SYSTEM INNOVATIONS IN THE MAKING: HYBRID ACTORS AND THE CHALLENGE OF UP-SCALING

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ABSTRACT

The article addresses the problem of how to create sustainable change in health care. It builds on two on-going case studies which examine endeavours to develop system innovations for delivering high quality services more efficiently. The early stages of these innovation processes are studied through the lens of multiple-level model of change. The model suggests that change takes place as the outcome of linkages between external pressures to the current regime, policy measures, and local initiatives. The results highlight the critical role of hybrid actors for 1) assuring the societal quality of the innovation, and 2) developing the embryo to be relevant beyond the local level. The up-scaling of an innovation embryo entails that local actors adopt a wider perspective and that policy makers support the spreading of local innovations. The findings are useful for policy makers and local developers.

KEYWORDS

Hybrid actor, innovation embryo, up-scaling, societal quality, system innovation.

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1. NEED FOR SYSTEM INNOVATIONS IN FINNISH HEALTH CARE

The need of systemic change in health care has been well recognized in most Western Countries. Concern for availability of high quality services at reasonable cost in the future has increased the need to understand how favourable conditions for sustainable change are created.

Health systems in all Western Countries are multi-level and complex. Because the national systems differ from each other we need to briefly describe the Finnish system as the context of the studied innovation processes. In Finland, the Government sets the context for the health system. The main actors responsible for system innovation in health care are the service providers, and the municipalities as payers.

The biggest social and health service provider in Finland is the publicly funded primary and specialized care system. Primary services are provided by social and health centres which are owned by municipalities. Similarly, specialized services are regionally provided by twenty hospital districts. Five of them include also a university hospital. Hospital districts are owned by associations of municipalities. The public system is enacted by laws.

There is also a system of private service providers which accounts for roughly ten per cent of the health services. Visits to private practitioners are partly paid by patients and partly reimbursed by the Social Insurance Institution of Finland (KELA). The partial reimbursement of costs by KELA plays an important role in maintaining a balance between the public and private health services (see e.g. Häkkinen and Lehto 2005; Saranummi et al. 2005). The proportion of services purchased externally from non-profit or for-profit private providers is gradually increasing.

Currently, there are 348 municipalities, of varying size. The municipalities have several roles. They pay, organize and in most cases also provide health care services. Only the two first mentioned roles are written into the law: the municipalities are made responsible for arranging access to health and social services for their citizens and for paying for these services. Still, typically the municipality also produces the services itself instead of purchasing external services. The share of social and health care typically represents at least half of municipal expenditure.

One of the identified problems of Finnish health care is that many municipalities seem to be unable to act as health insurers for their citizens in the present system. It is claimed that the problem relates to their small size, present service structures, and inefficient management systems. Additionally, challenges relate to improving
patients’ care chains and to improving the conditions of employment to secure the availability of skilled professionals in the public sector.

The Government has recently acted by setting up of a project to restructure municipalities and services whereby it pressures smaller municipalities to form consolidations or collaborative areas for joint organization of services. Additionally, it has prepared a bill which aims to increase the citizens’ freedom of choice of personal physicians and hospitals, and to narrow the gap between primary and specialized health care.

All in all, the Finnish health care system is characterized by a comprehensive mixture of informal procedures, regulatory practices and powerful interest groups, who maintain the rules and set conditions for change. Public health care providers have complex owner relations and management structures. In this context, decision making is often difficult and time consuming, and ultimately must be based on a broad consensus.

In spite of public policies and programmes aiming at encouraging development of system innovations and an abundant number of local innovative experiments, innovative practices do not seem to be spreading and become system innovations. This paper aims to increase the understanding on how to enhance the development and spreading of innovations in health care.

In the following, we first present our theoretical framework and approach. The paper continues by short narratives of two on-going development processes. The processes are then analysed in terms of network building and problem definition. The paper concludes with discussion on the future prospects and critical challenges of the emerging system innovations. We argue that the societal quality of system innovation depends on how well different stakeholders are involved in the definition of the innovation embryo. The development from local innovation embryo to a national level system innovation is a long path. In this path hybrid actors seem to have a crucial role in combining the interests of the different stakeholders for shaping of the innovation feasible for wider use.

2. TRANSITION MANAGEMENT AS FRAMEWORK TO STUDY SYSTEM INNOVATIONS

2.1 Multi-level perspective to socio-technical change

Increasing appliance of New Public Management to health care poses new challenges related to governance of health care organisations and to managing system innovation. As this paper focuses on the latter issue we have chosen the
theoretical perspective of multi-level socio-technical change as the framework for our analysis. This approach presented in recent Transition Management (TM) literature (Geels 2002; Kemp and Loorbach 2006) offers a framework for understanding the dynamics of system innovation.

The multi-level perspective of change is derived from historical research on technological transitions which have lasted even decades. Recently, it has also been applied to analysis of ongoing innovation processes which brings new challenges to its analytical capability (Elzen et al. 2008).

One of the key features of the TM approach is the focus on long-term thinking. Another is its explicit focus on the interconnectedness of technological and social systems, including governance models and institutions. Stability and change are analyzed through a multilevel perspective on technological systems.

The multi-level perspective stresses that technological systems change as interplay between landscape, regime and niche levels. Socio-technical landscape refers to relatively stable, slow-changing factors such as cultural and normative values, long-term economic developments and societal trends. Socio-technical regime refers to the semi-coherent set of rules carried by different actors such as users, policymakers, scientists, and public authorities. Niches, here, represent the local level of initiatives and activity.

According to the model, regimes tend to generate incremental innovations, while system innovation embryos are generated in niches which are protected from ‘normal’ market selection. Radically new innovation or system innovation embryos need protection because their cost efficiencies, technical performance and usability often need improving. Niches provide locations for experiments and learning processes, and space to build the social networks which support innovation. Geels (2004, 37) explains that radical innovations break from the niche-level when the external circumstances are right, that is, when ongoing processes at the levels of regime, landscape and timing create a window of opportunity (cf. Kingdon et al. 2007). Particular attention is paid to the involvement of ‘forerunners’, i.e. representatives of innovative solutions that challenge the current unsustainable socio-technical systems. Elzen (et al. 2008) has recently pointed out the critical role of hybrid actors in promoting the system innovation process. Hybrid actors operate in various network settings at the intersection between niches and regime.

TM emphasizes both top-down and bottom-up processes (Geels 2004). On the one hand, it stresses the importance of defining common visions and interim objectives. It suggests that government has two roles: the definition of objectives, and the role of making sure that the process of developing and evaluating alternative pathways is working well (Rotmans et al. 2001). On the other hand,
the approach emphasizes the need for diversity and experiments (Kemp et al. 2007).

The scaling up of experiments has been pointed out (Weber et al. 1999) to be a challenging phase. Scaling up refers to integration of an experiment into the context of similar activities going on elsewhere and widening the scale. As typical means to this end Weber et al. mention e.g. extension of the network of actors and stakeholders, the involvement of competing parties in the network, the setting up of partner experiments, or modification of political framework to facilitate new similar experiments.

2.2. Societal embedding of innovation

This study is based on Societal embedding of innovation approach which aims at facilitating the development and introduction of new sustainable innovations. The approach has been developed in a number of successive research projects carried out by VTT (e.g. Kivisaari et al. 2002). It has benefited from TM framework as it has increased the niche actors’ understanding of the importance of integrating their innovations to the broader healthcare policy and the transition needs (Heiskanen et al., forthcoming)

Our research project (referred to as INNOTE) has aimed at activating and sustaining dialogue among actors who set conditions for the development and diffusion of innovation. Dialogue has been used as the means to shape the innovation embryo to better meet the needs and requirements of key actors i.e. a case-specific combination of service and technology providers, customers, and societal actors. By societal actors we refer to a variety of actors, like public authorities or interest groups who indirectly influence implementation and diffusion of the innovation. Additionally in health care, often the multiple tiers of customer concept need to be considered; users, payers, and beneficiaries are often different actors.
The heart of this process is increasing the societal quality of innovation (Figure 1, adapted from Kivisaari and Lovio 2000). When developing system innovation provoked by societal concern, it is not enough to include only providers’ and users’ needs to the process. Also the societal needs and requirements must be considered. So, this kind of a broader understanding of quality entails inclusion of at least four characteristics to the innovation: (1) efficiency of service production process, (2) usefulness and value to individual users, (3) cost efficiency and correspondence to local needs, and (4) correspondence with substantial societal needs e.g. in terms of relevance and wide-ranging implications. Ensuring the societal quality calls for collaboration between different actors and stakeholders.

The societal value of the system innovation is co-constructed in a multi-actor network. Researchers’ role relates to identifying and articulating the different perspectives of the actors who participate in developing the innovations, have something at stake, or indirectly influence its development. By opening up the perspectives of the different actors we aim to produce mutual learning.

The cases were chosen with the help of the Finnish Innovation Fund (Sitra) and Pirkanmaa Hospital District (PHD) who were co-funders of INNOTE. We presumed that the innovation embryos would represent endeavours to solve acute and focal issues in health care and have potential for national diffusion. One of the cases selected relates to management of primary care and the other to reorganization of specialized health care in the field of ophthalmology. Both
innovation processes have been studied in such an early phase that it is hard to tell, yet, whether they will lead to a sustainable outcome. The funding agencies did not interfere with the research.

Our data is based on 1) interviews, 2) participatory observation on meetings in the development network, 3) research reports, project plans and other documents, and 4) meetings between us and developers. The data has been collected from April 2007 until December 2008.

3. NEW ORGANIZATION MODELS AS EMBRYOS OF SYSTEM INNOVATION

The two cases to be briefly described in this section concern 1) MAISEMA model for municipal management of service delivery, and 2) renewal of regional ophthalmology services. The main findings are discussed in section 4.

3.1. New management model for municipal services

The Maisema model is a locally developed tool kit for purchaser-provider models for municipal management of primary services (see Fig 2). As such the model can be perceived as an expression of New Public Management (NPM) thinking. Currently in Finland, there are multiple versions of purchaser-provider-split, e.g. in cities of Tampere, Oulu and Raisio. The innovative potential of Maisema relates to streamlining of the municipal budgeting process and increasing transparency in municipal decision making.
The model originated in a medium-sized Raisio Town in South-Western Finland. In 2004 the Town Government confronted the newly nominated head of Raisio’s social and health care Eero Vaissi about rising day care cost in a situation when the number of children needing day care was descending. Vaissi was a well-known innovator of a nationally approved assessment tool for elderly care needs. He observed that the prevailing municipal budgeting system led to sub-optimisation and difficulties in cost control. This episode together with the Mayor’s readiness for renewal of the management system set development in motion. The Mayor, Vaissi and his team started to develop a new model for managing the service delivery. The target was a tool that would provide the Town Council with the ‘big picture’ of the service provision and to grasp the connection between quality and cost.

In order to create acceptance of personnel, citizens, and municipal councilmen in the piloting phase, it was agreed that (1) private services were to be purchased only to even out occasional demand peaks for services, (2) during piloting phase the quality of public services would not be lowered, and (3) structural change related employee notices would not be given within next two years. This prepared ground for good co-operation for local innovation.

The process covered clarification of the purchaser’s and provider’s roles and development of management tools. The Town’s Council and Government represented the purchasers and the Board of Social and Health Care represented the provider. The services were classified into broader products and performance.

Fig. 1. Cornerstones of MAISEMA model (Kuntamaisema Ltd.’s document).
indicator development started. Resource and order tables were designed based on simple excel programme.

The new model was ready to be piloted in 2006 although the complex development of quality and impact indicators had been postponed. Municipal councilmen were willing to take the incomplete model to use and to learn by using it. This way their perspectives were included in the development process. This kind of a management model was rather new in Finland and other municipalities became interested. The innovation embryo was seen to crystallize in the roles and tools of Raisio purchaser-provider model. In quest for mutual learning, Vaissi was eager to transfer the model to other municipalities. His willingness was probably based on his prior experience in advocating management innovations in health care.

This is when the Finnish Innovation Fund (Sitra) took charge of spreading. Sitra has stood up as a national actor for promoting the diffusion of best practices. Governed by Finnish Parliament it is independent from health administration but dependent on the main governmental public sector reform actors. As a foundation, it is funded by the profit of the fixed capital and capital investment which gives it more freedom in agency as compared to tax paid actors. However, its impartiality as health sector change agent is often questioned because of its simultaneous business interests. Sitra perceived Maisema as a potential tool to drive a wider system change in all Finnish municipalities as part of its ongoing health care development programme. Sitra and Raisio Town launched a project for diffusion of what was now called Maisema model.

At this point of time, the overall ethos among political decision makers in Finland had turned more favourable towards NPM. Major cities had developed their own variations of purchaser-provider model, and Raisio had developed one version for mid-sized municipalities.

In 2007, the Maisema resource and order tables were piloted as a tool to compare the cost effectiveness of social and health care in twenty municipalities. Sitra anticipated that the results would trigger renewal of service structures and that considerable savings could be achieved. It was prepared to promote the structural renewal in the forerunner municipalities in the spring of 2008.

Sitra financially supported the pilots and recruited Vaissi and the financial manager from Raisio social and healthcare to market the model and to help in cost accounting according to the Maisema model. In summer 2007 Sitra came to co-fund INNOTE research project. We started to observe the diffusion process, interview key actors in the network and articulate their needs and visions. Throughout the process, we have discussed our findings with Sitra and municipal actors.
Dr. Ilmo Parvinen from Sitra acted as the primary innovation champion and network builder. He was an experienced and recognized health care doctor-manager who could speak the language of primary care professionals. He worked actively in “selling” the project to national, regional and local decision makers. He praised local actors for acting as forerunners, referred to international exemplars as role models, spurred local actors to work together for change, and kept them informed of the national guidelines to set the local change process into a wider frame. Parvinen also promoted Sitra’s agenda in various national committees and forums and kept national policy makers informed of the local progress.

However, it soon became clear that moving from the benchmarking phase to renewal of service structure was not going to realize as expected. Some of the municipalities were only interested in using the model for cross-sectional benchmarking, not as a tool for managing service production.

We followed the model’s transfer to Mikkeli Town and its nine neighbouring municipalities. Their original motivation to participate in Sitra’s Maisema project was to compare the cost effectiveness of the neighbouring municipalities in order to facilitate the wearisome negotiations of consolidation of municipalities. However, the benchmarking results did not foster these negotiations, and this decreased the expected benefits of the model. Another reason that dragged the enthusiasm down in Mikkeli related to Sitra’s incorporation of spreading process. In the spring 2008 Sitra and Raisio Town established KuntaMaisema Ltd. to promote the spreading. For Mikkeli developers this became unexpectedly and appeared as a transition from mutual learning and co-construction to business interests and exploitation. The ensuing distrust together with the lack of local innovation champion led to Mikkeli’s breaking away from Maisema project and pursuing a new model of its own.

For the present, Vaissi was nominated the CEO of KuntaMaisema. His role is to sell the model to the Finnish municipalities, and to develop it to a sustainable tool for benchmarking and structural change that could be applied also in other municipal services. He welcomes co-construction of the incomplete model. And indeed, as Raisio is the forerunner in quality indicator development its experiences are transferred to other users. Now also Raisio has an opportunity to learn from other municipalities, e.g. Kemi Town serves as a model for development of resource and order tables for primary educational services. Now, Maisema model is seen as tool kit applicable to various purchaser-provider role constellations.

Currently, KuntaMaisema’s customers incorporate roughly ten municipalities. Its vision is to have half of Finnish municipalities as customers within five years. A successor needs to be found for CEO Vaissi before he retires within three years.
It will be challenging because Vaissi’s reputation and credibility serves as an incontestable advantage to the company. Sitra recently announced as its goal the gathering of a national network of funders for enhancing the change management of the municipal service production in leading Maisema municipalities.

3.2 Regional ophthalmology service model

The other innovation embryo studied relates to renewal of regional ophthalmology services and deals mostly with specialized health care. In summer 2007 the top management of Pirkanmaa hospital district (PHD) decided to take an initiative against severe problems related to ophthalmology services in the responsibility area of Tampere university hospital (TUH) which was located in PHD. The initial idea as presented by the PHD top management to our research team was to create a new pattern between private and public, outpatient and hospital functions and a new type of high technology hospital centre with satellite units in other hospitals. In this article, this is taken as the innovation embryo. Their idea of the problem was that eye specialists were increasingly transferred to work for private service providers, activities of TUH were considered ineffective, and the ageing of population was foreseen to increase the need for services in the near future. As the problem caused by lacking eye specialists and growing need for services was shared by the four other hospital districts in TUH responsibility area, they decided to co-operate with PHD, and a joint development project was launched.

PHD management nominated a project team that incorporated its own middle managers, medical experts and nursing managers. Only one person in the project team, a general manager, represented the other four hospital districts. During autumn 2007 the project team gathered five times and designed a new ophthalmology service model. They produced a university hospital centred model that focused on development of the most demanding eye surgery and on restructuring of the university hospital’s own action. The new model provided some special tasks for other public hospitals in the responsibility area but totally excluded the private sector. The relationship between public and private sector was seen as purely competitive. So, the innovative potential of the new model related to increasing the university hospital’s performance by centralizing ophthalmological services and increasing management by results in the public sector.

This new university hospital centred model faced serious critique when it was first introduced in a meeting of all five hospital districts’ top managers at the end of 2007. The model did not pay much attention to the role of other public hospitals. It was rather seen as weakening their situation in the competition for
eye specialists by raising university hospital’s attraction. Neither did it include remodelling of the relationship between public and private sectors. Therefore, it was seen to lack the innovative potential for more optimal use of professionals in the highly fragmented field of ophthalmology. By also excluding primary level eye care the model was broadly seen to focus on a too narrow problem and to omit majority of eye care patients.

As the project team had received little guidance from PHD top management so far it had developed a regional ophthalmology service model concentrating only on service production of one single organization. The model focused on top-ranking professionals, as they were represented in the team.

From the beginning, our research team had stressed the need for a steering group to focus the project team’s work towards broader objectives of regional co-operation. But only after introduction of the new model the steering group was nominated. In a steering group meeting our research team presented data gathered so far and sketched alternatives for the future. Roughly speaking, there seemed to be two mutually exclusive alternatives to continue with the development project: (1) continuing development of a model restricted to renewal of TUH services, and (2) building the model on collaboration with other public hospitals, primary health care organizations, and private sector players in the responsibility area. The steering group strongly suggested that project should view regional ophthalmology services in a wider context according to the second alternative.

This broad way of viewing regional co-operation was in line with the initial idea of creating a new pattern of relating private and public, outpatient and hospital functions and a new type of high technology hospital centre with satellite units in other hospitals. It was quite the opposite to the university hospital centred model designed by the project group. As the focus of the project now seemed to expand from concentrating on the most demanding eye surgery only, productivity of the project team was substantially diminished. The team which had designed the first model in only four months did not achieve much during spring and fall 2008 as their problem definition for the first model was challenged by a broader view.

In autumn 2008, after six months of waiting and uncertainty, PHD top management decided to reorganize the project team and launched a second phase of the development project. During the first phase project team was given no guidance from the top and carried the project out on the side of team members’ normal work. At this point the new project leader was released from other duties in order to concentrate in the development project. From the two alternatives for development policy PHD top management now chose the university hospital centred model and decided to give up its initial broader problem definition. At the time the broader and more radical alternative was seen unrealistic as there seemed to be neither professional nor national level support for doing it.
In January 2009 the project group was once more reorganized by recruiting the nationally best known ophthalmology service reformer prof. Anja Tuulonen from another university hospital. This may lead to rethinking of the scale of the projected system innovation.

4. MAIN FINDINGS

Both innovation trajectories have been studied in their initial stages. During our study the ophthalmology case was in its problem definition phase and Maisema already in its piloting phase. The Maisema case unfolds a story of a local innovation embryo which is simultaneously being developed and spread. The renewal of regional ophthalmology services, in turn, has been stuck on problem definition for over a year. In the following, we illuminate the dynamics spurring or hindering these system innovation processes. We will focus especially on the events and elements influencing the creation of societal quality and scaling up of innovation.

The Table 1 describes the trajectories in terms of 1) actor network, 2) problem definition, 3) mode of innovation process, 4) hybrid actors, and 5) future prospects for the innovation effort on the grounds of the development paths so far. These aspects are crucial considerations in TM and Societal embedding processes.

Key development actors’ comparison indicates that in both cases the initial idea was invented by a local professional or manager. However, when developing Raisio version into Maisema model the involvement of different stakeholders quickly expanded. During our observation period, Sitra as a policy maker took action in spreading the model. In the ophthalmology case, the project team was TUH centred. Top management support was missing, and actors from private sector and primary services were excluded.

Problem definition in Maisema case was rather soon seen in the broader, national scale. Vaissi’s background as innovator might partly explain his open-mindedness and experience in spreading Maisema innovation embryo. In the ophthalmology case, the professionals considered TUH’s working conditions for eye surgery poor and perceived a better internal organization as a solution to the problem. Representation of PHD’s external hospital districts in the project team was too small to broaden the way of thinking into regional or national scale. Our interviews in all five hospital districts revealed that there was little consensus of the problem to be solved. The interviews with providers of private services and public primary services brought insight into new kinds of partnership.
possibilities. This information was, however, not exploited by developers. Interestingly, in both cases, the citizens’ perspective was rarely mentioned.

Table 1: Characteristics of two system innovation processes.

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<thead>
<tr>
<th>New management model for municipal services</th>
<th>New model of regional ophthalmology services</th>
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<tbody>
<tr>
<td><strong>1. Actor network</strong></td>
<td></td>
</tr>
<tr>
<td>Professionals, management, municipal councilmen and a national policy maker together.</td>
<td>Dominance of main service provider and ophthalmology specialists.</td>
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<tr>
<td><strong>Problem definition:</strong></td>
<td></td>
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<tr>
<td>(a) scale, (b) whose problem</td>
<td></td>
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<tr>
<td>From local to national scale.</td>
<td>Local scale.</td>
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<tr>
<td>From health care management’s problem to problem of management the whole variety of municipal services</td>
<td>Professionals’ problem definition: efficiency of internal organisation.</td>
</tr>
<tr>
<td>Lack of focus on citizens’ benefits</td>
<td>Lack of citizen’s perspective</td>
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<tr>
<td><strong>Mode of innovation process</strong></td>
<td></td>
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<tr>
<td>Fairly open process.</td>
<td>Closed process.</td>
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<tr>
<td>Bottom-up innovation combined with top-down activities.</td>
<td>Bottom-up innovation.</td>
</tr>
<tr>
<td>Financial support through Sitra’s programme. National project for restructuring municipal and service structure increased need for new management models. Purchaser-provider model acknowledged in policy makers’ speeches.</td>
<td>Unclarity of possibility to renew national guidelines in financing of health services.</td>
</tr>
<tr>
<td><strong>Hybrid actors</strong></td>
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<td>1) Sitra’s representative 2) transformation of niche level actor to mediator, 3) research group doing societal embedding</td>
<td>Researchers as mediators.</td>
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<tr>
<td><strong>Prospects of outcome</strong></td>
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<td>Elements for a national version of purchaser-provider model.</td>
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<td>A vulnerable effort to co-construct new management model in network of municipalities.</td>
<td>Improved organizational model for TUH ophthalmology services</td>
</tr>
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</table>

In terms of mode of innovation, Maisema innovation process can be characterized as fairly open because all user municipalities are currently co-developers of the purchaser-provider model. The innovation process was initiated on niche level (bottom-up) but it soon gained support from regime level actors and measures (top-down). The spreading activities were strengthened by Sitra’s involvement and by the national policy guidelines for reorganization of municipal service delivery. In the ophthalmology case, the innovation process seemed closed because the project team only occasionally reported of its plans to the top management and other hospital districts’ interests were almost totally excluded from the process. The mode of innovation can be characterized as bottom-up as regime level actors were not involved in any way.
As to *hybrid actors*, in Maisema case Sitra’s Parvinen actively worked for integrating the interests of regime and niche level actors. He had strong connections with national policy makers, financial resources and networking capabilities suitable for enhancing local and regional learning processes. Sitra’s flaw, however, was its double agenda as reformer and risk investor and it contributed to the backlash in Mikkeli. A new kind of agency emerged when one of the local key developers, the head of Raisio’s social and health care transformed into Kuntamaisema’s CEO and took charge of the diffusion. KuntaMaisema Ltd. currently continues the diffusion activities with a dozen municipalities. In opthalmology case, comparable hybrid actors did not exist. However, in both cases the researchers worked by articulating the needs of all key actors and by interpreting the process through multi-level perspective of change. During these early stages of opthalmology case, however, INNOTE research team alone was not a strong enough player to construct a dialogue between the key actors.

*The prospects of the outcome* of the innovation in the case of Maisema seem promising. However, the process is still vulnerable. Maisema is working its way to at least one version of a purchaser-provider model for managing municipal services in Finland. It also seems to aim at bringing societal value.

The prospects of the outcome for opthalmology case appear to be an improved local solution, a new kind of hospital specialised in ophthalmology. It is, yet, an open question whether other specialized health care branches or other ophthalmology services in other regions can learn from it, copy the model or compete with it.

5. DISCUSSION

We have analyzed two ongoing system innovation processes in Finnish health care. By using Transition Management and Societal embedding of innovations approaches we have captured perspectives of different stakeholders involved in or excluded from developing and spreading the innovation embryos. Our aim was not to compare the cases and to judge which one is more sustainable. Comparison is unjustified because the cases evolve in different contexts (primary vs. specialised health care) and our observation period represents different developmental phases. However, the differences of the two cases offer an opportunity to identify their distinct characteristics.

Elzen et al. (2008) have pointed out the important role of hybrid actors in anchoring niche and regime level actors together. Our analysis supports the idea of hybrid actors’ critical role especially in up-scaling of the innovation into wider
use. In Maisema case, three types of hybrid actors were indentified. Firstly, a policy-maker acted from the regime level to the niche level, agitating more local level managers and professionals to join the Maisema programme. Secondly, a niche level actor transformed into a mediator concentrating on co-constructing the model with other municipalities, thus shaping it to a more widely acceptable version. The potential of an innovation embryo to become a sustainable solution may depend on the scale (local or national) of problem definition of the key developers. In Maisema case, these hybrid actors seemed to have an understanding of multiple positions, gained via their past experiences. Their actions crossed the borders between niche and regime levels and between professionalism and managerialism.

In a sense, the researchers doing the societal embedding of innovations can be defined as hybrid actors, too. Our written multi-level reconstructions of the development processes deepened the understanding of the dynamics of system innovation among the key actors. According to their comments, the process and the roles of various actors became clearer. By providing information of the needs and interests of all key actors in the development process we aimed at deeper understanding of the problem. However, the ophthalmology case clearly indicates the limits of the role of researchers.

In the dynamics of scaling-up of the innovation our cases illustrates two pathways. The Maisema case represents mainly open innovation logic, in which the development of a new management model for municipal services takes place as co-construction between different local level actors. This interactive development mode helps single municipalities tailor the model according to their needs and circumstances. Developers of the regional ophthalmology service model chose, after a long pondering process, a university centred model to be realized. This alternative may lead into more closed dynamics of innovation. The organization model brings benefits in the scale of a single university hospital, but its influence on other services in the region remains to be seen.

If system innovations in health care were designed dominantly from the perspective of the majority of the citizens, more emphasis should be given to those solutions which have heaviest impact on public health (Christensen et al. 2000; Porter and Teisberg 2004). The discussion about the foreseen value of the new organization models for the patients in our two cases was still latent. Strategic reflexivity between different stakeholders and clear incentives for co-creation is needed to foster openness in the innovation process (Fuglsang 2008, 245). In order to construct societal quality of innovations we call for interaction and creation of a shared vision between different actors; providers, purchasers, users and societal actors already in the beginnings of a system innovation.
All in all, the two cases highlight the critical importance of coalition building when developing system innovations in health care. Creating and maintaining innovation capability calls for dialogue and negotiation between multiple stakeholders. In this process, the innovation embryo may need to be co-constructed several times to meet various local and societal needs and to become politically accepted.

From the point of view of stakeholders, the cases suggest two lessons to be learnt. When targeting system innovation it is important (2) to include all key actors’ expertise and points of view to defining the problem and the solution, and 2) to ensure the existence of hybrid actors and their potential for action.

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