGA-project both for organisational learning and diffusion of innovation. A consulting company was used to provide initial project training, but the information was transferred to further subprojects internally. Knowledge about implementing a big information technology project was obtained from a city which had had experience in doing that. When municipalities joined together to develop the lacking home care contents for the information system, they acted as experts for system provider as well as learned about system development.

In the light of our study, different levels of learning take place and are needed in implementation of a systemic innovation. Single loop learning is abundant within municipalities, but double loop learning required for systemic change is more rare. It seems that all three types of KISA are required in order to implement innovations. In our case study, especially internal and network expertise seemed important. It also seems that there is not adequate external expertise available to support the systemic change.

References

Argyris, C. & Schön, D. 1978. Organizational learning: A theory of action perspective. Reading, Mass.: Addison-Wesley Publising Company.

Dogson, M. (1991), The Management of Technological Learning: Lessons from a Biotechnology Company. Berlin: Walter & Gruyter.

Doll W.J, Torkzadeh G. (1988). The measurement of end-user computing satisfaction. MIS Quarterly, Vol 12(2);259-274.

Greenhalgh T, Robert G, et al. (2004). Diffusion of Innovations in Service Organisations: Systematic Review and Recommendations. The Milbank Quarterly, Volume 82, Number 4.

Hartikainen, J. (1995). Kuka kuntasektoria kehittää? Tutkimus- ja kehittämistoiminta kunnissa ja kuntayhtymissä vuosina 1993-1994. Helsinki, Suomen Kuntaliitto.

Husso K, Karjalainen S, Pakkari T. (2000). Suomen tieteen tila ja taso. Suomen Akatemia, Julkaisuja 6/00. Helsinki.

Hyppönen, H. (2004). Tekniikka kehittyy, kehittyvätkö palvelut? [Technology develops, what about services?]. Helsinki, Sosiaali- ja terveysalan tutkimus- ja kehittämiskeskus STAKES.

Hyppönen, H. (2004b). Tekniikka kehittyy, kehittyvätkö palvelut? [Technology develops, what about services?]. Helsinki, Sosiaali- ja terveysalan tutkimus- ja kehittämiskeskus STAKES.

Hyppönen, H., Hämäläinen, P., Pajukoski, M., Tenhunen, E. (2005) Selvitys sosiaali- ja terveydenhuollon saumattoman palveluketjun kokeilulain (22.9.2000/811) käyttöönotosta kokeilualueilla. (Implementation of the experimental law of seamless care in Finland). Manuscript, to be published in www.oskenet.fi/julkaisut/osaavien keskusten verkoston julkaisuja 2005

Hänninen, E., P. Paaso, et al. (2001). Hyvinvointia tietoteknologiahankkeilla. Hyviksi arvioitujen toimintamallien ja teknisten ratkaisujen käyttöönotto ja juurrutus. Helsinki, Sosiaali- ja terveysministeriö.

Järvelin, J. (2002). Health care systems in transition, Finland. Denmark, WHO Regional Office for Europe.

Kauppinen, S., A. Forss, et al. (2003). Ikääntyneiden sosiaali- ja terveyspalvelut 2002. Helsinki, STAKES.

Kiviaho, K. and P. Turunen (2003). Kuopion kaupungin sosiaali- ja terveystoimen Vega-hankkeen arviointi. Loppuraportti 27.10.2003. Kuopio, Kuopion yliopisto, Terveyshallinnon ja -talouden laitos, Shiftec-tutkimusyksikkö.

Kokko, S., Ed. (1998). Stakesin Kuopion sosiaali- ja terveystoimen arviointiprojekti : Yhteenvetoraportti (Kuopion sosiaali- ja terveyspalvelut puntarissa) sekä osaraportit. Helsinki, Stakes.

Komissio (1995). Vihreä kirja innovaatioista. Saatavilla osoitteesta: http://www.cordis.lu/innovation/scr/grnpap1.htm (4.6.2003).

Koskimies, J. (1999). Sairaalatietojärjestelmien historiaa. Tietotekniikka ja tiedonhallinta sosiaali- ja terveydenhuollossa. K. Saranto and M. Korpela. Helsinki, WSOY: 63-85.

Kuopion kaupungin sosiaali- ja terveyslautakunta (2001). Sosiaali- ja terveyskeskuksen toimintakertomus 2000. Kuopio, Sosiaali- ja terveyskeskus.

Kuopion kaupungin sosiaali- ja terveyskeskus (2003). Kuopion ikäimmeisten strategia vuosille 2003 - 2012:
Vanhuspoliittinen strategia ja vanhuspalvelujen kehittämisohjelma.

Kuusisto, J. (2004). Knowledge intensive services and innovation. Research Council 12.10.2004, Oslo.

Kuusisto-Niemi, S. (2002). Sosiaali- ja terveydenhuollon sanastot III. Sanasto asiakkaan asiamieheen, itsenäiseen suoriutumiseen ja alueellisuuteen liittyvistä käsitteistä. Helsinki, Stakes.

Laki sosiaali- ja terveydenhuollon saumattoman palveluketjun kokeilusta (2000).

Lassila M. (2004) Pegasos-tietojärjestelmän käytettävyys ja kehittämishaasteet käyttäjien arvioimina Kuopion kotihoidossa. Hyvinvointiteknologian erikoistumisopinnot, kehittämistyö. Helsinki: Stadia Helsingin ammattikorkeakoulu.

Leutz, W. N. (1999). "Five Laws for Integrating Medical and Social Services: Lessons from the United States and the United Kingdom." The Millbank Quarterly 77(1): 77-110.

Liikanen, H. (2002). Tietotekniikka kehittää sosiaali- ja terveysalaa? Tampere, Tampere University Press.

Miettinen, R., J. Lehenkari, et al. (1999). Osaaminen ja uuden luominen innovaatioverkoissa. Tutkimus kuudesta suomalaisesta innovaatiosta. Helsinki, Taloustieto Oy.

Myllymäki A. (2002) Kuntien kujanjuoksu. Kunnallisalan kehittämissäätiö. Polemia -sarjan julkaisu nro 45.

Noro, A. (1998). Long-term Institutional Care Among Finnish Elderly Population. Helsinki, STAKES.

Ohtonen, J. (2002). Satakunnan Makropilotti: tulosten arviointi. Helsinki, Stakes/FinOHTA.

Osborne, S. P. (1998a). "Naming the beast: Defining and classifying service innovations in social policy." Human Relations 51(9): 1133-1153.

Osborne, S. P. (1998b). Voluntary Organizations and Innovation in Public Services. London and New York, Routledge.

Paljärvi S. (2004) Saumaton palveluketju. Kisa-hankkeen kommenttipuheenvuoro. TEKESin seminaari 10.11.2004. Asiantuntijat ja terveydenhuollon innovaatiokyky. Diana-auditorio, Helsinki.

Paljärvi S, Rissanen S, Sinkkinen S. (2003) kotihoidon sisältö ja laatu vanhusasiakkaiden, omaisten ja työntekijöiden arvioimana - Seurantatutkimus Kuopion kotihoidosta. Gerontologia, 2/2002; 85-97.

Perälä, M.-L. and T. Hammar (2003). PALKOmalli - Palveluja yhteensovittava kotiutuminen ja kotihoito organisaatiorajat ylittävänä yhteistyönä. Helsinki, Stakes.

Perälä, M.-L., P. Rissanen, et al. (2003). PALKO - Palveluja yhteensovittava kotiutuminen ja kotihoito : Koeasetelma ja lähtötilanteen arviointi. Aiheita 27/2003. STAKES. Helsinki.

Salonen, P. and R. Haverinen (2004). Providing integrated health and social care for older persons in Finland. Providing integrated health and social care for older persons. A European overview of issues at stake. K. Leichsenring and A. M. Alaszewski. Aldershot, Ashgate: 181-227.

Saranummi, N., S. Kivisaari, et al. (2005). Systeeminen innovaatio terveydenhuollossa. Asiantuntijapalvleuiden rooli. VTT teknologiakatsauksia, käsikirjoitus. Helsinki.

Savon Sanomat (2004). Perusterveydenhuolto ei toimi. Selvitys Kuopiosta: KYS:iä käytetään liikaa, jonotus- ja toipilasajat kohtuuttoman pitkiä. 228(97);1, 6.

Seppänen-Järvelä, R. (1999). Luottamus prosessiin. Kehittämistyön luonne sosiaali- ja terveysalalla. Helsinki, Stakes.

Sosiaali- ja terveysministeriö (1996a). Sosiaali- ja terveydenhuollon tietoteknologian hyödyntämisstrategia. Helsinki, Sosiaali- ja terveysministeriö.

Sosiaali- ja terveysministeriö (2000a). Laki sosiaali- ja terveydenhuollon saumattoman palveluketjun ja sosiaaliturvakortin kokeilusta,.

Sosiaali- ja terveysministeriö (2000b). Sosiaali- ja terveydenhuollon tavoite- ja toimintaohjelma 2000-2003. TATO:n ensimmäinen vuosi. Helsinki, Sosiaali- ja terveysministeriö.

Sosiaali- ja terveysministeriö (2001). Statutory social welfare and health care services. Brochures 7, Helsinki.

Sosiaali- ja terveysministeriö (2002a). Ikäihmisten hoitoa ja palveluja koskeva laatusuositus. Oppaita 2001:4. Sosiaali -ja terveysministeriö. Helsinki: 24.

Sosiaali- ja terveysministeriö (2002b). Kansallinen projekti terveydenhuollon tulevaisuuden turvaamiseksi. Työryhmämuistioita 2002:3. Sosiaali -ja terveysministeriö. Helsinki.

Sosiaali- ja terveysministeriö (2004a). Sosiaali- ja terveysministeriö: Organisaatio. www.stm.fi

Sosiaali- ja terveysministeriö (2004b). Sosiaali- ja terveysministeriö: Hankkeita.

Sosiaali- ja terveysministeriö (2004c). Sosiaali- ja terveydenhuollon saumattoman palveluketjun kokeilua jatketaan - uudet alueet voivat nyt hakea mukaan. Kuntatiedote 02/2004. Sosiaali -ja terveysministeriö. Helsinki.

Sosiaali- ja terveysministeriö (2004d). Sosiaaliturva ja rahoitus: Tutkimus- ja kehittämistoiminta.

Stakes (1999). Sosiaali- ja terveydenhuollon sanastot II. Helsinki, Sosiaali- ja terveysalan tutkimus- ja kehittämiskeskus STAKES.

Teperi (2004). Ohjelmaohjauksen aikakausi. Uutissiilo nro 31, Stakes Intranet. Helsinki.

Tenhunen, E., P. Hämäläinen, et al. (2005). Selvitys sosiaali- ja terveydenhuollon saumattoman palveluketjun kokeilulain käyttöönotosta kokeilualueilla. Raportti peruskartoitusvaiheesta. Stakes, Tietoteknologian osaamiskeskus. Helsinki.

Tilastokeskus (2004). Väestö iän ja sukupuolen mukaan alueittain 1980-2003.

Tolppanen, E.-M. and P. Yli-Olli (1999). Kuopion sosiaali- ja terveyskeskus. Tietohallintostrategia. Raportti 98F0015. Kuopion sosiaali- ja terveyskeskus. Espoo, Mecrastor Pricewaterhouse Coopers Oy.

Turunen A. (1998) Kuopion sosiaali- ja terveystoimen järjestelmät. Teoksessa Kokko S. ym. Stakesin Kuopion sosiaali- ja terveystoimen arviointiprojektin osaraportti nro 4. Yhteenvetoraportti sekä osaraportit. Stakes. Helsinki.

Vaarama, M., P. Voutilainen, et al. (2002). Ikääntyneiden palvelut. Sosiaali- ja terveydenhuollon palvelukatsaus 2002 Raportteja 268 2002. M. Heikkilä and A. Parpo. Helsinki, Sosiaali ja terveysalan tutkimus- je kehittämiskeskus STAKES: 76-105.

Valtion tiede- ja teknologianeuvosto, 2003, Osaaminen, innovaatiot ja kansainvälistyminen, Helsinki.

Whitten, P. and J. Rowe-Adjibogoun (2003). "Researching communication technology intervention projects: The challenge of achieving utilization levels sufficient for evaluation." Journal for Technology in Human Services 22(3): 1-16.

Wilberg, K. and G. Alkema (2003). Caring Counts! Creating a Seamless, Coordinated and Integrated Long-Term Care System in California: Where We Are and Where We Need to Go... California Center for Long Term Care Integration, University of Southern California: Power Point presentation May 12, 2003. Available at http://www.ltci.ucla.edu/ccltciproducts/Where%20we%20are%20etc%20Alkema%20Wilber%20Sac%205-9-03.ppt.

Vohlonen I. (2004) Kuopion kaupungin hyvinvointistrategian vaikuttavuus. Efectia Oy. Helsinki.