

# **From Social Innovation to System Innovation: Assisted living experiments in Britain and Norway**

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# **From Social Innovation to System Innovation: Assisted living experiments in Britain and Norway**

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## **Abstract**

The aim of this paper is to identify and understand differences and similarities in system innovation policy by comparing state responses to assisted living in two contrasting national systems of care, namely that of the UK and Norway. To do so the paper draws on a number of new theoretical perspectives - including social innovation, socio-technical transitions and embedded state theory – to analyze place-based approaches to experimenting with new solutions and services in respective countries and the way in which different systems of national care lead to significantly different processes and outcomes in the area of ageing.

## **Introduction**

The field of innovation studies is in a state of flux as new and more capacious conceptions are beginning to appear, taking the field way beyond its original focus on science and technology. In the past decade we have witnessed the growth of a voluminous literature addressed to ecological innovation, social innovation, grassroots innovation and responsible research and innovation, all of which are cause and consequence of a new interest in grand or societal challenges and mission-led research and innovation. Arguably the most complex forms of innovation fall under the category of system innovation, which is “a concept used to illustrate

a horizontal policy approach that mobilises technology, market mechanisms, regulations and social innovations to solve complex societal problems in a set of interacting or interdependent components that form a whole socio-technical system” (OECD, 2015:6).

Conventional models of innovation based on a Science, Technology, Innovation paradigm (Jensen et al., 2007) are considered insufficient to address the system innovations that the new societal challenges and mission-led agenda seem to imply (Steward, 2012). Firstly, the scale of the interdependencies between state, market and civil society is so much greater than hitherto acknowledged, underlining the heightened importance of the “cooperative component of entrepreneurship” (Hirschman, 1958:19). Secondly, firms are merely one type of agent in the new landscape because the “democratization” of innovation signals the rise of a whole series of new agents of innovation, not least users, citizen-consumers, municipalities and NGOs among others (Von Hippel, 2005; Seyfang and Smith, 2007). Thirdly, the state looms larger in the new landscape because its multiple roles – as regulator, producer, purchaser, financier, animateur and so forth – have an enormous impact across all the societal challenge areas. So much so that it effectively fashions the socio-economic environment in which innovation occurs and this raises large questions about the competence, coherence and convening capacity of public bodies (Morgan, 2016).

One of the key drivers of this growing interest in system innovation is Horizon 2020, the research and innovation programme of the EU which plans to commit nearly 80 billion euro to three R&I pillars, one of which is dedicated to Societal Challenges. The first of these Societal Challenges is framed as Health, Demographic Change and Wellbeing and among other things it aims to support the Active and Healthy Ageing agenda, one of the key strands of which is Assisted Living. This Societal Challenge corresponds to a number of systemic pressures that welfare states and respective forms of public service provision are facing, the most challenging of which are: (i) falling old age support ratios as a result of ageing societies;

(ii) a financial pincer effect of rising demand versus constrained resources in the health and social care system; (iii) disruptive/enabling digital technologies that are helping to redefine the design and delivery of healthcare, through e-health and other assistive technologies; (iv) a strong cultural preference among older people to remain in their own homes rather than move into institutional care settings; and (v) the need for a systemic shift in the culture and locus of healthcare systems from treatment to prevention, a shift that puts the accent on active and healthy ageing and assisted living, both of which can reduce the demand for health and social care services (Tinker et al, 2013; Mace, 2014).

Although the EC naturally frames the Active and Healthy Ageing Agenda in broad European terms, the single most significant feature of welfare state services is the fact that they are profoundly national in their institutional structure and political culture. These nuances need to be fully appreciated because they constrain the development of products and services designed for the “European” assisted living market. System innovation policy thus needs to take into account these place-based conditions and abilities to respond effectively to the generic challenges posed to current systems of health care provision in Europe’s welfare states.

The aim of this paper is to identify and understand differences and similarities in system innovation policy by comparing state responses to assisted living in two contrasting national systems of care, namely that of the UK and Norway. To do so the paper draws on a number of new theoretical perspectives - including social innovation, socio-technical transitions and embedded state theory – to analyze place-based approaches to experimenting with new solutions and services in respective countries and the way in which different systems of national care lead to significantly different processes and outcomes in the area of ageing.

The remainder of this paper proceeds as follows. The next section will discuss out theoretical framework, drawing on the concepts of social innovation and strategic niche management.

We will then briefly present the national contexts of the UK and Norway in what concerns health policies for the elderly, before discussing in detail our two case studies. This will be followed by reflections on what our empirical data means in conceptual terms and by our conclusions.

### **Conceptual framework: social innovation as niches for system innovation policy**

#### *Social innovation*

The call to address and solve societal challenges has also given rise to a seemingly new type of innovation, namely that of social innovation. While it remains difficult to trace a clear-cut differentiation from more conventional conceptualizations of innovation, policy-makers provide some guidance: “Social innovations are innovations that are social in both their ends and their means. Specifically, we define social innovations as new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. They are innovations that are not only good for society but also enhance society’s capacity to act. The process of social interactions between individuals undertaken to reach certain outcomes is participative, involves a number of actors and stakeholders who have a vested interest in solving a social problem, and empowers the beneficiaries”. (BEPA, 2010, pp. 9-10).

Despite its resonance with policy-makers, it is probably fair to conclude that in the academic debate social innovation remains to be seen as a chaotic concept. Based on an extensive review of the literature, Benneworth et al. (2014, p.7) conclude that “the current social innovation paradigm covers a range of very different activities involving very different underpinning processes oriented towards very different kinds of societal change”.

Still, two minimal requirements to the above policy based definition of social innovation can be distinguished. The first is an outcome requirement, or at least an intentionality

requirement: that an innovation should meet a social need. The second is a process requirement: that in producing the innovation new social relationships emerge which build capacity in society. In other words, social innovation is expected to involve ‘social’ actors such as end users and other individuals with an interest in the end result, alongside traditional stakeholders. This is to ensure that innovation can meet the social needs of the largest amount of people possible within a specific domain.

### *Strategic Niche Management*

To bring more clarity to the concept of social innovation, we turn to the literature on Socio-Technical Transitions, and the Strategic Niche Management approach in particular, to explore whether and how this can be resourcefully mobilized to make sense of social innovation as a concept in search of a theory. Here we focus in particular on one particular characteristic of social innovation, which is its ‘promise’ to provide alternative ways of product and service delivery that fall outside the mainstream. As we shall argue below, what is ‘alternative’ can take different forms and meanings, dependent on its context: e.g. outside conventional state or market organisational forms; or with a logic that is not dominated by market and profit-seeking values; or based on innovation in public service delivery. Nonetheless, we emphasize the ‘disruptive’ quality of social innovation in an analogy to the way that transition research considers radical innovation as ‘hopeful monstrosities’ (Witkamp et al. 2011).

Research on socio-technological transitions have examined the role that niches play in system innovation in light of relatively stable regimes (Grin et al., 2010; Schot and Geels 2008; Smith et al., 2010). Here, a regime refers to an entrenched socio-technical system whose institutional logic structures perception and behavior of actors, thus favoring path-dependent incremental change and impeding system innovation. A niche is defined as an ‘incubation space’ for radically new technologies and/or practices characterized by high technological, institutional and market uncertainty. Such niches protect radical innovations against market selection and

institutional pressures from a regime and allow actors to learn about these novelties and their uses through experimentation (Coenen et al., 2010; Geels, 2002). System innovation is believed to occur when niches gather sufficient momentum so that these relatively loose configurations become institutionalized and create capacity for emergent technologies and practices to challenge and substitute a regime.

One means by which system innovations are thought to proceed is through SNM, Strategic Niche Management (Kemp et al. 1998) – whereby governments, or other actors, deliberately seek to establish conditions under which niches for innovation can grow and ‘breakthrough’ existing regime conditions – or ‘experimentation’, an iterative process which seeks to create spaces for innovation and alternatives to be developed, tested and experience gained (Bulkeley & Castán Broto 2012). In this governance approach, emphasis has been placed on the role of niches as protective environments that provide space for the development, testing and failure of novel innovations, and where new networks can be supported and sustained (Smith & Raven 2012).

In SNM, three processes are distinguished for successful development of a niche (Schot and Geels, 2008): Firstly, the building of social networks in order to create a ‘constituency’ behind an innovation, facilitate interactions between relevant stakeholders, and provide the necessary resources (money, people, expertise). Even though social networks may thus act as an analytical entry point to empirically identify a niche, the actual usage of the term has been restricted to being mostly metaphorical and descriptive rather than substantive and analytical (Binz et al., 2014; Coenen and Diaz Lopez, 2010). Secondly, the articulation of expectations and visions within the network of stakeholders as these provide direction to learning processes, attract attention and legitimate protection and nurturing of niche innovations (Borup et al., 2006). Thirdly SNM stresses learning processes at multiple dimensions including technical aspects and design specifications, market and user preferences, cultural

and symbolic meaning, infrastructure and maintenance networks, industry and production networks, regulations and government policy and societal and environmental effects.

In SNM, experimental projects in real-life contexts are seen to be critical by bringing together actors from variation and selection environments in shared networking and learning activities. In these experiments, firms, research institutes, universities and governments search and explore the best possible combinations of innovations and their social and institutional embedding. A key challenge that these niche experiments are facing concerns how to upscale successful innovations and practices beyond their initial niche (Geels et al., 2008). Whereas initial attention has been paid primarily to the roles of ‘shielding’ and ‘nurturing’, Smith and Raven (2012) argue that more focus should be given to the ‘empowering’ role of niches. “Shielding involves processes that hold off selection pressures in the context of multi-dimensional selection environments (industry structures, technologies and infrastructures, knowledge base, markets and dominant user practices, public policies and political power, cultural significance). Nurturing involves processes that support the development of path-breaking innovation within passive and active shielded spaces through the development of shared, positive expectations, social learning and actor network building on the basis of ‘real-time’ experimentation. Empowering involves processes that make niche innovations competitive within unchanged selection environments (fit and conform) or processes that change mainstream selection environments favourable to the path-breaking innovation (stretch and transform).” (p. 1034).

#### *Innovation Policy for Strategic Niche Management*

An important unresolved issue concerns however what role(s) the state could play when shielding, nurturing and empowering niche-level innovation. Some argue that niches are not created by governments but require instead experimentation with the distribution of responsibilities and the organisation of relations between state, market, civil society and

science and technology (Schot and Geels, 2008). Others however assert that state intervention remains essential, as important change processes implied by Strategic Niche Management can only be engineered through political processes, and legitimised and enforced through the institutions of the state (Meadowcroft, 2011).

Ultimately this question depends on what kinds of government and states are implied, foregrounding the importance of spatial contextualisation and place-based governance (Coenen et al., 2012). The concept of the embedded state is employed to highlight the mode of state engagement that seems most attuned to experimentation. In contrast to the neoliberal mode, which stresses an arm's length relationship between state and socio-economic actors, and the dirigiste mode, which underlies the "entrepreneurial state" discourse and which stresses the role of the state as a more autonomous actor, the embedded state highlights the role of the state as a learning partner alongside firms and civil society (Hausmann and Rodrik, 2003). In the embedded mode, the state is a co-learner and a co-producer and its contribution depends on its problem-solving competence. In terms of problem solving, a system innovation policy perspective goes beyond the neoclassical economics rationale that policy intervention is legitimate and needed due to market failure because of sub-optimal resource allocation by firms. Rather, it builds on the notion that public intervention is legitimate and needed if the complex interactions that take place among the different organisations and institutions involved in innovation do not function effectively (Laranja et al. 2008). Thus, the main focus of innovation policy and rationale for policy intervention when addressing system innovation has been on correcting what Weber and Rohracher (2012) call transformational system failures.

- 1) Directionality failure: Lack of a shared vision/goal, and lack of coordination among actors.

- 2) Demand articulation failure: Demand restricted by insufficient information about user needs, a lack of public procurement signaling to shape demand, and a ‘lack of demand articulation capabilities’ (the ability to signal the level/nature of demand)
- 3) Policy coordination failure: Lack of coordination between policy actors at different levels.
- 4) Reflexivity failure: Lack of monitoring, learning from, openly debating, and consequently adjusting policy support.

So far, these failures have been primarily developed and discussed on a conceptual level yet lack serious and systematic empirical investigation. This paper examines these transformational system failures by focusing on place-based conditions and policy abilities to respond effectively to the challenge of active and healthy ageing through assisted living experiments in the UK and Norway.

### **National systems of care**

In the UK and in Norway the national systems of care are currently undergoing one major trend regarding treatment/support for patients, particularly those in long-term care. This is the shift from treating and caring in hospitals, nursing homes and care homes, toward treatment and support in people’s own homes, utilising assisted living technologies. However, the way in which this is being brought about differs between both countries. In the UK, the delivery of services and support happens increasingly through the private market, which means a shift in public-provided care to provide greater personal choice (Mace, 2014). The problem is that this shift is being implemented in a system whose funding model was originally conceived in 1948 and which was designed for a centralised, state-managed programme. The result is a high degree of fragmentation, including large organisations (particularly the state run national health service - NHS), which exhibit strong inertia and resistance to change, and a multiplicity

of smaller organisations and agents from the public, private and not-for-profit sectors, operating at different geographical scales.

In contrast to the UK, health care services in Norway continue to be delivered through the public sector, with limited involvement of the private sector. As a consequence of this characteristic and political heritage (often referred to as the Nordic model) it is natural for the public sector to take a lead role in processes of innovation in health care services. Nonetheless, a central feature of the Norwegian governance structure relates to the importance of autonomous local government. Since the introduction of a legal act on autonomous local government in 1837 there has been a strong tradition for a fragmented and locally anchored governance structure in Norway. This characteristic presents challenges in terms of policy coordination across the current 428 municipalities and 19 county municipalities. We have therefore two different contexts in regards to the importance and capacity of the public sector to act, though united in the persistence of fragmentation among its many partner organisations. This allows us to discuss the introduction of assisted living technologies, taking into account the significant institutional differences between both countries.

### **Assisted living in the UK**

In the UK the main institution funding the development of new technology and innovation in the field of assisted living is called Innovate UK (previously called the Technology Strategy Board). Innovate UK is an executive, non-departmental public body, sponsored by the Department for Business, Innovation and Skills (BIS). It is in other words an organisation which is funded by the UK government and responds to its strategic decisions, but is managed independently. It has since 2007 funded two major programmes in this area: the Assisted Living Innovation Platform (ALIP), between 2007 and 2012 and the Demonstrators of Assisted Living Lifestyles at Scale (DALLAS) between 2012 and 2015. Additionally it has

funded other smaller projects also in the area of assisted living through a variety of funding streams.

The Assisted Living Innovation Platform (ALIP) was launched in 2007 as a £50 million programme that was designed to run for 5 years. Innovate UK was exercised by the fact that by 2021 half of the UK's adult population would be over 50 years and by 2025 almost 1.5 million people will be living with a disability. The aims of ALIP were twofold: socially, to ensure greater independence for people in later life; and, economically, to boost the innovative capacity of the UK in AL technologies. At the outset the ALIP was framed as a technological endeavour that was primarily concerned with technical standards in home-based systems. With time it evolved through a series of stages to embrace a much more capacious conception of AL that included market opportunities, social innovation, service design and a large scale demonstrator project called Dallas (delivering assisted living lifestyles at scale).

ALIP is one of a series of Innovation Platforms that the TSB has created to foster innovation ecosystems in key sectors, where the challenges are both institutional and technological, and they are designed to be “safe spaces” (or niche experiments) where businesses, universities, governments and user communities can collaborate for mutually beneficial ends. The Innovation Platform is therefore a policy response to the problems posed by both market failure (e.g. asymmetric information) and system failure (e.g. lack of network infrastructure) as conceived by the OECD in its work programme on system innovation (OECD, 2015), and which uses the same categories as those employed by Weber and Rohracher (2012). See table 1 for a summary. To expedite the work of ALIP, Innovate UK used five innovation policy mechanisms: (i) *stakeholder engagement* – to design standards for telehealth etc (ii) *knowledge transfer networks* – to fashion an innovation community that was able and willing to exchange knowledge from their sphere of expertise (iii) *economic and business modelling* – to better understand the barriers to and enablers of market creation a series of research

projects was commissioned from a mix of university and business teams and (iv) *collaborative R&D projects* – to co-fund projects between businesses and universities that would reduce the risk and uncertainty for each individual player and (v) *the Dallas demonstration project* - to test the scalability of AL services this project was launched 2011 and it aims to integrate all the work on technology, standards, business models and social studies by exploring the lives of some 169,000 people in four local communities (TSB, 2011; Mace, 2014).

**Table 1: ALIP: A Mechanism for Addressing System Innovation Failures**

<b>Failure</b>	<b>Description</b>	<b>Assisted Living Innovation</b>
<b>Directionality failure</b>	Lack of a shared vision/goal and lack of coordination among actors.	Brings together the various stakeholders under a common purpose.
<b>Demand articulation failure</b>	Demand restricted by insufficient information about user needs, a lack of public procurement signalling to shape demand, and a ‘lack of demand articulation capabilities’ (the ability to signal the level/nature of demand).	Brings together industry and health and care professionals with the possibility of exchanging information regarding consumer needs. Emerging recognition of the need to use public procurement and other mechanisms to build demand.

<b>Policy coordination failure</b>	Lack of coordination between policy actors at different levels.	Brings together representatives from different policy actors.
<b>Reflexivity failure</b>	Lack of monitoring, learning from, openly debating, and consequently adjusting policy support.	Provides a forum in which to debate activity, plus is accompanied by reviews that engage various stakeholders.

Both ALIP and DALLAs were programmes that had attached to them a significant amount of funding, distributed through a tender process to the organisations that presented the best proposals (see tables 2 and 3). For example, DALLAS distributed £25M of public funds to four projects, selected from a total of nearly 500 projects that responded to the tender (GOV.UK 2015). These funds include £18M from Innovate UK, plus contributions from the National Institute for Health Research and the Scottish government. Additionally, these organisations added their own financial contributions which elevated the total value of this project to £37.3M of investment. Tables 2 and 3 provide summary data for *all projects* funded by Innovate UK between 2008 and 2015, including those that were part of ALIP or DALLAS. As can be seen in Table 1, the average project value was around £260,000, though this result is skewed by the presence of a few high-value projects worth over a million pounds. Most projects received a grant of £150,000 or less and only 31 (out of 154) received £250,000 or more. On the other hand, when measured by value of grants offered, DALLAS is clearly the biggest programme to date in terms of the total value attributed and the size of each individual project (GOV.UK 2015).

**Table 2 – Descriptive data for all projects dealing with assisted living financed by Innovate UK between 2008 and 2015 (in GBP)**

	<b>Grant Offered</b>	<b>Total Cost</b>	<b>Actual Spend</b>
Average value	262,819.06	362,682.88	248,130.87
Std deviation	781,175.15	786,361.75	793,615.43
Maximum value	7,741,629.00	7,741,629.00	7,741,627.00
Minimum value	594.00	1,436.00	594.00
Total investment	40,474,135.00	56,578,530.00	36,971,500.08

Source: Author's calculations using data from GOV.UK (2015)

**Table 3 – Value of all projects dealing with assisted living according to grants offered, total cost and actual spend, financed by Innovate UK between 2008 and 2015**

<b>Value (£)</b>	<b>Grants offered (N)</b>	<b>Total cost (N)</b>	<b>Actual spend (N)</b>
Less or equal to £50,000	42	23	47
£50,001 to £150,000	57	40	62
£150,001 to £250,000	24	29	17
£250,001 to £1M	26	55	18
Above £1M	5	9	5
Total	154	156	149

Source: Author's calculations using data from GOV.UK (2015)

### *DALLAS – niche activity vs. system change*

The DALLAS programme was relatively unique as an instrument to stimulate innovation, because it was *not* intended to finance new technological development, but rather to upscale existing technologies. It was therefore about creating ‘shielded’ and ‘nurturing’ environments, supported by local community groups and public financing, that would hopefully help to ‘empower’ new technological solutions. It was also closely aligned with current ideas of social innovation, which put emphasis on the importance of building new relationships between stakeholders and on creating solutions that include end users through co-design. The ultimate aim was to deliver better lifestyles for communities, an aim reflected in the 6 key values defined by Innovate UK as guidance for all projects (six C’s): control, community, connectedness, contribution, and collaboration at the individual and the system levels (the latter refers to the system of care delivery).

The four projects to be awarded funding were: Living it Up, More Independent, Year Zero and i-Focus. The first two had a limited geographical focus. Living it Up was aimed at over 50s living in Scotland and its main outputs were ICT services dealing with specific issues that affect this population group. LiU Discover for example was an online platform that offered information on local health and social care services, where LiU Shine was about promoting people’s talents within their communities. More Independent was based in the city of Liverpool and it used a combination of volunteer-led activities, online platforms, digital hubs and the creation of mechanisms to facilitate access to tele health and telecare services. The ultimate goal was to promote a bigger uptake of health technology.

The other two projects were not limited to a particular territory within the UK. Year Zero intended to allow patients to have better access, and make better use, of health data, which tends to be fragmented and of difficult access. Together with the creation of apps and other ICT tools, it then allows patients to make better health choices using information about their own health. The fourth project, i-Focus, focused on interoperability between different health technologies. They worked for example with the organisation Warm Neighbourhoods, a community which aims to create low-cost technologies and services. They also helped develop the Digital Health and Care Alliance (DHACA), which aims to address issues of market failure in the development of these technologies through a bottom-up, consensus based approach. This alliance has continued to exist after the end of DALLAS, with the support of Innovate UK, as “a free-to-join member-driven organisation dedicated to improving interoperability and reducing duplication in health and care systems” (DHACA 2016).

What unites these four projects is that their main contribution was not the technological outputs, which are based on pre-existing technology and solutions. Instead it was their emphasis on co-design, through the involvement of several thousand end-users, clinicians, health experts, carers, health-organisations, SMEs and other relevant stakeholders in the design and delivery of new products services. This strategy helped to ensure that the outputs were aligned with user needs, helped to reduce scepticism towards their use, and helped to encourage health professionals to change their practices and to consider the prescription of these technologies as part of their daily routine.

The DALLAS programme is an example of how a large organisation (Innovate UK) can use its resources to support niche activity that has the potential to address some of the systemic failures identified in table 1. This is because these are bottom-up projects chosen among several hundred proposals, which indicates a high probability that they are managed by committed individuals and organisations with a clear, shared vision of goals and aims. Also,

their grassroots approach allows them to disseminate this vision and build local coalitions for the delivery of new goods and services. One of the major hindrances identified by the leaders of these four projects was the conservatism of health experts. Their attitudes are partly the result of experimentation exhaustion, as experts go through several rounds of testing new technologies or approaches but rarely see results. But they also related to the difficulty in enacting regime change, as large organisations such as the NHS tend to experience high levels of inertia and to favour stability rather than change. Through a community-based approach, these four projects were capable of delivering change in this area by first engaging with early-adopters among the health experts. When results emerged, other experts were brought on board, either through peer-pressure (doctors advising other doctors to experiment with a new technology) or end-user pressure (as patients hear about a new technology and ask about it for themselves).

These niche projects also contribute to address demand articulation failures. Two of the most important failures in the current system are the lack of knowledge among users and health experts about the benefits of new technologies or services, and the lack of technological literacy that would allow patients to use these technologies. This is particularly the case for elderly patients who struggle to use ICTs more effectively. The emphasis on co-design and the involvement of a large number of end users helps to address both issues. This is a time consuming process, that is not primarily aimed at generating new technology (though it might, as happened with the creation of new ICT tools in Scotland and Liverpool) and therefore difficult to justify on economic grounds. It can however have powerful self-reinforcing effects, since as a technology diffuses through the community it encourages uptake even among those who are not involved in the project. On a different level, the i-Focus project contributed to address this systemic failure by encouraging interoperability between

technologies, which is one of the main barriers to achieve higher demand, scale economies and lower-costs.

Notwithstanding its success, while the bottom-up nature of the projects funded by DALLAS helps them address these two failures, it also limits their capacity to deal with larger systemic problems. While discussing the achievements and strengths of their projects, the leaders and other members of these four initiatives consistently refer to the NHS as an external organisation that prevents change. This is because the bottom-up approach used in programmes such as DALLAS means that there are no plans for either the UK government, or another UK wide organisation (such as the NHS) to adopt the most successful initiatives and deliver systemic change. The rhetoric emanating from central government through Innovate UK is that these bottom-up initiatives should be both disruptive and successful to the point where they deliver change from the niche to the system levels. However it is difficult to conceive how a small community project could influence strategic decisions in the NHS for example, without strong incentives and clear guidelines from the central government or another mediating organisation.

This issue points to wider structural problems, which go beyond the quality and outcomes of DALLAS. Policy in the field of assisted living (and in health in general) continues to be directed through a silo-based approach. It is not irrelevant that this programme was funded by an independent organisation (Innovate UK) affiliated to the Department for Business, Innovation and Skills. This means that even if it is successful, it is not strictly a government policy, but rather an initiative created and managed by an independent body. This in turn clashes with the sweeping health reforms which the current government has been trying to implement, through its health secretary, and which have in themselves been heavily discussed and revised as a result of ongoing criticism from multiple stakeholders.

And finally, overall system change is also blocked by the fact that community based health initiatives tend to rely on funding from municipalities. This presents two sets of problems: on the one hand, local authorities in the UK continue to have limited financial and administrative autonomy and are dependent on funding decisions from central government. On the other hand, new approaches to assisted living tend to privilege care and prevention, which has positive effects in terms of reducing hospital admissions and the need for expensive surgeries (such as hip replacement surgeries). These savings however are felt in the health budget and not in the local authorities' budget, which are in fact financing such initiatives. Therefore the lack of policy coordination creates perverse incentives, where the organisations making the investments are not the ones benefiting financially.

Using the terminology of Weber and Rohracher (2012) we would argue that these shortcomings were at the level of vertical and horizontal policy coordination and reflexivity. The failures in vertical policy coordination arise because though these projects are successful within their own environment (at least according to the evaluation provided by DALLAS), the regime in the UK lacks intermediary organisations or the political will to upscale and disseminate good results. Horizontally they fail due to fragmentation between organisations and agents. This in turn leads to problems of reflexivity failure. Though Innovate UK is attempting to maintain a learning community in this area, for example by supporting DHACA (2016), its activities continue to depend on bottom-up initiatives, and have not led, up to this point, to reflection and debates at the national level.

### **Assisted living in Norway**

The case study discussed here is the National programme for welfare technologies (Samveis)<sup>1</sup>. The programme was launched in 2013 by the Norwegian Directorate of Health, which is an executive agency subordinate to the Norwegian Ministry of Health and Care Services. Its overall aim is to ensure that such technologies shall be an integrated part of public health care services by 2020. In order to do so, the main tasks are to test and develop assisted living technologies and services in the municipalities; to generate and diffuse knowledge on assisted living; to develop good models for the introduction and use of assisted living technologies; and to develop standards and IT architecture on assisted living technologies. The national programme for welfare technologies is primarily directed towards the municipal health care services, but will nonetheless also contribute to an increased use of assisted living technologies in the specialised health services at national level and in the private sphere.

The Government's attention has largely been directed at increasing productivity in the municipal health care service system through technology projects aimed at testing assisted living technologies. These include digital sensors, digital alarms, person tracking systems and safety systems. The Government has directed financial support and expertise to municipalities who wish to test such technologies in patients' own homes, in specialised apartments, or to those who want to include assisted living technologies when renovating or building new care facilities. In terms of timeline, the Samveis programme consists of four phases:

- Establishment and preparations: 2013-2014
- Testing 2014-2016: The testing phase is to run until mid-2016 and its objective is to generate experiences and to develop methodologies and practical tools and service models as well as to facilitate training for the municipalities to implement solutions based on welfare technologies.

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<sup>1</sup><http://helsedirektoratet.no/helse-og-omsorgstjenester/omsorgstjenester/velferdsteknologi/nasjonalt-velferdsteknologiprogram-nvp/Sider/default.aspx>

- Upscaling 2015-2020: The programme is planning to involve 320 municipalities in the upscaling stage by 2019. The aim is that by 2020 80% of the population shall have access to health care services comprising welfare technologies as a natural part of the public health services.
- Consolidation 2020: The objective for the consolidation phase is to ensure usage of the solutions based on welfare technologies by the end of the programme period.

As part of the initial test phase the programme has funded 10 pilot projects involving 31 municipalities (of a total of 428 municipalities nationally). These pilot projects primarily focus on digitizing, developing and upscaling safety alarms. The programme in this sense aimed to move from analogue, uni-functional and home based safety alarms to mobile, multi-functional and digital safety alarms, allowing for increased independence and self-monitoring of own health. Such a shift involves creating a new architecture for data sharing where local or regional service centres serve a range of users, based on the digital monitoring and/or phone calls. Since the launch in 2013 the pilot programme has had a budget of approximately 3.5 million Euros annually, which ran in parallel with other government funding covering active ageing.

In practical terms, 9 out of the 10 pilot projects tested out various solutions associated with safety technologies (e.g. GPS tracking, alarm reception, fall detectors, motion detectors and smart house solutions such as electronic door locks). In addition a couple of the pilots tested medical technologies such as electronic medicine pill dispensers and logistics for effective home based services. Additionally, the 10 pilot projects ran in different groups of municipalities ranging from 1 to 9 municipalities for each pilot. Alongside the pilot projects a

number of demonstration flats<sup>2</sup> were set up in order to present and to make the new solutions accessible and understandable in real-world contexts.

All the municipalities that were included in the programme were also part of a network to facilitate knowledge exchange, which was coordinated and run by the Norwegian Directorate of Health and the Association of local and regional governments. Each of the group of municipalities in the programme had selected respective research partners to be involved in practice-oriented research activities running along the project phases. Finally, the Centre for Care Research at Gjøvik had been commissioned with the task of running a research network and to synthesize and communicate research results from the programme.

In order to arrange for a market for new solutions based on welfare technologies, the Norwegian Directorate of Health agreed to apply the international Continua framework. Continua is an international alliance consisting of a number of organisations and which points to various established international standards which ensure technological interoperability and allow for diversity of solutions based on the same IT architecture. Continua will constitute a recommended standard from 2016, which will be made compulsory from 2019. After the initial focus on technical standardization, the programme has increasingly emphasized the importance of standardising services, by developing guidelines for various kinds of assisted living services associated with different types of municipal characteristics and needs.

The programme has also introduced several initiatives to stimulate municipalities and subcontractors to develop innovative solutions together, e.g. through the National Programme for Supplier Development<sup>3</sup>. These activities seek to improve the knowledge about innovative municipal procurement by establishing arenas for knowledge exchange between

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<sup>2</sup> Examples of these Are Fru Poulsen, Henie Onstad, Almas Hus / A-Hus Hospital, Innovatoriet, Buskerud and Vestfold University College.

<sup>3</sup> The National Program for Supplier Development is run by the Confederation of Norwegian Business (NHO) and the Organization of Local governments (KS).

municipalities and subcontractors around services and solutions based on welfare technologies. The funded participants in the programme are expected to report on their activities in order to arrange for sharing of their experiences and innovative solutions to other municipalities, both within and beyond the boundaries of Samveis.

### *Samveis as strategic niche management*

When interpreted through the conceptual lens of the SNM terminology and transformational failure framework, the experimentation with new solutions surrounding welfare technologies in the pilot projects of the policy programme for active ageing can be seen as protected niche developments, anchored in the existing health care regime. As such, the policy programme has provided resources and legitimacy, which in turn have carved out a protected incubation space that is partly shielded from competition and selection criteria in the established care system. At the same time the programme sought to develop the underlying architecture and standards for the new health care regime. The arrival at the Continua standard can be seen as a way to establish a technological infrastructure for the emerging assisted living regime.

The National policy programme in this case study appeared as an appropriate arena and an innovative platform for including various stakeholders across public, private and civic sector and in terms of combining supply side and demand side innovation policy measures. It allowed for collaboration and interaction with subcontractors, users and their next-of-kin that was conducive to increasing the alignment of emerging and immature technologies with values, norms and practices in care provision.

At a national level the various initiatives taken had a pro-active and top-down character led by the Norwegian Directorate of Health and the Association of local and regional authorities. Indeed, prior to the establishment of the national policy programme many municipalities had already taken some initial bottom-up steps towards testing out new technological solutions in

small-scale pilot projects in advance of the launch of the national policy programme. The predominantly top-down approach and national coordination should partly be seen against the background of experiences from Denmark, where the “Welfare technology funds<sup>4</sup>” from 2008 was liquidated due to coordination challenges across a multitude of fragmented and smaller projects.

Due to the predominantly top-down-characteristic of the initiation of the policy programme, the state has in many ways been heavily involved in shaping the issues of directionality and demand. The case study has illustrated how governance and policy has pointed out the direction for the current transition processes in healthcare. The public sector has taken a lead role and pointed out the direction of this transformational change. The state has been proactive in establishing the policy programme (Samveis) itself and also in other ways: by initiating activities and networks to ensure interaction between municipalities and industry; by setting the agenda and pointing out the direction and long term goals that welfare technologies shall be an integrated part of public health care services by 2020; by defining the needs, technologies and initiating the ten pilot projects within the framework of the national programme; and last but not least by establishing a market and to ensure interoperability across solutions by providing technological standards in the Continua platform. This demonstrates that a transition may very well need leadership (in this case by the state) that initiates and guides this process. This corroborates the point made by Shove and Walker (2007) that the governance of transition processes cannot be fully understood as a self-organizing process.

To the degree that the state and the prevailing regime set the goals for the new regime and initiated the policy program to reach this goal, the new niches can be seen as arising from or at least being supported by drivers within the existing regime. The policy programme and the

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<sup>4</sup> The ABT-funds (Applied Citizen-centric technology)

pilot projects may in this sense be perceived as a catalyst for the emergence and upscaling of the new niches constituted by technologies enabling rehabilitation and distributed health care provision in terms of home based care.

Regarding the coordination of actors and of the governance regime, the Norwegian policy programme constitutes an important coordinating mechanism across the fragmented municipal landscape. According to the subcontractors, there has been a lack of knowledge among the municipalities about existing solutions within welfare technologies and the implications and use of these. Such a view is also confirmed by respondents in the municipalities and illustrates that it is costly and demanding to be up to date with the (national and international) developments in this field, and which highlights the need for pro-active governance, directionality and policy coordination.

Challenges for governance identified in the case study related to insufficient coordination and reflexivity across the multiple stakeholders and sectors involved in this exploration of assisted living. Although the overall achievement of the national policy programme in many ways related to the very same notion of coordination and integration across actors and sectors, the data collection and analysis revealed that there are still unexploited potentials for coordination:

- across science driven and practice oriented knowledge development
- across an autonomous and an embedded governance mode
- across the research activities following the ten pilot projects
- across different relevant public sector stakeholders at various governance levels

NAV, the technical aids apparatus and national body for providing home-based care services, has for example not been included in the national policy programme. This may represent a challenge related to upscaling and implementation of the solutions beyond the municipalities

taking part in the policy programme. This may signal a lacking ability to bridge actors across niche experimentation and (past and future) regime actors.

Whereas policy coordination has primarily been oriented upstream in terms of initiating the ten pilot projects, less has been done in terms of following up the experiences generated across the pilot projects. For example, working independently from the results and experiences generated in the pilot projects, the Norwegian Directorate of Health has been developing guidelines for various groups of municipalities regarding different needs and appropriate solutions. The coordination and upscaling of the experiences from the pilot projects beyond the niche level therefore seems to have been scarcely exploited.

#### *Reflexivity in transformational development processes*

Finally, in what concerns the need for reflexivity in transformational development processes, the Norwegian Directorate of Health has arranged information meetings and seminars for learning and knowledge exchange between municipalities, subcontractors and other relevant stakeholders. This is not to say, however, that the state has lived up to the label of a so-called embedded state at all levels. The municipalities that have been part of the ten pilot projects have been expected to take an active role in their respective projects, in interplay with subcontractors on the one hand and with users on the other. Whereas at this level one could talk about embedded governance, at the state level the Norwegian Directorate of Health and its associated partner organizations (KS, NHO) maintain an arm's length relationship with municipalities, and thus seem to take a more dirigiste role in terms of initiating innovative processes but still remaining somewhat independent.

In terms of monitoring, the assignment of the task of coordinating the research activities following the ten pilot projects to the Centre for Care research at Gjøvik was not done until Autumn 2014, and the first gathering in this research network took place in April 2015, two

years after the launch of the national programme. This signals a somewhat limited effort and ambition in terms of ensuring continuous learning, reflexivity and diffusion across the involved stakeholders. Also, strengthening this impression of a limited knowledge development strategy, there were also complaints among the researchers who followed the pilot studies that there was no process of calibration of expectations among subcontractors, municipalities (and users) in the early phases of the pilot projects. According to these informants, such a calibration process could have established trust between the involved stakeholders, in addition to clarifying roles, objectives and avoided false expectations and misunderstandings.

Moreover, the efforts of joint testing and knowledge generation in the pilot projects have so far primarily been practice-oriented (as opposed to science-driven) and largely directed towards the municipalities. This finding is also identified as a general challenge that much development work taking place in the municipalities is practice-oriented, and weakly connected to the remaining science-based knowledge development infrastructure in the Norwegian Research Council (HelseOmsorg21 2014). In sum, these factors suggest a lack of coordination and reflexivity in the National programme for welfare technologies.

## **Conclusions**

The aim of this paper has been to identify and understand differences and similarities in system innovation policy by comparing state responses to assisted living in two contrasting national systems of care, namely that of the UK and Norway. Before we outline the main differences, an important finding of our study relates to the extent to which these responses share similarities.

In both the Norwegian and UK case, state supported and funded niche experimentation has been instrumental in designing and implementing system innovation policy. Pilot projects, either orchestrated in top-down (in Norway) or bottom-up fashion (UK), that develop, demonstrate and test innovations related to assisted living feature prominently as concrete instruments to develop solutions to address the challenge of active and healthy ageing in national systems of care. More importantly, these projects have contributed to the identification and articulation of the various systemic barriers that impede the wider diffusion of assisted living technologies among a broad range of stakeholders including end-users, clinicians, health-experts, carers and health organizations. Through their emphasis on co-design and co-creation, these projects demonstrated the value of early implementation pilots to explore the ‘fit’ between novel technologies and prevailing practices and institutional structures in national systems of care. One implication of this study is that the relatively sharp distinction drawn between social and technological innovation is not very productive. The pilot projects related to assisted living technologies demonstrate that implementation of such technologies is as much related to technological innovation and social innovation. Another implication is that national rules and regulations in both countries need to foster rather than frustrate local experimentation along the lines suggested by proponents of experimentalist governance (Sabel and Zeitlin, 2012).

More specifically, the pilot projects in both countries have been effective in addressing one transformational failure in the respective national systems of care quite forcefully, namely demand articulation. Particularly with respect to demand articulation both cases display striking similarities. Pilot projects have helped significantly in calling attention to the lack of knowledge among users and health experts about the benefits of new technologies or services, and the lack of technological literacy that would allow patients to use these technologies as legitimate bottlenecks for assisted living technologies. While this in part points to user-based

suggestions how to better design the technologies, it equally provides feedback and knowledge as to how social practices and institutional change may need to co-evolve with the adoption of new technology.

With regard to the challenge of policy coordination, both the Norwegian case and UK case show that experimentation with pilot projects continue to struggle with the policy-silo syndrome. In Norway, potential lessons and feedback from the projects were basically side-stepped once the Norwegian Directorate of Health developed its guidelines for municipalities regarding assisted living needs and solutions. Perhaps even more dramatically, outcomes and insights from pilot projects in the UK, orchestrated by Innovate UK, did not really find much resonance in the national system of health as these initiatives ran against the grain of the sweeping health reforms rolled out by the NHS and the way the national system of care is organized institutionally. Related to this, one can argue that for both countries, reflexivity and a capacity and willingness to learn from experiments (i.e. to learn from mistakes) remains rather strictly limited to project-based (internal) learning. At the level of the overarching programmes, reflexivity and learning-through-experimentation remained largely absent, let alone adjusting policy support based on the outcomes of the pilot projects.

The cases were most strikingly different in terms of addressing the transformational system failure concerning directionality. In Norway, the state took a lead role and pointed out explicitly the direction of search in finding solutions to address active and healthy ageing. It clearly set an agenda and provided a roadmap for assisted living technologies (e.g. by relating it to international technological standards in the Continue platform). The rationale for doing so has been to ensure interoperability and thus scalability of innovations developed and tested in the pilot projects. At the same time, this may have compromised the degree and extent of diversity of solutions that could be considered in the various projects. In the UK, there was far less guidance concerning directionality as the programme was largely designed to facilitate

bottom-up, community based responses and initiatives. As a result, pilot projects were internally guided by committed individuals and organisations with a clear, shared vision of goals and aims. This had powerful self-reinforcing effects at the level of the individual projects but may have compromised the ability to make an impact beyond the immediate actors and networks defined by the projects.

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