

CHAPTER 1

The Bridge of Knowledge: Infrastructure for the Coordination of Health and Social Care or an Easy Fix?

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Abstract: Managing increased pressure on healthcare resources is a key factor in the sustainability of Norwegian welfare. Coordination of state specialist hospital healthcare and municipal primary health and social care to reduce pressure on hospital care, is key policy, with digitalisation as a coordination tool. The Bridge of Knowledge is a digital learning platform for the upskilling of primary care municipal staff, so they can take on an increased share of disease management from specialist hospitals. Coordination, however, also requires alignment of interests, understanding, and commitment among organisations with different positions in a political healthcare landscape. Will the Bridge become a technological quick fix for unsolved political and organisational issues surrounding coordination? The chapter presents a case study of the implementation to date of the Bridge in one Norwegian healthcare region. Drawing on the concept of infrastructuring, it addresses the research question whether the Bridge of Knowledge can become a stable infrastructure that supports coordination of health and social care in this setting. The chapter suggests that the Bridge's role in coordination is not given in the platform technology per se, but in the ongoing management of political, organisational and technological factors shaping the role of the technology in specific local settings. These factors are likely to remain in flux due to rapid technology development and shifting policy on digitalisation and coordination. Questions about the Bridge as infrastructure for seamless coordination or a quick fix for intractable political dilemmas remain open. Implications for the implementation of digital technology in addressing wider welfare state challenges are outlined.

Keywords: coordination, health and social care, infrastructure, digital learning platforms

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Introduction: A Learning Platform for the Coordination of Health and Social Care

Norway faces increasing pressure on healthcare resources. Accelerating and increasingly costly specialisation in medicine is crowding out hospital space for general diseases, such as mental illness and addictions, chronic conditions like diabetes, respiratory disease, heart conditions, and increased multimorbidity in an ageing population. The treatment of these conditions is being shifted onto municipal care services deemed cheaper and located closer to patients' homes. Coordination (*samhandling*) within and between state hospital and municipal services is key policy, and part of the sustainability agenda of the Norwegian welfare state (Meld. St. 47 (2008–2009)) and worldwide (World Health Organization, 2008). Digitalisation is increasingly part of the Norwegian coordination agenda (Christie et al., 2018; Ministry of Local Government and Modernisation, 2019). However, questions remain regarding the role of digitalisation in supporting coordination efforts.

To address some of these questions the chapter examines The Bridge of Knowledge (the Bridge) (*Kompetansebroen: Portal for Kunnskapsdeling i Helsetjenesten*), a digital platform that supports coordination by posting training material to upskill primary care municipal staff, thus enabling them to take on an increased share of disease management previously undertaken by the specialist hospital sector. The platform also posts information about coordination initiatives to facilitate communication and network building, on national and local levels.

Digital teaching resources, replacing or complementing conventional face-to-face classroom teaching, are an increasingly important part of healthcare professionals' training and continuous development worldwide, offering easily accessible teaching resources across geographical distances, and enabling healthcare professionals to update skills and knowledge in busy working contexts. (Lahti et al., 2014; Lawn et al., 2017; Ruggeri et al., 2013). E-learning can be as effective as conventional methods in healthcare teaching (Cook et al., 2008). Digital learning resources, including learning platforms, are also used in teaching interprofessional skills, and they simplify synchronisation of teaching for staff working across different services and with different work schedules (Reeves et al., 2017; Ryan et al., 2020). The Bridge's main selling point is precisely this flexibility.

Online teaching resources are not, however, instant solutions to challenges of interprofessional and inter-service cooperation. Digital, asynchronous teaching has to involve group discussions and exchange of perspectives and experiences in order to foster coordination competencies (Ryan et al., 2020). Digital discussion fora are no substitute for day-to-day and face-to-face exchanges of perspectives, because ongoing personal relationships activated in different situations are a key resource in learning (Lave & Wenger, 1991; Norbye, 2020, p. 203). Also, as I will go on to demonstrate, facilitating this combination of digital and face-to-face learning is dependent on contextual factors, such as management support and time (Lawn et al., 2017).

Coordination between and within sectors and services is difficult. Fragmentation of services, incompatibility between sectors and services in terms of aims, structure, culture, financing and power differentials are common challenges (Auschra, 2018; Glasby, 2017; Looman et al., 2021; Pearson & Watson, 2018) and require an alignment of interests, understanding, and the commitment of organisations with different histories and positions in a political healthcare landscape (Cook, 2015; Dickinson & Glasby, 2010). Norway is no exception (Huby et al., 2018). How can a digital learning platform contribute to untangling these complexities?

Edwards (2003) suggests that trouble starts when we focus on a micro level technological hardware solution to address challenges of an increasingly complex world, where decisive issues lie in constellations of social, natural, and technological factors operating on meso and macro organisational and political levels. Coordination is, among many things, a policy response to a political dilemma of increased demand and shrinking resources (Glasby, 2016). Is the Bridge, then, a technological fix, on a micro level, for long standing and entrenched political and organisational issues, hardwired into the bumpy process of coordinating health and social care in Norway? Or can it offer more?

This chapter examines perspectives on digitalisation as infrastructure. Sørhaug and Fugletveit (the introduction to this anthology) quote Edwards (2003), suggesting that infrastructure is a co-construction of technology, society, and nature, whose interplay has become invisible in the taken-for-granted weave of our everyday lives. The invisibility of the interplay can prevent us from untangling its various strands. It is when the weave unravels that we see the discrepancy between aspiration and failure (Anand et al., 2018). Then we can begin purposeful *infrastructuring* to make the

strands work better together towards a desired purpose, in our case the coordination of state hospitals and municipal health and social care.

The Bridge is a new arrival on the scene of technological aids to coordination in a Norwegian health region I will call Naverage. The implementation process has sparked debates, which show what infrastructuring can mean in terms of bringing a range of practical, organisational and political strands together to make the learning platform work towards its desired end.

Writing about organisational transformation, Star and Ruhleder (1996, p. 111) point out the contradictions infrastructure holds: 'It is both engine and barrier for change; both customizable and rigid; both inside and outside organisational practices. It is product and process.' They ascribe the unpredictability of the direction of change to how structures of agency relations (re)form as these contradictions develop in specific organisational dynamics. They moreover suggest that infrastructuring implies addressing an inherent tension between a durable framework for continuity of communication over time, and flexible functionalities allowing local adaptations. They suggest that a device becomes infrastructure when this tension is resolved, holding in place, in our case, the technological and human weave facilitating collaboration across services and sector interfaces.

I will go on to describe the process of Bridge implementation to date in a Norwegian health region and address the research question of whether the digital learning platform can be made into a stable infrastructure that supports coordination of health and social care in this setting. I will aim to show how the function of the Bridge as a technological invention is not inherent in the technology per se, but a product of the interplay of technological, political, and organisational dynamics shaping its deployment. I suggest how this example can inform wider questions about the role of digital technology in addressing current welfare state challenges.

The Bridge of Knowledge

The Bridge emerged from a local IT design and innovation initiative in an Oslo hospital trust (*sykehusforetak*) to share teaching and training resources, along with information on coordination, between specialist hospital services, municipal primary and social care, and the adjoining professional training institution. The idea caught on, and the Bridge grew rapidly from its modest and local beginning into a project with a national profile. It was

established in its present form in 2018, and today comprises a central editorial team in the host hospital trust, and affiliated local satellite editorial teams in three different regional health authorities. These satellite teams benefit from the main website resources, and in addition establish their own webpages with local training resources and news regarding national and local developments in policy and practice, connected to coordination between secondary hospital services and municipal primary and social care.

The Bridge is not centrally funded and has to compete in a crowded market with businesses queuing up to offer digital solutions to clinical and organisational aspects of care. The Bridge has to stake its claim and expand, or die. One expansion strategy is to recruit editorial teams from other regional healthcare regions, who pay to join.

In 2019, a manager in the unit for professional development in the hospital trust (*sykehusforetak*) Naverage, with a catchment area of 18 adjoining municipalities, joined forces with the local university college Faculty of Health and Welfare, and a Naverage Development Centre for Nursing Homes and Community Nursing to establish a local editorial office of the Bridge in that region. This started a three-year implementation process which is still ongoing.

Joining as a local branch carries not inconsiderable costs, which must be paid for by financially stretched municipalities and hospital trusts. A main challenge for the Bridge is to prove its value for money relative to its competitors. On this question the Bridge is so far losing out in the Naverage health region. Two years' worth of pilot funding have failed to persuade municipality and hospital senior management that the Bridge is worth a long-term investment from stretched mainstream service budgets. A third pilot is underway at the time of writing.

Methods: A Case Study

The chapter is structured as a case study of the Bridge's implementation in Naverage from its inception in 2019 until the time of writing. I participated in this process as a representative of the university college. The chapter draws on material collected during the first two phases: a feasibility study and a pilot phase, carried out by a Bridge Implementation Working Group led by the hospital training and development department. I was the group's university college representative. The process is now in its third phase, a

research and development project run from the university college, in which I am also involved.

The case study approach allows the study of a social phenomenon ‘in the round’ through in-depth exploration of interactions of a range of factors constituting the phenomenon in question. The case can be constructed in various ways and comprises one or several instances of similar phenomena, studied on different levels, from individual to complex social formations like an organisation (Crowe et al., 2011; Yin, 2017). The term conceals imprecisions. Swanborn (2010) points out that most ethnographies constitute a case study without being termed as such. I use Swanborn’s (2010, p. 13) definition of a case study as the exploration of one or more social units, in which a phenomenon unfolds over time, in this case implementation of a learning platform as a tool for coordination. The case study brings out the interactions, over time, among several actors, with different interests and perspectives shaped by their place in the setting in question. A case study involves an open ended and iterative analytical process, where questions emerge, are refined, and change in rounds moving between multimethod data sets, comparative literature, and theory. Here, the analysis has been guided by theory key to this anthology, focusing on the complex interplay between technology and health and social care organisations and practice producing constellations of cooperation in specific Naverage contexts (Dourish, 2004; Seaver, 2015; Strathern et al., 1987).

We carried out two studies. The first was a feasibility study to gauge interest in the Bridge and raise awareness among potential users. This consisted of a survey of middle managers in 5 of 18 municipalities selected to represent size and geographical spread, managers in the university college Department of Health and Social Care, and in specialist hospital departments, selected to represent specialities for whom the Bridge was likely to be most relevant: geriatrics and complex conditions like mental health and addictions. The survey collected information about professional development and training initiatives within and among different municipalities, and between hospital departments and municipalities. There were also open fields for comments and suggestions. The survey was followed by focus groups including middle management representatives of four municipalities who took part in the survey, three specialist hospital departments, and the university college department.

Evaluation of the pilot phase consisted of two group interviews with ‘Bridge ambassadors’ appointed to represent the Bridge and raise awareness

of what it offers, and also to encourage publication of local material on the platform that would stimulate communication, and the sharing of training resources across services and sectors.

The chapter draws on reports regarding the feasibility study (Huby, 2021a) and the pilot evaluation (Huby, 2021b; Huby et al., 2021), both published on the local Bridge pages. These texts outline key points, presented to facilitate engagement in the Bridge implementation. Further analysis in relation to the volume's theoretical framework has been undertaken in writing the chapter.

The stated aim of the research was to generate material that would facilitate the implementation of the platform. The research was, however, instigated by managers in the hospital, university college, and Naverage Development Centre for Nursing Homes and Community Nursing, for whom the implementation held some personal and organisational stakes. The implementation team thus had to negotiate at times conflicting roles of promoting the Bridge, and collecting material that may have questioned its cost-effective relevance to Naverage. As a member of the team, I felt that tension (Olsen et al., 2002), at times acutely. However, as an academic advisor with a marginal role in direct negotiations of the Bridge's future I was able to reflect on the process in which I was engaged, from the position of an observer. My role in the team also changed during the process.

The first phase feasibility study mixed data collection with advocating the Bridge to potential municipal and hospital users. This strategy in my opinion did not leave enough room for adapting the platform technology to the realities as we found them 'on the ground'. As the implementation process proceeded, the composition and dynamics of the implementation team changed, we collected more material and discussions within the team became more diverse and open. The team also engaged more with the regional healthcare cooperative's combined hospital and municipal management structures. I participated in drawing up interview schedules, analysing data, and formulating conclusions and recommendations from the data for reports, presentations, and funding applications. My arguments and analyses contributed to the implementation team strategy, which led to the present round of pilot money. This pilot, which has not yet reported, builds on lessons from the first two phases, and is trying out an approach to implementation that changes the context of the Bridge's role, and opens the potential for its broader strategic role in local coordination.

Contexts and Entanglements

The Bridge's implementation to date thus represents a chequered history, which compels a detailed consideration of context. Orlikowski (2007) argues that understanding the role of digital tools as active components of work processes demands a reassessment of ontological priority: people or machines. She holds that the divide between the social and the material is increasingly difficult to maintain, and coins the term 'entanglement' between the social and material aspects of digitalisation's impact on work and workplaces. In such entanglements ontological priority cannot be established a priori, but is a matter of a detailed examination of processes in specific instances.

For the Bridge to improve coordination of care, attention has to be paid to the context in which it is introduced. Dourish (2004) explores two ways of viewing context. One is anchored in a positivist paradigm, and views context as an entity that can be mapped at the outset: stable, delineable, and importantly, analytically and practically separate from the tools and their use. In contrast, he suggests a view of context grounded in a phenomenological paradigm, which posits context as an 'interactional problem' (p. 22), rather than a delineable entity. Context is a product of the interaction between people and tools, an emergent property of this interaction, and constructed, altered, and maintained according to the situation in which tools are deployed.

The Bridge is constructed on a premise of context as a fixed entity. It is easily navigable and a high-quality product, both visually and in terms of form and content. Designers are aware of the context in which prospective users work and produce visually engaging material, accessible to people working in busy settings, and often without the luxury of prolonged periods of study. Podcasts, videos and PowerPoint presentations can be studied in a number of situations: on the bus, on lunch breaks, and at home.

However, to hard-pressed Naverage staff, municipalities, and hospital departments other contextual factors played a part. Whilst they appreciated the website's accessibility and beauty of design, and the opportunities it presented for sharing learning resources across municipalities and the hospital, this clearly was not enough. A key issue that emerged from the first feasibility study interview was a crowded working day that left limited room for the Bridge to impact on coordination. The Bridge may well be expert at transmitting information, but information does

not automatically translate into improved coordination practice without some further investment.

Communities of Practice

The feasibility study revealed a lack of time and resources for coherent workforce development. Earmarked service development funding was lacking. Designated responsibility for professional development was only part of the job description of a small number of staff. When staff time for clinical tasks was short, time allocation for professional development was the first to go. Moreover, for new knowledge and skills to embed on the service level, staff need help to consider how new knowledge will impact on practice and the organisation of practice. Time is needed for both individual learning and group discussions. This time investment proved hard to release, as the daily operation of the service (*drift*) was tight (Huby, 2021a). Moreover, skills and knowledge were not retained: rapid staff turnover and extensive use of locums made continuity a challenge. The demands of *drift* also impede systematic sharing of learning and knowledge between and within services.

Systematic sharing of experience within and between services is an important aspect of coordination and requires other resources besides information. The concept of communities of practice (Lave & Wenger, 1991; Wenger, 1998, 2010) captures the interconnections between practice and knowledge in healthcare. Knowledge emerges through practice and informs practice in turn, and knowledge about how to coordinate patient care is best produced in groups of practitioners, who work across the divides and learn together to address coordination challenges, including how to involve technology (Suchman, 2007, 2012). The latest evidence of treatments of specific conditions is a necessary ingredient of learning to cooperate across specialist hospital and generalist municipal service boundaries. However, this evidence generalises across a range of patient and health care circumstances and characteristics. Its application involves synthesising different kinds of information into knowledge about how to manage complexity in specific service settings. It also involves work to translate this knowledge into routines on the unit and service levels. This joint learning requires staff time and some slack in daily routines, both of which were in short supply, according to participants in our feasibility study.

A team of managers in one of the municipalities we visited for feasibility interviews had worked for some years to develop a municipal strategy for practice-based learning across services for older people and patients with long term conditions. This involved managers and staff developing evidence-based procedures for patient care, and then organising group sessions for staff to learn together how to implement these procedures. Time for on-the-job professional development was not worked into routine schedules, on neither management nor practitioner levels, and cooperation among managers was vital to make up for the deficiency. They shared small pots of contingency funding and staff resources between them, so that if one service lacked staff to allow a group learning session, other services better resourced at the time provided staff to keep services running.

At the time, the implementation team did not give these data the weight I thought they deserved. Lack of time and personnel for professional development was a fact, and the point of the Bridge was precisely to help the professional development staff use their time better through shared up-to-date teaching resources available on the platform. Moreover, pointing out that full return on an investment in the Bridge would add the cost of more staff time to platform subscription and salaries for the Naverage editorial team was unlikely to hit home.

The End of the Bridge?

In the event, decisions about whether or not to implement the Bridge centred around cost and value for money. There is already a plethora of digital learning platforms, many of which have an edge on the Bridge, because they are linked to municipalities' administrative HR systems, automatically entering staff's completion of training programmes to their professional development HR records. The Bridge did not have this function at the time. Moreover, the existing learning platforms are costly, and resources have been committed long term. They are embedded in practice in ways that make it hard to disentangle them and put the Bridge in their stead. For example, their use is written into procedures on patient care. Shifting to the Bridge would mean rewriting the procedures, a huge and costly task in terms of person hours.

Findings from the evaluation of the pilot phase moreover suggested that the Bridge failed to catch on in other respects than cost. Group interviews with Bridge representatives in municipalities and hospital departments

(Huby et al., 2021) suggested that they had numerous other responsibilities than promoting the Bridge, ranking higher on their list of priorities. The pilot phase coincided with the post Covid-19 rush to catch up on long-term work that had been postponed during the pandemic. Moreover, interview participants did not understand their role or how to make it work. There were a number of training initiatives that crossed service and sector boundaries where they could have put their efforts, but they lacked support, they lacked time, and many felt these initiatives were not always relevant at the coalface of everyday practice. Finally, they saw little point in investing scarce work time resources in a pilot that might not lead anywhere.

Halfway through the pilot phase the signals were clear: the municipalities and hospital trust would not clear budget and personnel space for the Bridge's permanent implementation. And yet, a year on, the Bridge lives on, as yet another pilot project trying out a new approach.

Implementation as an Open-Ended Process

Pickering (2010) reminds us that the outcomes of socio-material entanglements (Mol, 2002; Orlikowski, 1992, 2007) of technological inventions are indeterminate, because they are connected with wider social and political developments in often unpredictable ways.

Together with the pitfalls revealed in the feasibility study and the pilot evaluation, we also heard compelling arguments for the Bridge's potential to support coordination. These arguments centred on the Bridge's potential to contribute to an alignment of interests, understanding, and practice between the hospital and municipal services, a key element in successful coordination (Cook, 2015; Dickinson & Glasby, 2010; Huby et al., 2018).

Participants in the feasibility study reported a one-way communication and sharing of skills from hospital to municipal services, but very little the other way. In interviews, municipal staff talked about the hospital staff's lack of understanding of the expertise and responsibilities of municipal services. Municipal care focuses on long-term support and rehabilitation, which require different skills sets and priorities from short-term acute healthcare. Assumptions that municipal services should take on the functions of mini-hospitals devalue the municipal contribution.

Participants in the feasibility study and the pilot evaluation alike told us how the Bridge could help address some of these issues by levelling the field of expertise, and focus on disparities in perspectives and ways of

working. It could bring people together to develop a joint language and understanding of the conditions of care, and appropriate skills sets and knowledge, across different settings (Huby, 2021a; Huby et al., 2021). In the free-text fields of the feasibility survey municipality respondents described the Bridge as a potential forum for dialogue, which could unify and lift competence and practice regionally, across municipalities and hospital departments. Thus, changes in practice and perspectives would reinforce each other, and create a joint understanding of arrangements required on the organisational level to ensure smoother patient journeys with better quality care, and also a more efficient use of resources (Argyris, 1999).

The pilot phase evaluation participants also emphasised the need for improved understanding between management and staff ‘at the coalface’. They pointed to coherent and strong coordination work happening on strategic levels, but their experience was that coordination fractured on middle manager and practice levels. A suggestion emerged that the Bridge should focus on actual patient journeys in order to create a bottom-up change, to strengthen communication and understanding between different levels of the organisations. They pointed to the ongoing work between hospital and municipalities to systematically identify weak points in patient journeys across services and sectors. However, information about what different hospital departments and municipalities actually did to address these weak points was hard to come by. Sharing this information on the Bridge would be of immediate interest to practitioners and managers on different levels of both municipal and hospital organisations and contribute to a shared local understanding of the challenges of coordination and how to address them. They also suggested that Bridge training resources could be linked to ongoing work to improve patient journeys (Huby et al., 2021).

In this context, the Bridge’s technical design advantage, with high visual quality, accessibility, and ease of navigation would constitute a meaningful resource, and give the Bridge an edge over its digital rivals. No other learning platforms span the secondary care/municipal divide like the Bridge. Other service platforms focus on and promote the agenda of their organisations, be it the hospital or a municipality. The Bridge is a neutral space. Partly based on the results of the pilot evaluation, an application for a third round of pilot funding was submitted to the Naverage coordination funds. The proposal was submitted as a university college led research and development project, trying out the Bridge’s potential as a forum for dialogue relating to projects with strategic value for the Naverage healthcare

cooperative. To some surprise the proposal was funded, and at the time of writing the project is halfway into its 12-month period of funding. The Bridge is catching the attention of senior hospital and municipality managers as a strategic resource, progressing new agendas of digitalisation and coordination, and it is likely that permanent funding will at some point be secured.

The Bridge as Infrastructure? The Elephant in the Room

But will the Bridge become infrastructure, that is, a taken-for-granted weave of technology, organisation, and practice, which allows a seamless coordination of patient care across hospital and municipal boundaries? So far, findings from the current research and development project suggest that debates in Naverage about the role of the Bridge are unlikely to be laid to rest any time soon. Policy on coordination is a changing scene (Ministry of Local Government and Modernisation, 2019), and technological innovation is gathering speed, helped by public and private investments and state support.

The tension of increasing pressure on healthcare resources, which has precipitated the coordination and digitalisation policies in the first place, is unlikely to go away. In Norway, this tension has been addressed by separating the specialist hospital sector from regional municipal administration, and creating state-owned trusts run on business principles to control healthcare costs (Ot. Prop. 66, 2000). The coordination reform of 2012 (Meld. St. 47 (2008–2009)) was introduced to revitalise the coordination of state specialist healthcare and local authority health and social care. The results of the coordination reform have however been mixed (Norwegian Research Council, 2016). Healthcare cooperatives (*Helsefelleskap*) (Meld. St. 7, 2019) were introduced in 2019 to anchor coordination in locally relevant management structures. The Naverage healthcare cooperative is known for its robust combined management structure and systematic work to progress local coordination strategies jointly for the benefit of patient care.

However, the hospital and coordination reforms, together with the healthcare cooperatives, position the hospital sector as dictating the thrust of change. The Bridge reflects this unequal relationship. It is a hospital trust initiative, directed towards changing municipal ways of working.

The Bridge's potential to level the field of expertise notwithstanding, tensions remain. The shift of hospital care to community settings puts municipalities at risk because resources will be squeezed, and increased pressure on both sectors makes coordination more difficult.

Conclusion: What Can We Learn from the Bridge Implementation Process?

I have presented a case study of the implementation of the learning platform Bridge in the Naverage healthcare region. The case is framed as an exploration of infrastructure and addresses the research question whether the Bridge can become a smooth weave of digital technology, organisation, and practice that underpins coordination between the hospital sector and municipal primary health and social care. Three main lessons emerge from the case study, which are more generally applicable to the implementation of digital technologies in a range of welfare service settings. These lessons revolve around issues of context as a product of, rather than a parameter for, the implementation of a digital technology in complex service settings.

First of all, the functions of a piece of digital technology are not inherent in the technology itself, but in the way the technology is deployed in specific contexts (Huby & Harries, 2021). Contexts are emergent properties of interactions between the technology, the organisation, and the practice of health and social care across services. The technology is a partner in this interaction, it changes and is changed by the context. The key to shaping the role of technology to our own ends is: detailed attention to practice as situated action (Suchman, 2007, 2012); understanding what we do together with technology, in specific situations; the way situations impact actions; and how our actions in turn impact the situation and change our own and the technology's role.

Secondly, implementers of technology therefore need to pay heed to the expertise of the people who will be using it, and how they can make technology part of their everyday practice – or not. The Bridge had a limited role solely as a source of education material because there were insufficient resources to convert this material into knowledge relating to coordination on practice and service levels. However, staff had clear ideas about how the Bridge could become a forum for information exchange on strategic coordination developments in Naverage, and also level the field of knowledge,

understanding, and practice across services and sectors. These ideas are now being put to the test, but the outcome is uncertain.

Thirdly, implementation of digital technology for healthcare coordination and other welfare provisions is a continuous and open process, and needs to be managed as such. Circumstances around coordination and digitalisation are rapidly shifting, and the role of the technology changes in turn. Policy and technological development are driven by an ever more urgent political dilemma of squaring increased demand with insufficient resources. These factors are unlikely to resolve any time soon. Questions about the Bridge as a stable infrastructure for seamless coordination or a quick fix for intractable political dilemmas remain open. Detailed attention to shifting contexts in the implementation process will ensure steering towards desired results, even if the final goal may remain elusive.

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References

- Anand, N., Gupta, A., & Appel, H. (2018). *The promise of infrastructure*. Duke University Press. <https://doi.org/10.1215/9781478002031>
- Argyris, C. (1999). *On organizational learning*. Wiley.
- Auschra, C. (2018). Barriers to the integration of care in inter-organisational settings: A literature review. *International Journal of Integrated Care*, 18(1), 5. <https://doi.org/10.5334/ijic.3068>
- Christie, W., Hoholm, T., & Mørk, B. E. (2018). Innovasjon og samhandling i helsevesenet. *Praktisk Økonomi & Finans*, 34(1), 32–46. <https://doi.org/10.18261/issn.1504-2871-2018-01-04>
- Cook, A. (2015). *Partnership working across UK public services*. What Works Scotland. <http://whatworksscotland.ac.uk/publications/partnership-working-across-uk-public-services/>
- Cook, D. A., Levinson, A. J., Garside, S., Dupras, D. M., Erwin, P. J., & Montori, V. M. (2008). Internet-based learning in the health professions: A meta-analysis. *JAMA: The Journal of the American Medical Association*, 300(10), 1181–1196. <https://doi.org/10.1001/jama.300.10.1181>
- Crowe, S., Cresswell, K., Robertson, A., Huby, G., Avery, A., & Sheikh, A. (2011). The case study approach. *BMC Medical Research Methodology*, 11, 100. <https://doi.org/10.1186/1471-2288-11-100>
- Dickinson, H., & Glasby, J. (2010). Why partnership working doesn't work: Pitfalls, problems and possibilities in English health and social care. *Public Management Review*, 12(6), 811–828. <http://www.tandfonline.com/doi/abs/10.1080/14719037.2010.488861>

- Dourish, P. (2004). What we talk about when we talk about context. *Personal and Ubiquitous Computing*, 8(1), 19–30. <https://doi.org/10.1007/s00779-003-0253-8>
- Edwards, P. (2003). Infrastructure and modernity: Force, time, and social organization in the history of sociotechnical systems. In T. J. Misa, P. Brey, & A. Feenberg (Eds.), *Modernity and technology*. MIT Press.
- Glasby, J. (2016). If integration is the answer, what was the question? What next for English health and social care. *International Journal of Integrated Care*, 16(4), 11. <https://doi.org/10.5334/ijic.2535>
- Glasby, J. (2017). The holy grail of health and social care integration. *BMJ*, 356, j801. <https://doi.org/10.1136/bmj.j801>
- Huby, G., Cook, A., & Kirchoff, R. (2018). Can we mandate partnership working? Top down meets bottom up in structural reforms in Scotland and Norway. *Journal of Integrated Care*. <https://doi.org/10.1108/JICA-11-2017-0041>
- Huby, G., & Harries, J. (2021). Bloody paperwork: Algorithmic governance and control in UK integrated health and social care settings. *Journal of Extreme Anthropology*, 5(1), 1–28. <https://doi.org/10.5617/jea.8285>
- Huby, G. (2021a, January 8). *Hvordan få maksimal uttelling av et samarbeidsprosjekt?* Kompetansebroen. <https://www.kompetansebroen.no/artikkel/hvordan-fa-maksimal-uttelling-av-et-samarbeidsprosjekt?o=ostfold>
- Huby, G. (2021b, March). *Forankring av kompetansebroen: Et samarbeidsprosjekt*. <https://www.kompetansebroen.no/forankring-av-kompetansebroen-et-samarbeidsprosjekt?o=ostfold>
- Huby, G., Kvale Saugestad, K., Warenius, B., Scott Hansen, H. P., & Hemstad Lysli, M. (2021, July 13). *Hvordan fungerer kompetansebroen Østfold så langt? Og hvordan kan vi utvikle den videre?* Kompetansebroen. <https://www.kompetansebroen.no/artikkel/hvordan-fungerer-kompetansebroen-ostfold-sa-langt-og-hvordan-kan-vi-utvikle-den-videre?o=ostfold>
- Kompetansebroen: Portal for kunnskapsdeling i helsetjenesten. (n.d.). Kompetansebroen. <https://www.kompetansebroen.no/om-kompetansebroen/?o=oa>
- Lahti, M., Hätönen, H., & Välimäki, M. (2014). Impact of e-learning on nurses' and student nurses knowledge, skills, and satisfaction: A systematic review and meta-analysis. *International Journal of Nursing Studies*, 51(1), 136–149. <https://doi.org/10.1016/j.ijnurstu.2012.12.017>
- Lave, J., & Wenger, E. (1991). *Situated learning*. <https://doi.org/10.1017/cbo9780511815355>
- Lawn, S., Zhi, X., & Morello, A. (2017). An integrative review of e-learning in the delivery of self-management support training for health professionals. *BMC Medical Education*, 17(1), 183. <https://doi.org/10.1186/s12909-017-1022-0>
- Looman, W., Struckmann, V., Köppen, J., Baltaxe, E., Czypionka, T., Huic, M., Pitter, J., Ruths, S., Stokes, J., Bal, R., Rutten-van Mölken, M., & SELFIE consortium. (2021). Drivers of successful implementation of integrated care for multi-morbidity: Mechanisms identified in 17 case studies from 8 European countries. *Social Science & Medicine*, 277, 113728. <https://doi.org/10.1016/j.socscimed.2021.113728>
- Ministry of Local Government and Modernisation. (2019). *One digital public sector: Digital strategy for the public sector 2019–2025*. https://www.regjeringen.no/contentassets/db9bf2bf10594ab88a470db40da0d10f/en-gb/pdfs/digital_strategy.pdf
- Meld. St. 47 (2008–2009). *Samhandlingsreformen – rett behandling – på rett sted – til rett tid* [Reform of cooperation – correct treatment at the right place at the right time]. Helse- og omsorgsdepartementet. <https://www.regjeringen.no/no/dokumenter/stmeld-nr-47-2009-/id567201/>
- Meld. St. 7 (2019–2020). *Nasjonal helse-og sykehusplan 2020–2023*. Helse-og omsorgsdepartementet. <https://www.regjeringen.no/no/dokumenter/meld.-st.-7-20192020/id2678667/?ch=5%C3%82%C2%A0>
- Mol, A. (2002). *The body multiple: Ontology in medical practice*. Duke University Press. <https://doi.org/10.1215/9780822384151>

- Norbye, B. (2020). Forskning og kunnskapsutvikling i helsefaglig profesjonsutdanning. I A. L. Thoresen & B Norbye (Eds.), *Forskning og kunnskapsutvikling i helsefaglig profesjonsutdanning*. Orkana Akademisk. <https://doi.org/10.33673/ooa20212>
- Norwegian Research Council. (2016). *Evaluering av samhandlingsreformen [The evaluation of the coordination reform]*. Norwegian Research Council. www.forskningsradet.no/
- Olsen, O. E., Mikkelsen, A., & Lindøe, P. H. (2002). Fallgruver i følgeforskning. *Tidsskrift for Samfunnsforskning*, 43(2), 191–217. <https://doi.org/10.18261/issn1504-291x-2002-02-02>
- Orlikowski, W. J. (1992). The duality of technology: Rethinking the concept of technology in organizations. *Organization Science*, 3(3), 398–427. <https://doi.org/10.1287/orsc.3.3.398>
- Orlikowski, W. J. (2007). Sociomaterial practices: Exploring technology at work. *Organization Studies*, 28(9), 1435–1448. <https://doi.org/10.1177/0170840607081138>
- Ot.Prp. nr. 66 (2000–2001). *Om lov om helseforetak mm*. Helse- og omsorgsdepartementet. <https://lovdata.no/dokument/NL/lov/2001-06-15-93>
- Pearson, C., & Watson, N. (2018). Implementing health and social care integration in Scotland: Renegotiating new partnerships in changing cultures of care. *Health & Social Care in the Community*. <https://doi.org/10.1111/hsc.12537>
- Pickering, A. (2010). *The mangle of practice: Time, agency, and science*. University of Chicago Press. https://play.google.com/store/books/details?id=aV9MzdNhS_4C
- Reeves, S., Fletcher, S., McLoughlin, C., Yim, A., & Patel, K. D. (2017). Interprofessional online learning for primary healthcare: Findings from a scoping review. *BMJ Open*, 7(8), e016872. <https://doi.org/10.1136/bmjopen-2017-016872>
- Ruggeri, K., Farrington, C., & Brayne, C. (2013). A global model for effective use and evaluation of e-learning in health. *Telemedicine Journal and E-Health: The Official Journal of the American Telemedicine Association*, 19(4), 312–321. <https://doi.org/10.1089/tmj.2012.0175>
- Ryan, K. T., Tsai, P. Y., Welch, G., & Zabler, B. (2020). Online clinical learning for interprofessional collaborative primary care practice in a refugee community-centered health home. *Journal of Research in Interprofessional Practice and Education*, 20, 100334. <https://doi.org/10.1016/j.xjep.2020.100334>
- Seaver, N. (2015). The nice thing about context is that everyone has it. *Media Culture & Society*, 37(7), 1101–1109. <https://doi.org/10.1177/0163443715594102>
- Star, S. L., & Ruhleder, K. (1996). Steps toward an ecology of infrastructure: Design and access for large information spaces. *Information Systems Research*, 7(1), 111–134. <https://doi.org/10.1287/isre.7.1.111>
- Strathern, M., Crick, M. R., Fardon, R., Hatch, E., Jarvie, I. C., Pinxten, R., Rabinow, P., Tonkin, E., Tyler, S. A., & Marcus, G. E. (1987). Out of context: The persuasive fictions of anthropology. *Current Anthropology*, 28(3), 251–281. <https://doi.org/10.1086/203527>
- Suchman, L. (2007). *Human-machine reconfigurations: Plans and situated actions*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511808418>
- Suchman, L. (2012). Configuration. In C. Lury, N. Wakeford (Eds.), *Inventive methods* (pp. 48–60). Routledge. <https://doi.org/10.4324/9780203854921>
- Swanborn, P. (2010). *Case study research: What, why and how?* SAGE. <https://doi.org/10.4135/9781526485168>
- Wenger, E. (1998). *Communities of practice*. <https://doi.org/10.1017/cbo9780511803932>
- Wenger, E. (2010). Communities of practice and social learning systems: The career of a concept. In C. Blackmore (Ed.), *Social learning systems and communities of practice* (pp. 179–198). Springer London. https://doi.org/10.1007/978-1-84996-133-2_11
- World Health Organization. (2008). *Primary health care: Now more than ever* [The World Health Report 2008]. World Health Organization. <https://market.android.com/details?id=book-q-EGxRjrIo4C>
- Yin, R. K. (2017). *Case study research and applications: Design and methods*. Sage Publications.

