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Nordic Innovation Centre

User-driven Innovation in the Health Care Sector

SUMMARY REPORT





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Oslo, March 2010

About the report

This summary report is based on the final reports from two projects that were funded by the Nordic Innovation Centre. The two projects are called *Innovation4Care* and *New methods for user driven innovation in the health care sector*.

This summary report and the two project reports upon which it is based are available for free download at www.nordicinnovation.net

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Foreword

The Nordic countries have health care sectors of high international standards. In most studies the Nordic countries come out among the top ranked nations in medical quality as well as cost effectiveness. However, the health care systems are challenged by an increased demand, due to the graying of the population, and a more knowledgeable population. Further, the technological development makes new and often expensive treatments available.

Innovation in the health care sector is essential to meet these challenges. The pace of innovation has been high in health care, but it has been dominated by research based innovations, e. g. pharmaceutical and medical technologies. A user driven approach to innovation has the possibility to change the way innovations are made in the health care sector. User driven innovation takes the users' needs as a starting point and innovate on based on that. It can generate a different type of innovations that are more focused on how the work is done and organized than new medicines and technology.

Nordic Innovation Centre has financed two Nordic projects that studied and promoted user driven innovation in the health care sector. The projects used different tools, but they both showed the potential for user driven innovation in the Nordic health care sector.

It is my hope that the synthesis presented in this report will inspire further reading of the individual underlying reports.

For free downloads of the full reports, go to: www.nordicinnovation.net

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USER-DRIVEN INNOVATION IN THE HEALTH CARE SECTOR

INNOVATION4CARE

The project Innovation4Care, supported by the Nordic Innovation Centre (2008-2010), is a collaboration between three Nordic regional health-care organisations, Region Midtjylland (Denmark), Region Skåne (Sweden), and Helse Bergen (Norway), and three consultancies in the respective regions: MidtLab, Hybrid State AB and InnoVest AS. Together they have implemented a Crowdsourcing tool to support user driven innovation. The Danish-Swedish life science cluster Medicon Valley Alliance served as the project coordinator.

PROJECT OBJECTIVES

The dual aim of the project was

- To promote user driven innovation by applying Crowdsourcing for channelling suggestions and ideas, primarily from employees but also from industry and the public, to provide input and collective decisions on innovation projects. An interactive web-based tool for Crowdsourcing was implemented at the website innovation4care.com.

- To promote exchange of experience and to initiate a Nordic collaborative culture for innovation in the healthcare sector, i.e. a problem-solving culture open to cross-border collaboration in incremental as well as more radical innovation projects.

TARGET GROUPS

The three health care regions together have about 75,000 employees, who were the primary target group (called Users) for the Crowdsourcing activities. This large group contains valuable knowledge, problem understanding, ideas and solutions which could be leveraged via Crowdsourcing. The organisations

also had a long-term interest in more actively involving companies, patients, and citizens in innovation projects. In this project they constituted secondary target groups.

INNOVATION - USER-DRIVEN INNOVATION

Crowdsourcing is a term coined by Jeff Howe in a June 2006 Wired magazine article. It describes the use of a large number of people to perform a particular task. Today, Crowdsourcing is used to identify problems and ideas, generate solutions and evaluate them. The use of Crowdsourcing for innovation is a method to create participation and dynamically broaden the influx of information, knowledge and solutions.

In this project, Crowdsourcing was used as a method to develop and support user driven innovation. At an early stage the following key concepts were identified and defined as follows:

- **Crowdsourcing**: - To take a task usually performed by an employee or subcontractor and outsource it to a wider group of people, as a challenge to participate in.
- **User Driven Innovation**: - An innovation that is created by the user as an active participant in (not the leader of) the process.
- **An Innovation**: - An invention or a new solution in use or introduced on the market.

Focus of the Crowdsourcing activities was to provide existing and emerging innovation teams with input into the decision-making during the development process, rather than to propose new solutions, even if this has also been possible. The primary benefit that the project has been looking for is an increase in volume of activity, when responding to a challenge.

This feed-back could be used to identify a collective direction for the path that the innovation project should take. During the course of the project, there was also a possibility of identifying so-called “super users”, whose suggestions and ideas may be of particular interest.

RESULTS

Hybrid State was responsible for the development, implementation, and operation of a joint Crowdsourcing tool for the three regional healthcare organisations. The tool had to work in three Nordic languages plus English, in diverse innovation projects, and in organisations with extremely differing computer hardware and software standards. Varying levels of co-workers’ computer literacy has also been a factor to consider. The tool and the site innovation4care.com opened in September 2008.

Sixteen crowdsourcing challenges were implemented during the 12 months that the tool was open. More than 3000 individuals took part, of which 440 actively participated in the challenges, which lasted from 24 hours to two weeks. The website had more than 8000 unique visitors between September 2008 and December 2009, of which 600 registered as registered members of innovation4care.com.

The healthcare organisations were encouraged to test the innovation tool on various types of projects in different development phases. The innovation teams for the following projects used the tool to support their process from a single to 9 times:

DK - Region Midtjylland

- **Citizen module** - Region Midtjylland’s politicians asked the public about the development of a new healthcare plan.

SE - Region Skåne

- **Treatment guidelines** - The Ambulance and Ca-

tastrophe unit undertook a project to develop new guidelines for practice in the field, by a series of crowdsourcing events with employees in the unit.

- **Accessibility** -The management unit asked about the possibilities of reaching the present goals, and whether new development projects will be needed to secure accessibility to healthcare.

SE- All participating regions

- **Problem solutions** - Region Skåne’s innovation unit wanted to find out if any co-workers in the Nordic healthcare regions were aware of existing solutions to three identified problems regarding stretchers and hospital beds.
- **Personal Health Records (PHR)** - Region Skåne’s innovation unit wanted to find out if the international trend with PHRs is a trend that soon will reach the Nordic countries and what type of tool that is envisaged.

NO - Helse Bergen

- **Strengthen innovation culture** - Helse Bergen’s research unit explored the interest among co-workers to participate in innovation projects. One result was the process of developing a new innovative culture in the organisation, with the objective to include all parts of Helse Bergen in a new way of thinking about progress in healthcare. The project helped set a new focus and establish a new innovation standard.
- **Nutrition and Health** - InnoVest wanted to identify interest and resources for innovation projects in the field of Nutrition and Health. This also became a special focus for the industry reference group.

The website Innovation4care.com had many visitors/spectators, but could have handled many more active participants and additional innovation project teams.

The majority of innovation projects in the regional healthcare organisations have project leaders and

teams that perform the innovation project on top of a full-time job. Lack of time is by far the biggest barrier for participation, including time to learn new tools for innovation development. A second barrier is that the culture in most healthcare organisations inhibits expression of subjective opinions, especially if they are made public (even without name of the author). This is a serious obstacle for Crowdsourcing, where you want and need everybody’s opinion. Finally, there was a lack of knowledge about how to organise innovation work via Crowdsourcing. The “crowd” (e.g. co-workers) tires of not seeing the results of a challenge become implemented.

The large number of non-Nordic visitors on the site indicates that innovation has been put on the agenda of healthcare organisations throughout Europe. The project has also created a curiosity about how to gain permission and the opportunity to pursue innovative projects as an employee in a public sector organisation. It has also created knowledge and experience of how to use digital tools in the innovation process.

COLLABORATION

Bergen

– Helse Bergen hosted a kick-off meeting with Regions Midtjylland and Skåne in 2008 to discuss general collaboration possibilities regarding innovation between the three healthcare regions. Helse Bergen plans for involvement in “Stjerneløb” from 2010.

Stjerneløb

– Region Midtjylland and Region Skåne started exchanging innovation experiences in a wider context, by delegations visiting each other to learn details about ongoing projects related to the healthcare sector. This exchange has now become permanent with the aim to share best practice, methods and specialists. The intensified contacts also include

keeping each other updated about prototypes, new products and services that might be interesting for collaboration and/or procurement. Stjerneløb is a Danish term used when participants in a race (e.g. biking) move from the centre to points on the periphery and back to the centre several times.

Industry cooperation – All three regions have held meetings to involve industry, typically suppliers to hospitals and primary care units. Present and forthcoming innovation contact points (such as regional innovation sluices in Sweden) may serve companies wanting tests of their products as well as regional projects needing commercial contacts, including public procurement of innovation.

The challenge on Nutrition and Health performed by InnoVest and Helse Bergen is an interesting example. Region Midtjylland has started a project to develop prototypes for hospital beds of the future. The focus is on activating and mobilising patients in order to improve their confidence and capability of taking care of themselves (to the extent possible). The project slogan is Nobody wants to be needy. Manufacturers and supporting design enterprises are engaged together with health care practitioners and patients. The first prototype is expected in mid 2010, and then new prototypes will be presented every 3 months.

During 2009, Region Skåne launched its fully owned subsidiary for developing projects, called Innovator Skåne AB, and the very first project deal was made in November the same year. On the basis of a literature survey five different drivers towards increased Nordic cooperation have been identified. In this context a driver is an either endogenous or exogenous factor, which historically, presently and in the future can facilitate a deeper integration of the Nordic health care system. The five drivers are:

RECOMMENDATIONS

It is a challenge to implement innovation tools in the healthcare sector, especially web-based tools which are built upon open communication, dynamic collaboration, and require non-hierarchical processes and projects. Modern research has identified three key success factors for innovation performance - speed, transparency, and flexibility. If public health care organisations cannot handle all three factors, they will not be able to have full impact of their innovation process.

Many organisations lack practical experience of “Open Innovation” and how to organise and support it using, for example, digital innovation tools. There is a need for a greater acceptance of “Fail Forward” not only in terms of individual innovation projects, but also in the use of methods and tools for innovation work. The local and specific contexts require a practical “learning by doing” approach to reveal what and how things work.

A strong recommendation is therefore to work towards a less hierarchical and more open and generous culture in the healthcare organisations, and to make the existing innovation system more efficient and visible to all employees. The flexibility is, unfortunately, not only a question of capacity but also of interpreting laws and rules such as ownership of innovation and competition for public procurement. These areas have not been part of Innovation4care but are well worth addressing in a Nordic context. The concept of Public Procurement of Innovation (PPI) is very new and could itself be proposed a Nordic project theme.

The healthcare organisations’ innovation support units also need to systematically challenge the projects with the international market and technological requirements to avoid developing in the wrong direction for too long and burning resources unnecessarily. Thus, contacts to industry and investors are necessary.

Nordic collaboration between regional health care organisations proved to be fruitful also outside the use of Crowdsourcing. The exchanges of best practice and invitation to co-develop or procure new innovations will become permanent after the project period. It can be recommended that other public innovation organisations in the Nordic countries get a similar possibility of exposure and collaboration via Nordic Innovation Centre-supported projects.

NEW METHODS FOR USER-DRIVEN INNOVATION IN THE HEALTH CARE SECTOR

The project New methods for User Driven Innovation in the health care sector supported by the Nordic Innovation Centre (2008-2009), is a Danish-Norwegian-Swedish collaboration aiming to develop new methods for user driven innovation in the health care sector. The project conducted six pilots focusing on six illnesses and patient groups. The project was coordinated by Econ Pöyry in Oslo, Norway.

PROJECT OBJECTIVES

The aim of the project was to develop and test methods for user driven innovation in the context of health care.

TARGET GROUPS

The project conducted pilot projects focusing on six common illnesses and patient groups:

- Bedwetting
- Incontinence
- Prostate Cancer
- Treatment at home for patients with chronic obstructive pulmonary disease
- Identifying and suggesting new assistive hearing devices
- Identifies uncovered needs among people with dementia

The projects included patients and medical staff and in some cases also companies.

INNOVATION - USER-DRIVEN INNOVATION

The starting point for the project was that the health care sector needs more innovations as a solution to the challenges facing the health care sector in terms of aging population and increased demand for high quality services. The project aims to draw attention to the possibilities of user driven innovation in the health care sector. Innovation in the health care sector has mainly been research driven. Research will continue to be important in health care, but user driven innovation may be a new strategic tool to the health care sector.

RESULTS

The project was to test out new methods for user driven innovation in the health care sector and several new methods and procedures were discovered and are in the phase of implementation. Ideas for new technical devices were also generated but none of those are yet implemented.

- Bedwetting
- Incontinence
- Prostate Cancer
- Treatment at home for patients with chronic obstructive pulmonary disease
- Identifying and suggesting new assistive hearing devices
- Identifies uncovered needs among people with dementia

The cases used a combination of surveys, explorative focus groups and development workshops.

Bedwetting

Since the bedwetting is a taboo-laden subject, the project focused on both treatments and how to approach the issue and the project generated new ideas on how to provide information on bedwetting.

Incontinence

This project was carried out through workshops in Sweden at Lund University hospital. As in the previous case, there is a stigma connected to the illness. One of the problems that came up in the workshop was the difficulty of accessing adequate information. A solution to this would be a central helpdesk. Several ideas of medico-technical solutions were generated but these are awaiting commercialisation.

Prostate Cancer

The focus on this project was male 60 years of age and up and conducted at Herlev hospital in Denmark. The primary result was process innovation concerning the use of information materials. Furthermore, new tools for improving the dialogue between the doctor and the patients have been developed.

Assistive Hearing Devices

The background to this project was an identified need for new technical aids to hearing. The methods used in this project included interviews, observation and workshops. The project ended up with a set of new solutions in technical hearing aids. These results have been presented for industrial partners who wish to carry some of the ideas further.

Chronic obstructive pulmonary disease (COPD)

Sufferers from COPD have difficulty breathing even when they are at rest. This study included patients at St Olavs hospitals in Norway. One the problems addressed was to reduce the numbers hospitalisations. This project resulted in that a home-based treatment was developed and when implemented it could drastically reduce the hospitalization.

Dementia pre-study

The number of patients with dementia has increased a lot the last decades. This project did not focus on treatment for the illness, but innovation that can improve the domestic situation of dementia patients. Several ideas for innovation were identified, and two new projects has been launched that will look deeper into two of the ideas.

RECOMMENDATIONS

The health care sector is different from other sectors with regard to the dimensions of user involvement. The innovation model of the pilot projects was largely based on direct user involvement concerning articulated and semi-articulated needs, with variations over the course of the innovation process and the methods employed in each phase. However, in many circumstances, it may prove difficult to find users who have time, capacity and are motivated for participating in an innovation process.

One of the primary learning points from the pilot project is that the users of the health care sector do not have the same characteristics as for example the lead users of von Hippels classics (e.g. 1988). Lead users are described as a group of users who are particularly interested in spending time on developing a new solution or product, because the user himself can gain from it. This may not work as motivation for an ill patient. This is why it seems more fruitful to let the users in the health care sector participate in parts of the process, in stead of making the users lead the process.

When the users are health personnel, time restraints and a busy work day can make it challenging to find people willing to be for example lead users. Once the users are in place, it has proved crucial to find the right method in order to cover all aspects of the users challenges, articulated or non-articulated, without intimidating the user.

User- and employee-driven innovation

The primary users in all pilot projects were patients suffering from different illnesses. The boundary between user- and employee-driven - innovation in the health care sector is blurred because of the emotional and physical experience of the patients. The patients do not have full information about the “product” but can only refer to the process as an observer since knowledge about medical cause and effect is usually exclusive to the health care professional.

The innovation potential does not lie in getting the patient well. The health care professionals and scientists are working hard on that part, but it is in the “surrounding” services that the potential seems the greatest. Services such as speed of diagnosis, information during the process, type of contact with health care professionals, optimizing of the treatment course etc.

Another important learning point was that the political nature of the public health care sector means that there is a fine line between proposing a new way of doing things that creates value for the patients and proposing a new way of doing things that allows the patients to consume value (i.e. by asking for more service regardless of its innovation potential). While the first is in perfect accordance with the projects’ definition of innovation, the second is merely a redistribution of the scarce public health care resources. One has to be aware that the patients have political interests in the health care system (by pushing for more public funding) and that they are not unbiased.

The pilot projects’ focus was to investigate methods and operated in the first phase of innovation. This means they have collected data and come up with concept ideas. This first WHAT phase is time demanding and important to carry out in an organized and thorough manner. There is a need for developing methods where users can be more involved – not necessarily as lead users, but as observers with experience from own or others’ needs.

To move over to the next stage, the HOW phase, where prototyping, testing and eventually implementation of a new service, method or process are taking place, several elements need to be considered. First, there is a need for a strategic push. Both financial and organisational support is necessary to be able to develop the ideas. The process is long, especially if it aims at developing new products, which means that it is necessary to include devoted actors and make the projects part of a larger strategy. Also, there is a need for methods to communicate ideas to industrial partners.

Methods to include industry at an early stage without narrowing the window of opportunities are also required. In addition, there is a lack of incentives for the industry to participate in processes like user driven innovation projects. Industrial actors may be reluctant because the buyer of a product often differs from the user. The risk in developing a new product especially fitted for the users is extremely high when you do not know if you have buyers for it. Also, the market for new solutions may be small, for example when it comes to products for children. Here, public actors have an important role to play in order to secure good solutions for smaller patient/user groups.

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Nordic Innovation Centre initiates and finances activities that enhance innovation. We cooperate primarily with small and medium sized companies in the Nordic region. We aim at developing a smoothly functioning Nordic region without national barriers. Nordic Innovation Centre is an institution under the Nordic Council of ministers. The centre is located in Oslo, but has projects in all the Nordic countries.

Read more about us at: www.nordicinnovation.net