INFRASTRUCTURES FOR PATIENT-CENTEREDNESS: CONNECTING NOVEL AND EXISTING COMPONENTS TO SERVE STRATEGIC AGENDAS FOR CHANGE

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Complete Research

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Abstract

Web-based access to health services, health information and personal health records are increasingly offered to patients for enabling a new, more active patient role. However, incorporating such solutions into national health infrastructures poses challenges. In an information infrastructure perspective, the design of such technologies requires two main intertwined activities: designing ‘the new’ and dealing with ‘the old’ (i.e. the already established infrastructural arrangement). In this paper, we study such activities through the concept of institutional work to investigate how actors go about creating, maintaining and disrupting what was established in provider-centric healthcare. This is investigated in the context of an ongoing national initiative to design and develop a web-based, platform that will support shifting healthcare towards patient-centeredness. Analysing actors’ efforts for “patient authentication”, “availability” and “comprehensiveness”, we identify the pivotal role of activities that are about rearranging seemingly separate technological and institutional components.

Keywords: Patient-centeredness, Information Infrastructure, Institutional Work, Re-arrangement
1 Introduction

In this paper, we examine a national initiative that aims to shift Norwegian public healthcare towards patient-centeredness by leveraging web technologies. We follow the team engaged in this initiative and we note how they aim to create “new institutions from the building blocks they find at hand” (Dobbin 2010). The new institutions in our case are digital services to support patient-centred healthcare delivery. Analysing the approach followed by this team we identify the pivotal role of linking, unlinking, relinking seemingly separate technological and institutional arrangements that are already established. We find that working towards technology enabled patient-centeredness entails an active engagement with pre-existing arrangements.

The empirical material for our analysis is sourced from the study of the on-going Norwegian Government’s effort to ensure that each person will have the opportunity to be involved in the processes and decisions about their own health. Part of this effort is the creation of new digital services to facilitate patients’ involvement and the assumption of a more active role. In other words, the Norwegian Government aims to shift healthcare towards patient-centeredness. Patient-centeredness in healthcare entails keeping patients informed, involving them in decisions and self-health management activities, improving communication and acknowledging their experience of illness and psychosocial context (Berwick 2009; Coulter and Dunn 2002; Davis et al. 2005; Epstein 2000; Stewart et al. 1995). The shift from provider-centered healthcare towards patient-centeredness aims to address concerns about a challenging future (aging population, increase of patients living with chronic conditions, citizens’ pressure for higher quality health services). In this context, new delivery models are sought that will allow comprehensiveness of care and elimination of health inequalities (as demanded by societies) while simultaneously ensuring managed and non-prohibitive cost. Just as “patient-centered” care is increasingly becoming part of the national healthcare agenda, numerous patient-oriented systems are being put in place: patient accessible registries and e-discharges, personal health records, consultation booking systems, health management systems for chronic patients, pre-operative preparation systems, e-prescription, e-consultation, information portals and patient platforms or interest groups, mobile phone applications and widgets.

Patient-oriented systems are instrumental for enabling a new, more active patient role. But, the proliferation of such systems does not guarantee “patient-centeredness”. Putting in place an overwhelming maze of information systems is unlikely to strengthen significantly patient-healthcare provider coordination and substantially facilitate patients’ involvement in their own care. Rather, to have real impact, this fragmented multitude of applications and technological capabilities has to be turned to an enabling information infrastructure that will provide a sound basis for novel delivery models (Epstein and Street 2011). Our research takes an Information Infrastructure perspective” (Hanseth and Lyytinen 2010; Pollock and Williams 2010) which conceptualizes technological capabilities as elements in larger infrastructural arrangements. Infrastructural development is the outcome of complex processes where technological components, stakeholder interests, work practices and conventions need to be orchestrated. Furthermore, to make sense of the work performed in order to shift healthcare towards patient-centeredness, we draw from the institutional work concept that describes “the practices of individual and collective actors aimed at creating, maintaining, and disrupting institutions” (Lawrence et al. 2011). By focusing to institutional work we aim to provide some insight on the challenges of creating new arrangements that “emerge from localized processes of negotiations and pre-existing institutional, infrastructural, and material relations” (Timmermans and Berg 1997).

The paper is structured as follows. First, we lay out the theoretical background, then we provide an overview of our case and we describe the method used to collect empirical data. Subsequently, we
describe and present our analysis and interpretation. Finally, we conclude by discussing insights from our analysis, pointing also to the limitations of our work and to possible directions for further research.

2 Theoretical Background

In the remaining of the paper, we explore the work required for making possible technology enabled patient-centeredness. In our analysis we adopt the Information Infrastructures’ perspective (Hanseth and Lyytinen 2010) and the concept of “institutional work” (Lawrence and Suddaby 2006).

Bringing together notions from systems’ theory, sociology, and an ethnographic approach, a number of studies discuss how ICT capabilities, materialities, people, and social forces are linked together, forming “information infrastructures” (Grisot and Vassilakopoulou 2013; Hanseth and Monteiro 1997; Hanseth and Lyytinen 2010; Pollock and Williams 2010; Star and Ruhleder 1996). Information infrastructures are sociotechnical bases to build upon; they cannot be defined through a distinct set of functions (unlike specific information technology applications), or strict boundaries. Such infrastructural arrangements are pivotal for the performance of everyday activities that are information intensive. In general, the term infrastructure implies a focus on underlying structural supports which enable action, create connections, and have durability (Bowker and Star 1999).

When studying the development and implementation of information technologies, an infrastructural approach directs the attention to the interrelations between pre-existing arrangements (the installed base) and new elements. Furthermore, taking an infrastructural perspective means paying attention to durability, permanence and to the investigation of strategies for effectively managing future evolution (Bygstad and Hanseth 2010; Ciborra et al. 2000; Hanseth and Aanestad 2003). Ribes and Finholt (2009) have analysed infrastructural development and identified three different key concerns, that they have entitled “activity scales”. The three activity scales that take place while building novel infrastructures are: enacting technology, organizing work (meaning internal project organising) and institutionalising. The third scale (institutionalising) is concerned with the activities related to “generating sustainable goods and services linked to social or collective purposes with connotations of permanence transcending individual interests or intentions” (Ribes and Finholt 2009).

Lawrence and Suddaby developed the concept of “institutional work” to describe “the purposive action of individuals and organizations aimed at creating, maintaining and disrupting institutions” (Lawrence and Suddaby 2006; Lawrence et al. 2011). The two authors identified nine types of institutional work related to the creation of institutions that can be further grouped in three categories: a) mimicry, theorizing, educating (Lawrence and Suddaby 2006). Focusing to institutional work orients attention towards the actions of practitioners that aim to put in place new structures within existing settings. The concept not only proposes a shift towards everyday action but also by emphasizing action types, rather than action accomplishment (Lawrence et al. 2009), it complements the framework proposed by Tolbert and Zucker which systematizes institutionalizing processes based on their outcome (Tolbert and Zucker 1996), i.e. the relative status reached by structural arrangements via habitualization, objectification and sedimentation processes. Accordingly, the action types proposed by Lawrence and Suddaby are appropriate sensitising devices for the study of on-going projects with unforeseeable outcomes.

The concept of institutional work can be leveraged to inform inquiries on the “third scale” of infrastructural development as defined by Ribes and Finholt: the institutionalising scale (Ribes and Finholt 2009). It orients attention to activities that are about exploiting or disrupting already established arrangements. These are activities related to the selection, combination and reworking of an array of already existing components (hardware, software, classification systems, organisational processes) and their integration with new components (Pollock and Williams 2010).
3 Case Overview and Method

3.1 HealthNorway

After identifying that “the services provided by the health and care sector are fragmented, and patients’ needs for coordinated services have not always been adequately met” (Norwegian Ministry of Health and Care Services 2013), the Norwegian Government took the decision to put in place a common platform (“HealthNorway”). This new platform supports a) dissemination of information on prevention, health, illness, treatment, patient’s rights, quality indicators for health facilities, b) access to records (starting with access to e-prescriptions, vaccinations and core medical records), c) e-health interactive services both administrative (such as GP change and appointment bookings) and medical (e-consultations). Figure 1 below gives a graphical overview of the new platform.

The stated aim for “HealthNorway” is to provide secure digital services, and to help patients perceive services as available and comprehensive (Norwegian Ministry of Health and Care Services 2012). The platform aims to become a central part of Norway’s national healthcare system. The initiative started in 2011 and “HealthNorway” is already deployed while it is being continuously expanded.

![Graphical representation of “HealthNorway”](image)

3.2 Method

Our research is designed as an interpretive case study (Eisenhardt 1989; Klein and Myers 1999). The purpose of the case study has been to investigate the tactics and approaches followed by the people engaged in putting “HealthNorway” in place. The study had a first phase in the period January-June 2013 with a focus on the overall vision for the portal. In this phase we have assembled and analysed a range of academic, government and industry studies, and programmatic and strategic government documents on the deployment of technologies in the Norwegian healthcare sector. A second phase of primary data collection took place from August to December 2013 with intensive fieldwork within the e-health division of the Health Organization. In this second phase we have specifically focused on one of the projects for further development of the platform, namely a project for the development of e-dialogue between patients and GPs. In this project we have attended weekly meetings, workshops, and other thematic meetings. During observation sessions detailed notes were taken. In addition, we have conducted a total of 14 open-ended semi-structured interviews with various members of the project
team, including the project manager. Interviews lasted approximately 1 hour each and have been recorded and fully transcribed. Finally, we reviewed preparatory meeting documents, presentation slides, reports, and project deliverables as we have been granted access to a “Sharepoint” directory with project documents. Table 1 that follows summarises our data sources.

<table>
<thead>
<tr>
<th>Source</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews</td>
<td>14 semi-structured interviews with project team members. All interviews were fully recorded and transcribed verbatim.</td>
</tr>
<tr>
<td>Observation of weekly meetings</td>
<td>14 weekly meetings (status meetings with the presence of the whole team, standard duration of 60 minutes each). Detailed notes taken.</td>
</tr>
<tr>
<td>Participation in workshops and thematic meetings</td>
<td>1 design workshop (full day) and 4 thematic meetings (approximately 60 minutes each)</td>
</tr>
<tr>
<td>Document analysis</td>
<td>Phase 1: Norwegian Healthcare Strategic Planning Documents; Policy, Regulation and Standards Documents; Phase 2: Project documents (reviewed preparatory meeting documents, presentation slides, reports, and project deliverables)</td>
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Table 1. Data Sources

4 Case Analysis

4.1 Digital Services to support a Healthcare Shift towards a stronger Patient Role

The case under study is part of the Norwegian Government’s effort to ensure that each resident will have the opportunity to be involved meaningfully in processes and decisions about their own health. Specifically, the Norwegian “National Strategy for Quality Improvement in Health and Social Services (2005-2015)” stipulates: “A well-informed, participative user has a greater possibility to achieve a good result in his or her interaction with health and social services. Reliable information shall be available and understandable for ordinary people.” (Norwegian Directorate of Health 2005). Furthermore, the “National Health Plan for Norway (2007–2010)” provided for a stronger user role. The plan stated: “we want users to know about the services and that they are meant to participate and influence. (...) Users and their relatives are experts concerning their own situations and what they can master. This resource can be utilised better in the treatment and rehabilitation of individual patients, but it is also necessary for the planning and development of the health services. A majority of today’s patients are active users who want to receive good information so that they can make good decisions themselves to improve their own health. The users want to set goals for their treatment themselves – some want to run a marathon after a hip operation, while for others being able to fetch the post is enough. Some will choose life-prolonging treatment regardless of how great the side effects are, while others will decline such treatment. (...) Being taken seriously and feeling that one is respected as a patient is important to everybody – both in the light of human dignity and because we know that users who participate in their own treatment often achieve a better result” (Norwegian Ministry of Health and Care Services 2007).

To operationalize the articulated strategy and high level plans it was decided by the government to provide secure digital services to facilitate contact with healthcare, and to develop them in such a way that they will be perceived by patients as available and comprehensive (Norwegian Ministry of Health
and Care Services 2012). All services are to be offered through “HealthNorway” which will become a single common place for access to information (on prevention, health, illness, treatment, patient's rights, quality indicators for health facilities), access to health records and e-health services. Patients need to be ensured that unauthorised access will not be possible and that their privacy will be guaranteed (Halamka et al. 2008; Landeweerd et al. 2013). They will also need to be able to access “HealthNorway” whenever needed and at their own convenience. This is important not only because patients are already used to be able to access healthcare 24 hours a day and 7 days a week but also because this is the norm and the expectation for web-based services (Haggerty et al. 2008; Wilkins 1999). Finally, it is important to ensure comprehensiveness in order to remedy the fragmentation of digital health services identified (Norwegian Ministry of Health and Care Services 2013). The aim for “HealthNorway” is not only to put in place a set of new functionalities but most importantly to facilitate the envisioned shift from provider-centric to patient-centric healthcare.

In the next sections we present the approach adopted for ensuring the security, availability and comprehensiveness of “HealthNorway” as stipulated in policy and strategic planning documents. These three qualities are considered by the Government as pivotal for the success of the new initiative within the Norwegian Healthcare environment. We analyse the approach adopted by taking an information infrastructure perspective, i.e. we look on how multiple technological capabilities, materialities and people are linked and orchestrated to enable action. The analysis does not focus on the technical aspects of it but rather on the work it takes in order to shift pre-existing arrangements in order to accommodate the new patient-centred logic. Hence, we focus to the institutional work required in order not to simply put in place applications that are patient-centred but rather, to move the entire healthcare system toward patient-centeredness. It is a strategic decision of the Norwegian Government (Norwegian Directorate of Health 2005) to enable patients to be well-informed, and participative and this is different to the currently prevailing provider-centric logic where knowledge asymmetries and complex service delivery arrangements impede information flows and participatory involvement (Wilson and Strong 2014). The three following sections summarise the tactics and approaches followed by the people engaged in putting “HealthNorway” in place.

4.2 A Secure Platform: Patient Authentication

Users of “HealthNorway” need to be ensured that unauthorised access will not be possible and that their privacy will be guaranteed. This means that there should be an authentication mechanism in place to uniquely identify patients. Most web applications include such authentication mechanisms. They might be either specific to the application or shared within a group of applications (Halamka et al. 2008; Leavitt 2004). For “HealthNorway” the concurrent adoption of multiple alternative authentication mechanisms was decided. Three alternative authentication solutions are currently available for patients to choose from: BankID (the Banking Sector’s common digital authentication and online signing solution), Buypass (jointly owned by Norway Post and Norwegian Lottery) and Commfides (a private solution). This way, without developing a tailor-made authentication component and without being dependent to a single infrastructural resource, “HealthNorway” meets the standards of the highest security level (level 4, defined by Norwegian law as the level intended for access and protection of sensitive information).

By reusing already available components, “HealthNorway” not only minimised preparation time but also facilitated uptake. The authentication mechanisms embraced by the new platform are already established and have millions of users. They are standardized and sufficiently tested as well as a familiar and user friendly. By building upon three alternatives, some degree of redundancy is introduced leading to reduced sensitivity to possible problems in the future evolution of any of the authentication mechanisms. Also, it is made possible to include in the future more authentication possibilities. It is interesting to note that although there is also a government solution (MiniID) for authentication and access control to public services, this has not been adopted. This is because
BankID, Buypass and Commfides allow someone to log in using the highest level of security, while MinID only provides a medium-high level of security.

Making sure that patient authentication is trustful and reliable is a prerequisite for vesting patients with new rights and interaction possibilities. Lack of trust could lead the new platform to failure (Currie and Guah 2004; Klein. 2006; Landeweerd et al. 2013). Advocacy efforts for the definition of new patient-centred rules and processes within healthcare would be seriously undermined by mistrust to the new platform. In that sense, addressing the authentication issue is not a mere technical requirement but key preparatory work that needs to be done in order to make possible some devolution of power to the patients. It is part of the institutional work that needs to be done for enacting the new rules for patient-centeredness stipulated in the policy documents. Consequently, authentication has not been addressed as a mere technicality but rather as an issue with political significance for the enactment of new rules and an opportunity for welding together various user groups.

Lawrence and Suddaby (2006) identify three forms of institutional work that focus on rules (i.e. vesting, defining and advocacy). Advocacy work is a necessary precursor for defining new rules that confer status and privilege, which in turn provide the foundation for vesting actors with new rights. In our case, institutional work for enacting new rules is not only performed via rhetorics and careful legitimisation of the effort, it is also performed by building upon already established and trusted solutions and drawing from their acceptability. People doing the actual work of putting the new platform in place are actively engaged in interpreting institutions and are actively choosing to reproduce some in order to facilitate the disruption of others.

4.3 An Available Platform: Availability when Needed

Availability means that information and services will be accessible to authorised parties at appropriate times (Pfleeger and Pfleeger 2003). In other words, if a person has been authenticated and has access rights, that access should be possible when requested. Patients are already used to be able to access healthcare 24 hours a day and 7 days a week (24/7). Furthermore, they are also used to 24/7 availability of web-based services because this is the norm and the expectation from more mature types of service (e.g. banking services and travel services). So, any time of the day can be deemed as appropriate for patient access. This availability requirement poses significant challenges.

“HealthNorway” is a platform for access to health information, access to health records and e-health services (such as appointment bookings and e-consultations). Although non personal information (on prevention, health, illness, treatment, patient’s rights, quality indicators for health facilities) can be stored and managed centrally by the governmental entity that maintains the platform, the same is not possible for patients’ health records. The content and handling of patient records is regulated by the Health Care Personnel Act, the Patients’ Rights Act (both adopted in 1999) and the Personal Health Data Filing System Act (adopted in 2001). Patients have the right to access and obtain copies of their records but the digital records cannot reside out of the boundaries of the healthcare organisation that generated them. Within healthcare organizations, stored health data can only be directly accessed by the data controller, the processor, or anybody working under their instructions. This makes illegal to share health databases across organizational boundaries or to log on to each other’s databases (Doupi et al. 2010).

This legal precaution protects patients from possible leakages and unintended use of their sensitive information but poses significant challenges to the availability requirement for “HealthNorway”. As not all data can be stored and managed centrally, the new platform will have to address personal data requests by pointing to the various healthcare information systems where data reside. Some of these systems are meant to be available continuously throughout the day (e.g. hospital systems) but some others can be turned off during night or weekends (e.g. in primary care). Furthermore, as some systems might be turned off during afterhours, patient requests for e-health services (e.g. appointment
bookings and e-consultations) will not reach their intended recipients and they will have to be stored at least temporarily somewhere centrally. This way, services will be perceived as available by patients. A project document from “HealthNorway” explains this point: “It is a goal that the services provided to citizens through “HealthNorway” will appear as "available" for citizens. This means, among other things, that citizens should have access to conduct dialogue with General Practitioners outside normal office hours (...) For example, citizens must be able to send an inquiry to the doctor, and be assured that this will be received and handled, although doctors might have turned off their server”.

Although the new platform was initially envisioned as a thin mediating layer between patients and healthcare information systems and practitioners, it was soon realised that a health archive would need to be included also. This archive will be the place for storing centrally patient related information that will be owned and controlled by patients and will be made continuously available to them. This type of archive does not exist and was not even foreseen as a possibility in the current “provider centric” healthcare arrangement. A shift towards patient-centeredness brings in new availability requirements that strain the existing settled relationships for data storing and exchange. A project team member says: “we still have not got … (pause) we need to find a solution. We are now cooperating with the Data Protection Authority to find a solution”. Availability has become an issue of proper recombination of already existing digital resources (the various existing systems and databases) and some new components. Even more importantly, it requires efforts to reconfigure belief systems: especially changing norms and (re)constructing networks. This is the second type of institutional work identified by Lawrence and Suddaby (2006).

4.4 A Comprehensive Platform: Coherence and Inclusiveness

The Norwegian government has identified that “the services provided by the health and care sector are fragmented, and patients’ needs for coordinated services have not always been adequately met” (Norwegian Ministry of Health and Care Services 2013). Similarly to other well developed healthcare systems, the Norwegian healthcare landscape already includes many applications that support patient-healthcare provider communication. Some of those applications belong to the public sector (nationwide: e.g. e-prescription, vaccination system, core medical records, and, hospital based: e.g. for the communication with chronic patients) and some are private initiatives (e.g. various vendors have developed modules that link to the systems of General Practitioners and allow digital communication with patients and booking of appointments over the internet). The limited integration of internet based systems in the healthcare sector has been identified as a major barrier for the advancement and uptake of e-health initiatives (Wiklund and Lindh 2005).

Simply collecting all the diverse applications and services and providing a single gateway to them would not be a real remedy for the fragmentation experienced. “HealthNorway” does not aspire to become simply a web portal for bringing information and services together. The aspiration is to go beyond simply collecting in one place the multiple applications that would have been different web entities. The aim is to consolidate, simplify and adapt the user experience to patients’ needs. A project team member says: “it will be a different system in the backend but some processes will be the same, so we are focusing on making the integration platform very independent from the system that is on the other side”. Another team member says: “we want this information from your GP to be linked to information from other instances, from hospitals so that you can see everything together”. And a third team member says: “one place where you do all your reservations and all your consents. Because it would make it a lot easier for the citizen. Easier to manage.”

Consolidating all the disparate pre-existing components is a challenging task that goes beyond technical complexity. The main challenge lies with the conciliation of different types of organised information that has been arranged in specific ways to serve specific purposes. These purposes were defined in most cases from the healthcare providers’ side and it takes some effort to make the information presented in a coherent, consistent and meaningful way to patients. For example, patients
can access medication prescription information both via e-prescription and via the core medical records (both accessed through “HealthNorway”). This can be confusing as the information content is not the same. The information accessed via e-prescription is about the medicaments prescribed by doctors while, the information accessed via the core medical records is about the subset of medicaments prescribed that has already been dispensed to the patient. This difference relates to the different purposes of the two underlying applications. E-prescribing has been introduced to facilitate the circulation of information between prescribing doctors and pharmacies while the core medical records have been introduced to support healthcare personnel in emergency situations. For emergencies, only the information on the medicaments that the patient might be actually taking is crucial (so only the information on medicaments that have been dispensed is provided). But in order to avoid confusing the patients with the seemingly inconsistent data on prescriptions a lot of work related to theorizing and educating is required (Lawrence and Suddaby 2006). The abstract categorizations employed by various healthcare practitioners and patients need to be aligned or at least associated. The work done for making available to patients information on prevention, health and illness, illustrates even more vividly that efforts made within “HealthNorway” go beyond mere congregation towards consolidation, re-categorization, explanation and reordering. Specifically, information found on the platform comes from various organizations within the health sector that contribute content (e.g. the Norwegian Health Library, the Public Health Institute, the Doctors’ Association etc.). The content delivered does not get published as it is but goes through an editorial process. A team of professional editors adjusts the language, style and tone of the scientific documents to patients’ needs. In the site for “Health Norway” it is clearly stated that the organisations delivering information are responsible “for the content being up-to-date, knowledge-based and of high quality” but at the same time it is noted that “the Norwegian Health Directorate is the executive editor” for all content.

5 Discussion and Conclusion

In this paper, we examine a national initiative that aims to shift Norwegian public healthcare towards patient-centeredness by leveraging web technologies. We follow the team engaged in this initiative and we note how they aim to create “new institutions from the building blocks they find at hand”. With this focus in mind we have conducted an interpretive analysis of our empirical data and have specifically investigated how the existing infrastructural arrangements were taken into account, endorsed or challenged.

Efforts of building national information infrastructures for healthcare have proved to be dramatically challenging (Berner et al. 2005; Currie and Guah 2007; Greenhalgh et al. 2010; Westbrook and Braithwaite 2010). While national initiatives aim for large-scale solutions, they need to build on existing and ongoing local digitalization processes; furthermore they are frequently confronted by restricting regulations that deal with a highly sensitive and complex sector. Building national healthcare information infrastructures open to patients’ use brings additional challenges. These additional challenges relate to the personal nature of the encounters between patients and healthcare providers and of the information exchanged, the regulatory unpreparedness for the new patient-oriented systems and the difficulties in re-arranging systems and processes to accommodate a new more active patient role. Our analysis of the case reported in this paper illustrates some of these challenges and shows how most of the issues that could easily be classified as “technical” (e.g. authentication and availability) required a sociotechnical sensibility. The case highlights the complex interplay between work done in technology design and the long term institutional change process. More specifically, in the analysis of our case of infrastructural building, we have investigated the participants’ work to create, maintain and disrupt what was considered legitimate in the provider-centric relation between patients and the national health system. We have presented the linking, unlinking, relinking of an array of already existing components related to authentication, availability and comprehensiveness of the envisioned infrastructure.
This research aims to bring some contribution both to theory and practice. At the theoretical level, we propose that the concept of institutional work (Lawrence and Suddaby 2006) can be leveraged to inform inquiries on the evolution of information infrastructures (Hanseth and Lyytinen 2010). Institutional work can be used to frame the analysis of the effort it takes to generate sustainable infrastructural arrangements linked to social or collective purposes (Ribes and Finholt 2009). In an information infrastructure perspective, the design of new enabling technologies requires two main intertwined activities: designing ‘the new’ and dealing with ‘the old’ (i.e. the already established infrastructural arrangement). This attention to the interplay between old and new can be guided by the concept of institutional work.

A number of scholars have investigated the development of information infrastructures and produced important insight on cases where: a) infrastructures have grown out of “greenfield” initial conditions, b) infrastructures have grown out of the antagonism of competing parallels, c) infrastructures have grown through historical accumulation through control and drift dynamics, d) infrastructures have grown with the gradual inclusion and domestication of previously independent innovative components into already well-established arrangements (Aanestad and Jensen 2011; Ciborra et al. 2000; Grisot and Vassilakopoulou 2011; Hanseth and Braa 2001; Hanseth and Aanestad 2003; Hanseth and Lyytinen 2010; Pipek and Wulf 2009). In the research reported here we aim to be explicit about a mode of infrastructural development that is mostly about selective linkages between previously unrelated technical capabilities that are orchestrated to serve strategic agendas for change.

At the practical level, our research provides a concise account of currently attempted changes within Norwegian healthcare. This could be useful for practitioners that seek to plan and promulgate technologically supported reconfigurations within healthcare. The approach described in this paper is certainly specific to the current situation within Norwegian Healthcare were a significant number of ICT related initiatives have already been taken. HealthNorway is a conscious effort to leverage parallel nationwide initiatives. Future work could build on this study to examine the approaches followed for patient authentication, availability and comprehensiveness in similar platforms at different countries. In case that it becomes possible to follow this research direction longitudinally, there would be a potential to come up with interesting and probably analytically generalizable results (Yin 2003) by comparing the different trajectories followed in the different cases.

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