AN INFORMAL MULTI-STAKEHOLDER NETWORK AS A COLLABORATIVE STRATEGY TOOL IN E-HEALTH

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ABSTRACT

The county of Sogn & Fjordane is one of 19 counties in Norway, with approximately 109 000 inhabitants in 26 municipalities. This county has achieved outstanding results in the field of e-Health, as one of the first counties in Norway that completed the process of moving message in the health sector to an electronic platform, by June 2014. What has made this challenging region become a spearhead and the 26 municipalities able, not only to engage in, but to achieve technological innovative and organizational results and success in health services? The analysis takes the theory of Triple Helix systems as a starting point, and shows that an informal multi-stakeholder network has been a vital driving force, operating across the small and diverse units without challenging existing power structures.

KEYWORDS

Community e-Health Services, e-Health Infrastructure, Organizational change, System Integration, Multi-stakeholder network

1. INTRODUCTION

The county of Sogn and Fjordane (S&Fj),[1] one of Norway's 19 counties, is a challenging region for public services, owing to the great distances and demanding topography, including long fjords and high mountains dividing the landscape. Despite the regional characteristics constantly putting local infrastructure and communication to the test for the 26 municipalities in the county, the region has shown outstanding results in the field of e-Health and new technology in health care. S&Fj was one of the first counties to complete the process of establishing electronic messaging between local health services, general practitioners and specialist care in 2014, and has since illustrated a unique collective and ambitious engagement in welfare technology (Ambient Assisted Living). The aim of this paper is to explore which mechanisms that have been active in making this challenging region become a spearhead in Norway. What has made the 26 independent municipalities able, not only to engage in, but to achieve innovative and organizational results and success in implementing technology in health services?

In order to explore this, we will revisit documentation from and evaluation of the processes that introduced e-messaging, and point at mechanisms working as driving forces in the processes. In order to understand innovation in the health care sector in this region it is necessary to include a perspective of cross-disciplinary and even cross-sectorial cooperation, and we will connect this discussion to Bergek et al's theory of Triple Helix networks (2008).

In the next section we will present the empirical case of e-messaging, before we present the Triple Helix systems theory and the analysis with our findings.

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[1] The county of Sogn & Fjordane covers 18 623 km2 of mountains and fjords, with approximately 109 000 inhabitants. The municipalities has populations between 800 and 12 800 (Statistics Norway, 2015, http://bit.ly/20Nd61T).

2. THE CASE: TECHNOLOGY INNOVATION IN HEALTH CARE

Health care services are the single largest expense for the municipalities, and it is a sector heavily relying on personnel to achieve its goals. Over the last decades we have seen a growing emphasis on increased efficiency and reduced costs in the health care sector, and during the last decade also increased emphasis on innovative use of technology as tool to achieve these goals (NOU 2011:11). Our aim here is to explain why the county of Sogn & Fjordane and its 26 otherwise independent municipalities have managed to achieve common goals of establishing technological solutions in the health care services.

2.1 Contextualizing Health Care Services in Sogn & Fjordane

The many small municipalities in S&Fj have a tradition of working together to develop infrastructure and services. The regional health trust, which is the specialist health care, controls the hospitals and medical clinics in the county. The municipalities' health care service is organized in health centres across the 26 municipalities, with each centre employing a handful of people who complete a range of tasks. The 26 municipalities have been early adopters of technology in health care, being among the first to connect to the secure telecommunications network for health care, developed and managed by the government enterprise Norwegian Health Network in 2007, and they were also among the first to complete a full scale regional transition to e-messaging in 2014. Implementing new technologies in health care services requires changes that go deep in the institutions, involving training, new procedures, the reallocation of resources and new organizational structures. How did this process unfold in S&Fj?

2.2 Electronic Messages in the Health Care Sector

Since the mid-1990s there have been national plans for involving IT in health care services. In the early phases, between 1997 and 2007, the landscape was dominated by enthusiasts and local projects more than nationally coordinated projects. The national goal was to move towards electronic solutions, and to see the IT development in relation to organisational development and a holistic perspective on health care. The national secure telecommunications network for health care was part of this initiative, and a second phase was the initiative to move all communication between local health services, general practitioners and specialist care to an electronic platform, also involving a development towards electronic patient journal, all of this rooted in governmental reports and white papers in the period.[2] Simultaneously, a reform in the health care sector – The Coordination Reform, directed more responsibility to the municipalities (HOD 2008-2009), thus increasing the need for precise and quick information and communication between the regional specialist care and municipalities, as the goal was to deliver health care as close to the patients' home as possible.[3]

The national goal set for electronic messages in the health care sector was that it should be "the norm for exchange of patient information" between all involved parties by the end of 2015, supporting an increase in "information safety and accessibility."[4] Verbal communication will always be important in a therapeutic setting and in the personal meeting between patient and clinician. But there is also a need to exchange information between different parties in the treatment chain, a need increasing in accordance with a more specialized health service. And this exchange of information has to be secure and robust.

A series of projects were initiated in the region in the period between 2005 and 2014, starting with a project in 2005 aiming to put a greater emphasis on effective use of ICT and broadband technology within health care services operating in the intersection between municipalities and the health trust. This was followed by several projects under headings of "IT for health care services in the county of Sogn & Fjordane", and later "Electronic messaging in health care services in Sogn & Fjordane".

From the start in 2005 to 2012 it was a long and winding road that dominated (Larsen and Skogseid 2012). The e-messaging project between local health services and general practitioners (GPs) was completed

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[2] The first National Action Plan for the ICT sector in health "More health for each bIT", 1997-2000. The second was "bIT for Bit" 2001-2003. The third was "Interaction S@mspill 2007", 2004-2007. The fourth was "Interaction 2.0" 2008-2013 that included "the national message boost." Then followed the current National Action Plan for eHealth 2014-2016), https://ehelse.no/english.
[3] The Coordination Reform, https://www.regjeringen.no/globalassets/upload/hod/vedlegg/bhh-ppt-trondheim-en-24-09-08.pdf.
[4] https://www.nhn.no/english/Pages/electronic-messaging.aspx.

in 2009, with new secure infrastructure established on all GPs offices and new work procedures developed, also this as one of the first counties (HDIR 2009). The following rollout initiatives were successful, although they to some extent where delayed and hampered by external factors. Between 2012 and 2014, however, the e-messaging project realised the task of establishing electronic messaging between local health services, GPs and specialist care in Sogn & Fjordane. Thus, by June 2014 – one and a half year before the national goal – all municipalities had established e-messaging as one of the first counties in the country.

2.2.1 What Made the Municipalities Able to Achieve this Goal?

Throughout all the phases of establishing e-messaging, IT-Forum was a central driving force. IT-Forum Sogn & Fjordane is a multi-stakeholder network, established in 1995. The County Governor of S&Fj was together with Western Norway Research Institute initiator to IT-Forum, and a number of public and private organizations were invited to participate. Although members of the group have shifted over years it has always included a cross-sectoral group, with representatives from a selection of municipalities, the Health Trust, practitioners, county governor, research and industry. The purpose of IT-Forum is to initiate and coordinate "activities that promote efficient and development-oriented use of information and communication technology in the private and public sectors", and to work "to strengthen and develop cooperation and coordination between agencies, organizations and businesses in Sogn & Fjordane."[5] Despite its informal structure and voluntary participation, IT-Forum has, with its goal-oriented and long-term visions, contributed to moving public positions from cities to rural locations in S&Fj, and it has secured an infrastructure investment of 300 million NOK in broadband in the county.

In the process reviewed here, IT-Forum acted as a tool for collaboration between the municipalities, developing a checklist with detailed instructions for establishing electronic messages, and securing communication and information between the actors. All 26 municipalities enrolled in the project in the first phase. Cross disciplinary project groups were established in every one of the municipalities, ensuring that both health care personnel and IT people were involved in the work. Within the project structure, a couple of municipalities acted as test bed for practical implementation of the e-messages, and for finding and solving challenges concerning the integration between electronic messaging systems and a total of three different electronic journal systems. In this way, challenging circumstances for implementation and enforcement, such as lack of national standards, could be dealt with by the main project group and the municipalities acting as test bed. Incentives for the municipalities to participate were found in the checklist and support system provided by the IT-Forum project, as well as in an economic contribution from the project to participating municipalities.

In the evaluation the project was described as a success story, not only because it made the county a spearhead, but also due to the qualitative effects: it secured written messages where there had been only oral messages, it made messages efficient and securely sent between the different units involved with a patient, which was in particular important for municipalities' ability to comply with requirements established by the health reform, effective from 2012. It also appeared to be a success story due to the attitudes it created. From different actors we heard phrases like: "It has been incredibly fun to work with this project because people can see the benefits!" We found an impressive documentation of health care workers' will to participate as well as their satisfaction and pride from what they had achieved through the projects: "People are proud of working here" (Corneliussen 2014b).

2.3 Analysis with Network Theory

The Triple Helix systems theory, described by Etzkowitz and Leydesdorff (2000), focuses on the relations between research institutions, industry, and government with regard to innovation. This theory will help to illustrate the driving forces in the case described above. Etzkowitz and Leydesdorff's theory suggests that innovation is happening in the intersection between industry, knowledge producing institutions and government, rather than in the industry alone (Etzkowitz 2008). The metaphor of the helix illustrates that knowledge, action and funding interact and affect each other in a way that supports innovation. In a business development context, the three helixes *researchers*, *companies* and *authorities* interact in processes of innovation. In a peripheral region there is an organizational thinness, according to Tödtling and Trippl

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[5] http://www.it-forum.no/.

(2005). This will influence the helixes in a system like S&Fj. The helixes are rarely equal, not even in regions with organizational thickness (Etzkowitz 2008). The public sector in S&Fj is relatively larger and influences the system more heavily than industry and research institutions compared to other counties in Norway.

In a previous research project (Nesse, Skogseid et al. 2014), we explored what makes heterogeneous networks like IT-Forum work well, based on a small adjustment of Bergek et al. (2008). Firstly, it must be attractive to join. Secondly, the network must be able to develop new knowledge and share this within the network. Third, innovation needs to come out of the network, in other words: something new that would not be possible without the network - for example, product, procedures or organizational structures, should be the outcome of the cooperation in the network. A fourth feature is that the network must have legitimacy. Both contestants and others outside the network must feel that the network is credible and positive. Fifth, the network should be able to mobilize resources, raise funds, establish contacts and build knowledge in a more efficient manner than the individual participants would be able to. And finally, knowledge and product developed within and through the network should be able to benefit others outside the network. Thus, if you spot a free rider, you have a clear indication that you have succeeded with the network.

2.4 IT-Forum as a Collaborative Strategy Tool

When we analyse the success story of establishing e-messaging in S&Fj[6] with the help of Bergek et al.'s theory, we find that the qualities and values of the multi-stakeholder network of IT-Forum is vital for the case.

Gaining legitimacy and mobilizing: IT-Forum gained legitimacy through its open and inclusive structure together with its long history as a local task force network. The trust towards this network has developed over 20 years of deep and long-lasting engagement in issues that have affected all or most of the municipalities, and in particular in cases where the municipalities have been too small to take on these issues on their own.

The funding raised for the projects was achievable as a result of the IT-Forum network, and it was of high importance as economical help for the municipalities as well as the associated institutions. The funding made it possible both to establish individual and externally funded projects in the municipalities, as well as to involve knowledge providers and researchers in the process.

While the funding contributed with legitimizing the structure, the main and dominating mobilizing force seems to be the ability to work on behalf of all the municipalities in the county. Thus, challenges of participating with (competitive) neighbour communities seem to be eliminated through this overarching structure where every one of the municipalities was invited to participate.

Knowledge and innovation: The main value of the network activities in the e-messaging projects is related to knowledge produced in and through the network. The multi-stakeholder network included knowledge and expertise from health care sector, county as well as municipality leader level, as well as knowledge providers and technology experts. This cross-disciplinary, cross-sectoral network structure thus contributed in creating a knowledge platform targeting the municipalities in this particular region, with its distinct set of challenges. It is important to emphasise that IT-Forum was not operating in isolation, and the e-messaging projects run by the regional Health trust Helse Vest were tightly coupled to and supported by the projects coordinated by IT-Forum. In addition, the IT-Forum network also provided input to national level government and organizations based on project experiences of working with e-messages in the municipalities.

Free riders as a sign of success: The municipalities acting as pilots helped by solving technical issues and developing routines, as well as acting as motivators and supporters for the other municipalities. The evaluation of this project illustrated the importance of the network in making the transfer to e-messaging becoming achievable for the municipalities (Corneliussen 2014a): "Several municipalities must unite, make a network so that they don't have to work alone – they have to collaborate. … It isn't necessary that every municipality invent everything on their own." And some of the municipalities clearly enjoyed this as a free ride: "We were last, and therefore we learnt from the other municipalities. They had dealt with the initial problems."

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[6] The analysis is based on several project reports including case studies in the region: Nesse et al. 2014, Corneliussen 2014a & 2014b.

3. CONCLUSION: THE EFFICIENCY OF AN INFORMAL NETWORK STRUCTURE FOR SMALL INDEPENDENT UNITS

There was more than one driving force behind the process of establishing e-messaging, however, the cooperation across municipalities proved to be one of the most important single factors. As illustrated here, the multi-stakeholder network IT-Forum has been vital in initiating, planning, organizing and running the innovation projects for the public health care services in the region.[7] The coordinated efforts, and particularly the tight coordination with the regional Health Trust is unique also in a national setting.

The trust and ability to recruit very different actors, from public to private, communities of practice to research, created a structure that made it possible to support actions across the boundaries of the municipalities. The network was also a key to secure necessary funding for the municipalities as well as supporting actors. In short, the network has strengthened a region with many small municipalities that would otherwise not have access to the necessary resources to support all aspects of these innovation processes.

Some of the challenges that health care services in small units like the municipalities in this region meet, are different from challenges found in more densely populated areas – typically also the areas where more centrally organized piloting happens. In this perspective, the multi-stakeholder network has been vital in creating action force across the small units, while still allowing each unit to operate as an independent unit.

Limitations include that the network has no formal authority, and it has been voluntary to participate in all activities initiated and driven by the network. Consequently, the network does not make more formal structures obsolete. However, this informal structure might make it easier for the independent units to participate without having to negotiate in power structures. This also opens for applying this model in other regions with many small units, as it does not threaten existing power structures or the units' independence.

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[7] Cf. the County Governor of Sogn & Fjordane http://blogg.fylkesmannen.no/fmsf/ (8 December 2014) and the Sogn & Fjordane County Municipality Director of Finance, Heggheim http://www.porten.no/artikler/meiningar/it-forum-eit-foredome.