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# THEORIZATION AND TRANSLATION IN INFORMATION TECHNOLOGY INSTITUTIONALIZATION: EVIDENCE FROM DANISH HOME CARE[1]

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*Although institutional theory has become a more dominant perspective in information systems research, studies have only paid scant attention to how field dynamics and organizational processes coevolve during information technology institutionalization. Against this backdrop, we present a new conceptualization based on the "traveling of ideas" metaphor that distinguishes between **theorization** of ideas about IT usage across an organizational field and **translation** of such ideas into practical use of IT within particular organizations. Drawing on these distinct analytical views, we posit that IT institutionalization is constituted through recursive intertwining of theorization and translation involving both linguistic and material objects. To illustrate the detailed workings of this conceptualization, we apply it to a longitudinal study of mobile IT institutionalization within Danish home care. We demonstrate how heterogeneous actors within the Danish home care field theorized ideas about mobile IT usage and how these ideas translated into different local arrangements. Further, our account reveals a complex institutionalization process in which mobile IT was first seen as a fashionable recipe for improvement but subsequently became the subject of controversy. The paper adds to the emerging process and discourse literature on IT institutionalization by shedding new light on how IT ideas travel across a field and within individual organizations, how they transform and become legitimized over time, and how they take on different linguistic and material forms across organizational settings.*

**Keywords**: IT institutionalization, institutional theory, theorization, translation, mobile IT

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## Introduction

Organizations are constantly faced with the need to innovate and often look for solutions in new ideas that circulate in their environment (Czarniawska and Sevón 2005; Sahlin-Andersson 1996). This is particularly true when it comes to information technology. Indeed, copying popular IT ideas is common (Baskerville and Myers 2009; Swanson and Ramiller 2004; Wang 2010). Consistent with the increasing emphasis on how ideas (or linguistic objects; Nicolini et al. 2011) that circulate within an organizational field contribute to shaping organizations, researchers have started to challenge the dominant diffusion perspective on IT (Rogers 1962, 1983). A series of information system studies have suggested that instead of thinking of how fixed or immutable IT artifacts flow, ready-to-wear (Meyer and Scott 1983) across organizational boundaries, researchers must deal with how linguistic and material objects are created, reinforced, and transformed within and between organizations (e.g., Kaganer et al. 2010; Newell et al. 2000; Orlikowski 2000; Swanson and Ramiller 1997). Still, we know little about how IT ideas and associated material objects unfold and coevolve (Wang and Ramiller 2009). Some studies have given weight to material objects and focused on the institutionalization of new information technologies within an adopting organization (e.g., Baptista 2009; Lyytinen et al. 2009; Orlikowski 2000, 2007) while other studies have emphasized the linguistic and symbolic aspects of how ideas about new ITs are shaped within the broader organizational field (e.g., Currie 2004; Kaganer et al. 2010; Wang and Ramiller 2009). However, Wang and Ramiller (2009) note that researchers must investigate in more detail the inter-connected processes by which IT discourses are created, translated, and materialized within individual organizations. This indicates the importance of examining such processes from an institutional theory perspective (Mignerat and Rivard 2009).

Accordingly, we draw on Scandinavian institutionalism to highlight the emergence and legitimization of new IT ideas across organizational fields, their reinforcement and transformation over time, and variations in related IT usage arrangements within specific organizations. We recognize that IT institutionalization is a nonlinear process that not only takes place within the organizations where IT is eventually used, but equally importantly within the broader organizational field (King et al. 1994; Orlikowski and Barley 2001). Specifically, we continue the efforts of Newell et al. (2000) and propose a new conceptualization of IT institutionalization rooted in the metaphor of "traveling of ideas" (Czarniawska and Joerges 1996). Hence, distinguishing between theorization of ideas within an organizational field (Greenwood et al. 2002; Strang and Meyer 1993) and translation of ideas into practical use

within particular organizations (Czarniawska 2009; Czarniawska and Joerges 1996), we pose the following question: *How can we understand IT institutionalization as recursive intertwining of theorization of ideas about information technologies across an organizational field and translation of such ideas into specific organizational usage arrangements?*

Traditionally, institutional theory has emphasized stability and similarity within fields (DiMaggio and Powell 1983), assuming that ideas stabilize so organizations adopt ready-to-wear scripts (Scott and Meyer 1983). More recently scholars have recognized that ideas may not emerge unchanged as they move from one place to another since organizational translation practices redefine and modify the meaning and properties of ideas and technologies. We argue that this is also the case for IT ideas, which, despite their material presence, also need to be translated into everyday practices in adopting organizations (Orlikowski 2000). By zooming-in and zooming-out (Nicolini 2011), we synthesize these ideas of theorization and translation to explore how IT institutionalization is shaped within organizations and beyond their boundaries.

To develop and validate the proposed conceptualization, we undertook a longitudinal study of a field that underwent major IT-related changes over a 10-year period: public home care in Denmark from 1998 to 2008. Over that period, the vast majority of home care agencies adopted mobile IT for their care workers and nurses, and work practices changed substantially. Introducing mobile IT was part of the Danish government's 2001 modernization program for the public sector, which aimed to increase efficiency and effectiveness in home care service delivery. Home care is a crucial part of the Danish welfare system formed by well-defined regulatory processes and with a recognized participant circle. It is within such structured fields with multiple stakeholders and competing interests that institutional mechanisms are most readily studied (DiMaggio and Powell 1983).

Our analyses reveal how ideas about mobile IT usage traveled through a changing discourse across the home care organizational field and how this discourse not only influenced but also was influenced by implementation efforts within individual home care agencies. We demonstrate how heterogeneous actors theorized and jointly supported mobile IT as a ready-to-wear (Scott and Meyer 1983) technology by constructing positive and politically acceptable ideas to legitimize the technology, to ensure government funding, and to facilitate swift diffusion into individual home care agencies. In addition, our analyses reveal how these theorization practices recursively intertwined with local translation practices and added to the complexity of mobile IT institutionalization as an

idea that was first seen as fashionable and feasible for improving Danish home care but subsequently became the subject of controversy. Hence, although field-level pressures for conformity existed (DiMaggio and Powell 1983), and although the adopted technologies were fairly similar, we illustrate how the enactment of mobile IT usage took a variety of forms as the idea was confronted by local traditions in specific home care agencies.

## Theoretical Background

In institutional theory, institutions represent an established social order (Berger and Luckmann 1966). Thus, institutions are socially constructed "rules of the game" (Meyer and Rowan 1977, p. 341) that both constrain and enable social activity (Giddens 1984) by providing frameworks for judging which behavioral, organizing, discursive, and interaction patterns are appropriate (i.e., accepted as legitimate; Colyvas and Powell 2008). Institutionalization denotes the process whereby social activity becomes institutionalized and eventually is more or less taken-for-granted (Jepperson 1991). Once fully institutionalized, ideas can survive across generations, uncritically accepted as the definitive way of behaving (Tolbert and Zucker 1996), but the overall process is cyclical as "institutions emerge, diffuse, change, die, and are replaced by new institutions" (Haunschild and Chandler 2008, p. 630). Moreover, even though ideas and their associated structures and practices may survive across generations, it is recognized that even stable institutions require ongoing maintenance work (Lawrence and Suddaby 2006), because they are always unfinished (DiMaggio 1988).

Actors across an organizational field are the drivers of these ongoing processes of institutionalization. An organizational field defines the set of organizations subject to the same regulatory processes or it represents shared meaning systems among a community of organizations (Scott 1995, p. 56), including stakeholders such as competitors, suppliers, regulators, and consumers (DiMaggio and Powell 1983; Greenwood et al. 2002). Dacin et al. (2002, p. 51) have used the metaphor "being in the same boat" to recognize the boundaries of fields. However, fields are not static; rather, they are continuously constituted as participants enter and leave and new agendas emerge (Hoffman 1999). Hence, while stakeholders in a field may uphold a shared definition of certain activities, they may struggle over how these activities should be developed in practice (Bourdieu 1988). Moreover, fields are often infused with competing beliefs and rationales (i.e., institutional logic) about how to organize and structure practice (Friedland and Alford 1991). Where such competing forms of logic (Reay and Hinings 2009) exist, as in Danish home care where a welfare-professional logic are constantly challenged by a market-efficiency logic (Rostgaard 2012), the organizational field is described as pluralistic (Jazabkowski 2009; Van Gestel and Hillebrand 2011).

Turning to the application of institutional theory in IS research, this literature can roughly be divided into four streams as summarized in Table 1. The majority of studies (Mignerat and Rivard 2009) examine how institutions *affect* organizational decisions to adopt IT (e.g., Chatterjee et al. 2002; Son and Benbasat 2007; Teo et al. 2003; Tingling and Parent 2002). This literature is particularly inspired by the seminal work of DiMaggio and Powell (1983) and their conceptualization of three kinds of isomorphic pressures on organizations: coercive, normative, and mimetic pressures. A second stream examines the *interaction* between IT and institutions (e.g., Cho and Mathiassen 2007; Sia and Soh 2007; Soh and Sia 2004), assuming that use of a technology will be greatly facilitated when it is congruent with existing institutions, and it will encounter implementation difficulty when it runs counter to existing institutions. A third stream of literature, concentrated in the last few years, has examined the IT institutionalization *process* (e.g., Backhouse et al. 2006; Baptista et al. 2010; Currie and Guah 2007; Lyytinen et al. 2009; Miscione 2007). This literature refers to the stages of institutionalizing ITs. For example, Baptista et al. (2010) and Lyytinen et al. (2009) examine the institutionalization of specific ITs (intranet and an ERP system, respectively) with a focus on emergent organizational processes. Finally, a fourth stream investigates more closely the *discourse* in institutionalization processes such as IT-legitimating processes and the social cognition that drives IT institutionalization (e.g., Kaganer et al. 2010; Newell et al. 2000; Swanson and Ramiller 1997; Wang 2010). One part of this stream is inspired by management fashion theory (Abrahamson 1996) and highlights the roles of "fashion setters"— management gurus, consulting, media, and business schools— in directing attention to innovations (see the special issue of *Organization Studies* (32:5) on "Fashion in Research and in Management"). Another, but related, part of this research is inspired by organizing vision theory (Swanson and Ramiller 1997, 2004), which suggests organizations interested in an IT innovation form a community that creates a vision for how to utilize IT. Appreciating that this body of literature has established a strong platform for understanding and investigating IT institutionalization, the current research was designed to combine and further contribute to the emerging process and discourse literatures, while also recognizing how existing institutions affect and interact with these emerging processes and discourses.

| Table 1. IT Institutionalization Literature | | | | |
|---|---|---|---|---|
| **Perspective** | **References** | **Unit of Analysis** | **Core Idea** | **Representative Studies** |
| Institutional *effect* literature | DiMaggio and Powell (1983); King et al. (1994) | Society, organization, individual | Examine the effect of institutional pressures on IT adoption | Teo et al. (2003); Liang et al. (2007) |
| | Abrahamson (1996) | Organization | Examine fashion effects on IT adoption | Wang (2010) |
| Institutional *interaction* literature | Oliver (1991) | Organization | Examine the interaction between IT and an institution | Cho and Mathiassen (2007); Sia and Soh (2007); Soh and Sia (2004) |
| Institutional *process* literature | Zucker (1977); Scott (1995) | Organization | Examine the institutionalization process of ITs | Baptista (2009); Lyytinen et al. (2009) |
| | Fligstein (1991); Friedland and Alford (1991) | Society, industry, field | Examine the institutionalization process of ITs | Currie and Guah (2007) |
| Institutional *discourse* literature | Abrahamson (1996) | Society, industry, field | Examine the fashion aspect of IT institutionalization | Newell et al. (2000); Wang (2009) |
| | Swanson and Ramiller (1997) | Society, industry, field | Examine the institutional dynamics underlying IT institutionalization | Kaganer et al. (2010) |

## Theoretical Framework

The theoretical repertoire around the travel of ideas perspective was originally developed, and has mostly been used, to describe and explain how management ideas, such as TQM and lean, which are largely conceptual, spread and translate into practice (e.g., Czarniawska and Joerges 1996; Morris and Lancaster 2006; Powell et al. 2005; Røvik 2011). Although this perspective is recognized as Scandinavian in origin, its contribution is also echoed in organizational research in Europe and the United States and portrayed as one of the "expanding horizons" of institutional thinking (Greenwood et al. 2008). Yet, although some researchers recently have acknowledged the perspective (Jensen et al. 2009; Wang 2009) it has found only limited use within the IS discipline. Against this backdrop, we develop the travel of ideas repertoire to investigate how linguistic and material objects coevolve during IT institutionalization.

As summarized in Table 2, we distinguish between theorization of ideas about IT usage across an organizational field and translation of such ideas into practical use of IT within particular organizations. By suggesting this distinction and by developing each construct in detail, we offer intellectual tools for investigating how technological options may inspire creation and debate over ideas within a field and how such ideas may, or may not, translate into usage arrangements in specific settings. We suggest that IT institutionalization practices are constituted through recursive intertwining of theorization and translation. By using the term recursive intertwining (Orlikowski 2007), we emphasize how crucial it is to understand the linguistic and the material in the same register, rather than treating them as separate phenomena. Accordingly, the proposed adaptation of the traveling of ideas metaphor helps us understand how new forms of IT are transformed and become legitimized over time as they travel across a field and within individual organizations. It also incorporates both linguistic and material objects (Czarniawska and Joerges; 1996; Sahlin-Andersson, 1996; Zilber 2006), and it sees circulation of IT as highly interactive following various routes and enabled by different carriers (Djelic and Sahlin-Anderson 2006).

| Construct | Definition | Sources |
|---|---|---|
| **Table 2. IT Institutionalization as Theorization and Translation** | | |
| Organizational field | Refers to a set of organizations formed by the same regulatory processes or sharing the same meaning systems, including the adopting organizations, vendors, consultants, governments, investors, journalists, research institutions and professional associations. Organizational fields develop continuously as heterogeneous actors struggle over, for example, how ITs should be understood and implemented. | DiMaggio and Powell (1983); Greenwood et al. (2002); Scott (1995); Van Gestel and Hillebrand (2011) |
| Theorization | Offers an analytical perspective of how actors within an organizational field specify abstract categories and formulate ideas about patterned relationships such as chains of cause and effect about use of a new IT. Over time, this leads to new understandings of the opportunities afforded by the technology and helps to promote its legitimization within the field. | Greenwood et al. (2002); Strang and Meyer (1993) |
| Translation | Offers an analytical perspective of how actors within an organizational field engage and transform new ideas about IT as they seek to implement and use them. Abstract ideas about IT use are applied to specific contexts, they are iteratively transformed as they are turned into local arrangements, and, the resulting ideas and arrangements may eventually become taken-for-granted. | Czarniawska (2009); Czarniawska and Joerges (1996); Zilber (2006) |
| IT institutionalization | Involves the recursive intertwining of practices that promote the travel of ideas across a field and within individual organizations. Ideas are created, transformed and legitimized over time, and take on different linguistic and material forms across organizational settings. | Leonardi and Barley (2010); Orlikowski (2000; 2007) |

### Theorization as Analytical Lens

Discourse, persuasive language and rhetorical strategies play a significant role in legitimizing new IT ideas (Kaganer et al. 2010; Newell et al. 2000; Swanson and Ramiller 1997). For example, information technologies are often packaged with labels that are memorable and catchy (e.g., green IT, cloud computing, and mobile IT) and marketed as off-the-shelf solutions. This legitimation of ideas has been described in terms of theorization by several scholars. In their stage model of institutional change, Greenwood et al. (2002) depict theorization as an important and largely ignored practice in legitimating change within organizational fields. They describe how theorization involves two major activities: specification of a general organizational failing for which the idea is a solution, thus giving the idea pragmatic legitimacy, and, justification of an abstract solution by aligning the idea within prevailing normative prescriptions, thus giving the idea moral legitimacy (Greenwood et al. 2002; Suchman 1995). In a similar way, Strang and Meyer (1993) suggest that theorization can expand diffusion by making ideas more general and universally applicable. Indeed, Strang and Meyer argue that theorization may support and enhance what is fashionable and helps explain why some IT ideas achieve a breakthrough while others do not. Consistent with these conceptualizations of the role of theorization in processes of institutionalization, as well as with the travel of ideas perspective, we use the term to convey how ideas travel between different contexts by being extracted into generalized concepts and by elaborating

cause-and-effect chains to explain how perceived difficulties may be addressed (Greenwood et al. 2002; Morris and Lancaster 2006; Strang and Meyer 1993).

However, ideas do not travel by themselves; it is important who carries them (Sahlin and Wedlin 2008). If stakeholders with great authority within a field serve as carriers (DiMaggio 1988), the probability for institutionalization increases: "As ideas are adopted and supported by powerful actors, they gain the legitimacy and power to change institutions" (Hargrave and Van De Ven 2006, p. 876). Accordingly, the literature emphasizes a variety of key stakeholders, such as government authorities, professional associations, industry associations, labor organizations, international agencies, research institutions, adopter organizations, mass media, vendors, and consultants who may play important roles in theorizing change within a field. Theorization may, therefore, involve a complex interaction process as rival stakeholders with different interests exchange, discuss, and negotiate new ideas about IT usage. Newell et al. (2000) have drawn particular attention to the way IT providers commodify knowledge and present "packaged" solutions, which subsequently create problems for potential users who need to unpack this knowledge and integrate it with existing organizational knowledge.

Hence, theorization offers an analytical view of how heterogeneous actors within an organizational field specify abstract categories and formulate ideas about patterned relationships such as chains of cause and effect about use of a new IT.

Over time, this leads to new understandings of the opportunities afforded by the technology that help to support its legitimization. This notion of theorization has several important implications. First, it brings articulation to the core of IT institutionalization processes. This is well-aligned with Swanson and Ramiller's (1997) pioneering work on creating an organizing vision. Swanson and Ramiller describe this as a fundamental cognitive process, in which field members construct and employ a collective vision for applying IT by giving a technology specific meaning in an organizational setting. Engaging with such a vision during the early stages of IT institutionalization, field members may ensure its later adoption. Second, theorization is not situated in a vacuum; it is intrinsically related to legitimacy, a core concept in institutional thinking (Barley 2008; Suchman 1995). While most IS studies using institutional theory have emphasized how IT ideas become legitimated through mimicry (e.g., Silva and Figueroa 2002; Son and Benbasat 2007; Teo et al. 2003; Tingling and Parent 2002 ), building legitimacy for new IT ideas also involves alignment with normative prescriptions (Greenwood et al. 2002) as captured in the theorization concept.

### Translation as Analytical Lens

Whereas theorization refers to how new IT ideas are specified and justified across an organizational field, translation refers to the process whereby IT ideas are reinterpreted and implemented in particular organizational settings (Czarniawska and Sevón 1996). Translation, as currently used in institutional theory, traces its roots to the work of Serres (1982). Accordingly, translation is not merely an act of articulation; it may involve invention through combining and mixing different ideas about IT usage, and it may lead to ideas taking on different forms as certain elements take center stage while others are pushed to the background. This notion of translation is illustrated well by several implementation studies (e.g., Morris and Lancaster 2006; Powell et al. 2005; Rövik 2011) that have emphasized how organizations filter, tailor, and reformulate the discourse of an organizational field as they transform ideas to local practices. Hence, translation studies have attempted to broaden the understanding of institutional pressures reflecting concerns of change, resistance, and nonconformity in fields, and challenging the earlier continuity and homogeneity approach (i.e., isomorphism; DiMaggio and Powell 1983).

The translation concept also draws on Latour (1986) to denote transfer and interpretation of something into a different form through a chain of actors, that is, a process involving carriers and "hosts" as an idea is transformed into practice. Latour juxtaposed translation with the concept of diffusion, arguing diffusion implies artifacts are reproduced and transmitted in a friction-free manner and without subsequent modification. Translation, on the other hand, involves transformation and movement and emphasizes how ideas can be energized by actors as they translate them for their own use. Translation "attracts attention to the fact that a thing moved from one place to another cannot emerge unchanged: to set something in a new place or another point in time is to construct it anew" (Czarniawska 2009, p. 425).

Translation links individual organizations to their organizational field by emphasizing how ideas, which are more or less in fashion, travel into and are institutionalized within specific organizations (Czarniawska and Joerges 1996; Rövik 2011). Accordingly, organizational actors select an idea among a repertoire of circulating ideas because it is presented as a compelling solution to a particular problem that managers face or because it seems different and exciting. Next, ideas that have been selected and entered the chain of translations obtain a material presence as they are objectified in the form of labels, prototypes, or presentations in order to make them mutable and visible within the organization. Still, at this stage, ideas tend to be highly plastic. When an idea is transformed into practice, linguistic and symbolic objects are materialized in ways that support day-to-day work. Hardware and software are installed, working processes are changed, and users are trained. This process involves groups of human beings, interests, technologies, and resources and, as described by Orlikowski (2000), it inevitably transforms the idea into something different from what was planned and expected. Eventually, an institution may emerge if the resulting practices are regularly repeated over time and thereby become taken-for-granted (Czarniawska 2009; Czarniawska and Joerges 1996).

Accordingly, the analytical lens of translation implies an "active host." Organizational actors are not passive adopters; they are active translators who may copy some elements of a popular IT idea while discarding, reinforcing, or altering others (Rövik 2011). As a result, the same idea may manifest very differently in linguistic as well as material objects across organizations (Sahlin and Wedlin 2008). This is consistent with IS research that has shown how organizations adapt new technologies to fit their perceived realities as decision makers make sense of situations. For example, Liang et al. (2007) illustrated how top management mediated the impact of institutional pressures on ERP usage to fit organizational needs; Noir and Walsham (2007) illustrated the ceremonial use of IT in a healthcare setting; and Barley (1986) demonstrated how introduction of the same CT scanner into two hospital settings translated into quite different structural arrangements. Ac-

cordingly, translation is not just about adopting ideas; it is about sense-making (Weick 1995) and constituting technology-in-use (Orlikowski 2000). Indeed, social construction of information technologies does not stop after its design and development, but rather continues throughout its use (Leonardi and Barley 2010).

## *IT Institutionalization Practice*

Building on the travel of ideas metaphor and the analytical lenses of theorization and translation, we theorize IT institutionalization as practices that unfold across an organizational field and within organizations constituting that field. This notion draws on social constructionist principles of institutional thought (Berger and Luckman 1966) and takes an action-oriented perspective in response to the traditional critique of institutional theory as underplaying or even ignoring agency (Heugens and Lander 2009). At the extreme, Fligstein (2001) argued that conventional institutional theory considers actors as being "cultural dopes." In contrast, we view actors as conforming to fashions and institutional forces while at the same time making sense of them, enacting them, and transforming them. We do so by drawing on the concepts of theorization and translation and, not least, by combining institutional theory with an enactment view (Leonardi and Barley 2010; Orlikowski 2000, 2007) to account for how abstract ideas are implicated in day-to-day working practices.

Inspired by Orlikowski's (2000, 2007) ideas about enactment, IT institutionalization is shaped through recursive intertwining of theorization and translation practices. Hence, the distinction between theorization and translation of new ITs is analytical. In practice, theorization is not reserved for vendors, consultants, governments, investors, journalists, research institutions, and professional associations; although adopting organizations within a field eventually translate new ITs into changed work practices, these organizations may themselves play major roles in theorizing a new IT through exploratory attempts to improve existing arrangements. Similarly, we do not assume any predefined sequence in how ideas travel. In some cases, organizations within a field may experiment with a new IT to develop innovative types of work arrangements; such local practices may subsequently inspire broader theorization within the field and lead to intense debates. In other cases, key stakeholders within a field may become engaged in theorizing a new IT and individual organizations may later engage in translation in their specific settings.

Focusing on practice also implies that actors create and transform linguistic as well as material objects as IT ideas travel across an organizational field. Although linguistic and material objects in this way are emphasized on equal footing and indeed recursively inter-relate, they are not necessarily equally in evidence throughout IT institutionalization processes (Sillince and Barker 2012). In some cases, linguistic objects may play a dominant role during early institutionalization, while at a more mature level of IT institutionalization, actors may use language to a lesser extent as new ways of using IT become taken-for-granted as the natural and appropriate arrangement (Currie 2004). However, IT institutionalization often unfolds as long-term processes (Scott 1995) during which the interacting roles of linguistic and material objects may change. The theorization and translation of IT ideas into specific settings may, therefore, involve ongoing transformations in which linguistic and material objects are continuously modified and reshaped through their interactions.

## Case Study

We illustrate the detailed workings of the proposed conceptualization of IT institutionalization with an analysis of the Danish home care field. In the Appendix we offer a detailed account of the underlying research design and summary data tables. Outlining an organizational field is to some extent subjective (Greenwood et al. 2002) and early theory emphasized the need to define the structure of a field on the basis of empirical investigation rather than taking *a priori* delineations for granted (DiMaggio and Powell 1983). Recently, scholars have regularly taken a more pragmatic approach and operated from predefined fields: Greenwood et al. (2002) used the provision of business advisory services in Alberta, Canada; Scott et al. (2000) limited their scope to organizations within the San Francisco Bay region. Structured around an array of organizations joined by the same service in a public domain, the Danish home care field is occupied by heterogeneous stakeholders with varying and sometimes conflicting interests (Hohnen 2011), including home care agencies (located in 98 municipalities), health care personnel, managers, IT staff, clients, technology suppliers, interest groups, trade unions, media, consulting firms, research institutions, and government agencies.

Although the Danish home care field is pluralistic, it is also highly regulated. Home care constitutes a recognized domain of activity in the Danish welfare system (Rostgaard 2012) as a result of a long-term development. The first home care legislation was introduced in 1949 and home care expanded considerably in the 1970s and 1980s. Accordingly, the number of residential homes has decreased in favor of the principle that the elderly should remain in their homes as long as

possible. This means that the majority of healthcare personnel in elder-care work in clients' private homes. As is common in Scandinavia, home care is mainly organized, financed, and provided within the public sector and the services are free of charge (tax financed), aimed at helping the elderly and disabled cope with everyday life. Basic services include personal care (e.g., bathing and dressing) and household care (e.g., cleaning and washing up). Denmark is one of the leading countries in home care with extensive service offerings for the elderly and with a high amount spent per capita (Doyle and Timonen 2007). Home care reaches approximately one-fifth of the 65+ population; more than 200,000 clients receive home care; it is one of the most employee- intensive Danish public sector areas with approximately 70,000 care workers and 6,000 nurses. During the last decade, home care has become more professionalized and most care workers are trained as care helpers or care assistants.

Mobile ITs are anticipated to have a crucial role to play in future healthcare, and personal digital assistants (PDAs) and Smartphones have increasingly been adopted among doctors, nurses, and care workers in various settings (e.g., Lu et al. 2005; Wu et al. 2007). This movement is also recognized in Danish home care, which over the past 15 years has experienced increased digitization of work practices enabled by mobile IT. The first experiments took place in 1998 and 89 of the 98 municipalities (91%) used mobile IT in home care in 2008 (Appendix, Table A4) with more than 60,000 devices in use. Various kinds of mobile devices provide healthcare personnel access to comprehensive databases with client information (e.g., medicine schemes, nursing notes, clinical guidelines, and information about doctors and family members). Much of the information is confidential and the databases are not accessible to unauthorized personnel. Mobile IT usage also enables registration of time and services provided at the point-of-care, wireless update of records and work schedules, telephone calls, text messages, and dynamic logging of information.

Drawing on the proposed conceptualization of IT institutionalization, we have traced ideas about mobile IT usage as they have been articulated and legitimized in the Danish home care field and materialized in the practices of individual home care agencies. Our account is structured into three phases: emergence (1998–2001), experimentation (2002–2005), and stabilization (2006–2008). We termed these phases heuristically based on both the substance of the empirical material and inspired by existing stage models of institutional change (Czarniawska and Joerges 1996; Greenwood et al. 2002; Tolbert and Zucker 1996). For each phase, we present an account of how major theorization and translation events, and their intertwining, constituted mobile IT institutionalization

practices. Table A9 in the Appendix provides a summary of the key findings.

### Phase 1: Emergence (1998–2001)

Home care has long been regarded as a problematic area in Denmark. Despite generous public service provision for the elderly, the service is often under attack from the media and is associated with images of low status, poor performance, and inefficiency (Rostgaard 2012). Since the mid-1990s, home care has been subject to repeated government reforms in the shape of New Public Management (Hood 1991), emphasizing standardization, documentation, and marketization (free choice), in order to position the area as effective and accountable, and to deal with limited budgets and demographic trends, especially the growing number of elderly citizens.

Although it is difficult, or even impossible, to identify the exact origin of any IT idea (Czarniawska and Joerges 1996), the consideration of mobile IT in Danish home care gained ground in the late 1990s, aligned with the New Public Management principles and a broader global trend in mobile health care (Lu et al. 2005; Wu et. al 2007). Indeed, given the increased focus on standardization and documentation, mobile IT was seen as a fresh and important piece of the puzzle to help reduce administrative work and increase the time spent on actual care (Digital Taskforce 2002). Some home care agencies used barcode scanners in the late 1990s to improve documentation, but mobile IT was seen as a more comprehensive and up-to-date solution (Digital Taskforce 2002). Also, most home care agencies already had back office IT systems with electronic care records (ECR) in place, making mobile IT access for care workers a feasible option. In close cooperation with IT providers, the first Danish home care agencies tested mobile IT in 1998.

In this early phase, IT providers played major roles in developing and designing technical solutions and shaping ideas on how mobile IT could be used. Mobile IT became available as an acquisition module to existing ECR systems and a number of key ECR providers started to compete in the emergent mobile care market. The early technologies were quite simple and based on offline connectivity so healthcare personnel could download and upload client data to mobile devices through docking stations. Still, there was a sense of the pioneering spirit about mobile IT usage with considerable positive publicity through articles in newspapers and magazines (Appendix, Table A5). These articles commented on an "interesting" IT innovation that could modernize home care. One IT provider described how PDAs would become an

important tool for improving management and ensuring transparency in home care services (*Jyllands Posten*, October 4, 1999). Another article from 1999 quotes a city manager:

> I want to emphasize that this project does not intend to rationalize or ensure savings. The project aims to solve the staff concern in the public sector in general and in home care in particular. Therefore, we need to make home care jobs more attractive by using new mobile technology (*Politiken*, January 28, 1999).

We observed three home care agencies closely (Appendix, Table A2), and during this phase they engaged ideas of mobile IT usage quite differently. *Medium*-HCA implemented ECR during this period, but they took no concrete initiatives related to mobile IT. *Small*-HCA had even more limited experience with IT. As expressed by the home care manager, "*I do not think we had a computer when I started in 2000. Everything was handled manually.*"

In contrast, *Large*-HCA worked actively to make sense of mobile IT and decided during the spring of 2001 to invest in one of the available systems (from CSC) using PDAs with offline connectivity for care workers and nurses. Although this was perceived as a very innovative solution in Danish home care at this time (e.g., Digital Task Force 2002), the early lock-in to offline connectivity later became the subject of debate and controversy in *Large*-HCA. The introduction of mobile IT was based on a top-down approach initiated by the administration and supported by the politicians in the city council. This started in late 1999 when a project group (involving key stakeholders such as IT staff, home care managers, and project managers) was established. The group developed implementation plans, business cases, and specifications of requirements, and facilitated workshops with union representatives for care workers and nurses (Health and Care Committee 2001). In collaboration with CSC, the IT solution underwent several adjustments in this early stage, including a new user interface and integration with other IT systems within the municipality (Health and Care Committee 2001). From a provider perspective, *Large*-HCA became an important test project, affording CSC opportunities to develop more user-friendly solutions in collaboration with health care personnel. In this way, *Large*-HCA started, at a very early stage, to work closely with a key IT provider to translate ideas of mobile IT into a management approach.

The idea that IT innovations could help improve management and control matured in the political and administrative system during the 1990s. Accordingly, the rationale for mobile IT investment in *Large*-HCA was the need for politicians and managers to improve documentation of accurate information about working hours to ensure transparency in overall home care services (Health and Care Committee 1999). From 1995, information was managed manually on paper with subsequent entry into an IT system; from 1997, information was managed with barcode readers in some of *Large*-HCA's home care units (Health and Care Committee 1999); finally, from 2001, information was managed by means of PDAs. Hence, mobile IT was an almost natural progression, replacing manual systems and barcode readers and driven by reforms that reinforced the need for more accurate documentation. Once free choice and activity-based billing were introduced it became "a necessity to compare planned services with actually performed services" (Health and Care Committee 1999, p. 2).

Overall, IT providers and innovative home care agencies took leadership in early theorization and translation practices. Mobile IT was articulated as an interesting innovation that could help address the need for improved management accelerated by several government reforms. Rather than stressing a general organizational failing, the rhetoric used presented mobile IT as functionally superior to existing practices. Ideas started to be translated into practice in a few home care agencies and IT providers developed new technical solutions and promoted them through active discourse as they took part in early translations within these organizations. Specifically, in *Large*-HCA, established management traditions within the municipality came together with early offline solutions to form what later became one of the dominant variants of mobile IT usage. Still, the majority of home care agencies, like *Small*-HCA and *Medium*-HCA, were not yet engaged in theorizing ideas and translating them into local work arrangements.

## Phase 2: Experimentation (2002–2005)

In this next phase, the need for change was argued more forcefully and the scope of change widened with intensified experiments with mobile IT usage in several home care agencies. An ambitious, large-scale pilot project, CareMobile, was initiated in 2002 as part of the Danish government's modernization program for the public sector. The project became a powerful vehicle for developing new ideas about, for gaining specific experiences with, and for gaining legitimacy for mobile IT. CareMobile was financed by the government and initiated by a trefoil consisting of The Ministry of Finance, The Ministry of Social Affairs, and LGDK (the Association of Local Government Municipalities). The project involved the five major IT providers at that time (CSC, Ramböll, KMD, Zealand Care-Excitor, and Lyngsö-Ementor), a number of business analysts and technology consultants, telecom

operators, and six pilot home care agencies. As the project unfolded, ideas of mobile IT usage became effectively inscribed into the policy agenda. As the project participant from LGDK stated,

> *We are in a situation where barcode scanners are extremely unpopular and we have a home care system that has been severely critiqued in the press…. We established the CareMobile project and combined it with elements of free choice, some standardization and the like….It is all about selling an idea that matches the current policy agenda….It is about listening to what is going on, what is desired, and the rest is up to networking and lobbying.*

The representative of The Ministry of Social Affairs elaborated how CareMobile downplayed the monitoring aspect of the technology and instead focused on improved services and efficiency of operation:

> *We are in the first part of 2002, and everybody remembers the Prime Minister's mentioning of "barcode scanners and minute tyranny in home care," so there is actual skepticism….Seen from the point of view of The Ministry of Social Affairs it was the agenda of free choice that legitimized Care Mobile….Of course, it was also about quality of service and about efficiency, but the latter was more the agenda of The Ministry of Finance….We played our card of quality and free choice and downplayed the part about control.*

In fact, CareMobile was based on negotiations and compromises. For The Ministry of Social Affairs, the main issue was to support marketization (the free-choice model), which required more detailed management information. Mobile IT was seen as a perfect solution to improve documentation and support a market logic in this field. The Ministry of Finance focused on cost savings. Mobile IT was a feasible solution (Ministry of Finance 2004) that would improve efficiency. Moreover, LGDK focused on moving away from monitoring and controlling care workers and toward ensuring them easy access to relevant information about clients at the point-of-care, emphasizing a welfare-professional logic. However, as the project unfolded and in the final evaluation in 2005, it was predominantly the agenda of The Ministry of Finance that ended up decisively impacting the project as efficiency issues were pushed to the forefront. As noted by the project participant from The Ministry of Social Affairs,

> *This is now a matter of documenting an effect with the intention of creating a proper business case that may assist other home care agencies in their decision-making. The basic challenge was to document the release of resources as an effect of mobile IT use.*

The CareMobile evaluation was based on three months of experiments translating mobile IT into practices within the six pilot home care agencies. It was presented on Ministerial web sites in 2005 (e.g., modernisering.dk), distributed in a number of government reports (e.g., The Ministry of Social Affairs 2005), and presented extensively at conferences and in newspapers. The evaluation provided evidence of positive effects from the use of mobile IT, in particular increased efficiency of operations. The main storyline was that the technology was mature, the vast majority of front-end staff saw an advantage in the use of mobile IT, and the payback time of the investment was only one year due to reduction in time spent on administrative tasks (The Ministry of Social Affairs 2005). Reporting on the results, The Ministry of Finance (2004) estimated an 8 percent efficiency gain and consultants estimated the total time spent on administrative tasks would reduce full-time positions by 2,500 to 3,000 when mobile IT was implemented in all municipalities (Ramböll Management 2007).

In these theorizations, experiences from translating mobile IT ideas within the six pilots were articulated in general terms to make mobile IT usage universally applicable across the Danish home care field (Strang and Mayer 1993). Hence, CareMobile came to symbolize the usefulness of mobile IT to help improve care with a strong emphasis on cost reduction and efficiency and through a discourse that appealed to modernization and economic reason. The communications were not so much targeting health care personnel. Rather, they aimed at engaging those managing home care with appealing ideas for addressing contemporary challenges and detailed suggestions for action (e.g., a business case model, a benefit realization model, a guide to implement mobile IT, and specifications of requirements for mobile IT).

For the participating IT providers, CareMobile was a welcome opportunity to test their different ECR systems and to obtain useful information to further develop their mobile solutions. The competition in the market increased substantially in this phase, especially caused by a major government reform (decided in 2003–2004 and implemented in 2007) in which municipalities were restructured by merging 271 into 98 municipalities. Suddenly, the potential buyers of ECR and corresponding mobile IT were consolidated. In this market, three dominating providers (CSC, Ramböll, and Zealand Care) emerged. At the same time, solutions based on offline connectivity (developed by CSC and implemented, for

instance, in *Large*-HCA) were challenged as online solutions were launched by Ramböll (in 2003) and Zealand Care (in 2004). As a result, the three dominating providers developed increasingly different theorizations of mobile IT: CSC emphasized improved documentation and management information, mainly targeting large municipalities (www.scandihealth.dk); Zealand Care emphasized flexibility in delivering home care services with a simple, tailorable solution targeting small municipalities (www.zealandcae.dk); Ramböll emphasized better communication and knowledge sharing with online connectivity at the center targeting the needs of health care workers within all types of municipalities (Ramböll Care 2005).

Interestingly, some of the innovative home care agencies engaged directly in theorizing mobile IT usage as they communicated their experiences at conferences, on websites, in newspapers, and in practitioner magazines (e.g., Excitor 2004). As an example, managers from *Large*-HCA on several occasions presented their experiences, including at the annual national conference in 2004 held by LGDK. Moreover, *Large*-HCA received a best-practice award in digital management as part of a nationwide competition. This award was announced in newsletters and on the municipality website as part of legitimizing mobile IT usage. Also, reports like these from individual organizations established examples of best practices within the home care field. Moreover, the media continued to present mobile IT in positive terms (Appendix, Table A5).

During this period, the scope of change also increased with intensified experiments with mobile IT usage in more home care agencies. This progress is well-illustrated by our three observed cases. *Large*-HCA implemented PDA technology in two pilot districts in 2002 and the pilots were followed by stepwise implementation until the spring of 2007, at which time the entire organization had implemented mobile IT. As highlighted in the previous phase, this organization worked closely with CSC to translate a management approach to mobile IT into established processes for monitoring and carefully documenting care services. Most health care workers now used PDAs daily, mostly for time registration and to look up work plans, but also, to some extent, for accessing client data at the point-of-care. However, early implementation was not unproblematic: the budget was exceeded and there were critical voices among health care personnel (some observed it as a system of control while others demanded a system with telephone features).

*Medium*-HCA decided to adopt mobile IT in 2004 and implemented during 2005. A project group was responsible for comprehensive analyses, requirement specifications, and a

pilot before implementation. As in *Large*-HCA, PDAs were the selected hardware, but this agency chose online connectivity (including telephone features) as a means of improving communication and coordination between care workers. The organization saw itself as being at the forefront of mobile IT with online connectivity provided by Ramböll, which was seen as "the solution of the future" (TDC/Municipality of Svendborg, no date). As a project manager elaborated,

> *We were very much inspired by Ramböll's mobile platform, MobileCARE. We followed some pilot projects in other home care agencies closely, and finally we carried out a pilot project ourselves.*

Hence, the efficiency and cost saving approach (articulated by The Ministry of Finance) and the management approach (articulated by CSC and *Large*-HCA) did not seem to have a major impact within *Medium*-HCA. Instead, the major motivation articulated for adopting mobile IT was to develop a modern image of home care. As one home care manager explained,

> *It was very much related to status and being on the cutting edge of new technology. The home care sector has for a long time been related to low status, therefore to give our staff advanced mobile technology will certainly raise the status….In many home care agencies it's about efficiency, savings, and control...this has not been the case here.*

*Small*-HCA also engaged in translating mobile IT into use arrangements during this phase. However, their approach was more aligned with the efficiency and cost saving approach articulated by The Ministry of Finance. In 2003, *Small*-HCA implemented ECR followed by a decision in 2004 to invest in mobile IT (Nokia Communicator with online connectivity). The home care managers promoted mobile IT usage in a rather detailed policy stipulating aims and guidelines for mobile IT usage (Municipality of Brönderslev 2005). The new technology was implemented during 2005 with Zealand Care as provider and responsible for training. *Small*-HCA was, to a great extent, inspired by the CareMobile project, experiences from other home care agencies, and, in the end, their provider, Zealand Care. Politicians demanded that investments in mobile IT be leveraged to increase efficiency in home care operations, as expressed by the home care manager:

> *It was a demand from our politicians that if we adopted more IT, we had to cut down our meeting activity.*

A new meeting structure, where communication through mobile IT substituted morning face-to-face meetings, was by and large a copy from earlier translations in a CareMobile project. *Small*-HCA experienced considerable employee resistance as they implemented the technology and the new use arrangement that followed. In 2005, the care workers' union opposed the abolition of the morning meeting, but politicians in the city council maintained the decision.

Overall, the framing of the advantages of the new technology shifted during this phase of institutionalization. While early theorization emphasized an interesting innovation, efficiency issues became more clearly articulated, heavily influenced by the CareMobile project and The Ministry of Finance. In this sense, Government stakeholders now became influential in judging proper and suitable practices. The rhetoric used in communicating CareMobile ideas appealed to economic reason and was infused with both rational arguments (e.g., time saving) and symbolic constructs (e.g., digital revolution). Justification was also achieved by associating mobile IT usage with other prevailing ideas of modernization, market-ization, and efficiency, at the same time as other, more controversial issues (e.g., control and monitoring) were dimmed. Thus, specific translations from six pilots were articulated in general terms, and cause–effect relationships were established as the predicted impacts of using mobile IT were articulated in a simplified manner (e.g., the technology is mature and mobile IT usage ensures cost savings). Involving close collaboration between government agencies, IT providers, consultants, and six official pilots, the Care Mobile project served as an important forum in which hetero-geneous stakeholders could translate different ideas, discuss challenges, and identify key lessons from practice. Still, different and partly incongruent theorizations emerged across the field as the three major IT competitors communicated their solutions based on experiences from different home care agencies. These theorizations included emphasis on sup-porting management and control, providing simple and flexible solutions, as well as enabling communication and coordination between health care personnel. In this phase, innovative home care agencies also engaged in theorizing mobile IT in the broader home care field as they, for instance, presented experiences in practitioner magazines and at conferences. The three observed home care agencies all started to use mobile IT on a daily basis, illustrating how quite different approaches to mobile IT started to emerge as general ideas were translated to fit local needs and norms.

## Phase 3: Stabilization (2006–2008)

While the use of mobile IT up to 2006 was limited to a restricted group of home care agencies, the following years resulted in a swift diffusion to a majority of agencies. In 2007, of 98 municipalities, 76 (78%) had adopted mobile IT within home care and an additional 13 (13%) expected to implement during 2008 (Appendix, Table A4). However, some agencies remained non-adopters, and in a few others, the adoption process stopped at an early phase, for instance due to technical difficulties. The CareMobile project still generated considerable discussion and, importantly, triggered increased political attention on mobile IT. Consequently, in the 2006 government budget, approximately 45 million Euros were allocated and home care agencies could apply for funding of their initiatives, including purchase of hardware and software. The experiences from CareMobile were high-lighted as a significant motive:

> The CareMobile project has, among other things, shown that the implementation of mobile IT can free up time so that care workers and nurses can be with clients rather than at the office….Home care agencies could usefully build on the experience gained in the CareMobile project (The Ministry of Social Affairs 2006).

Of the 98 municipalities, 81 received government funding. Lessons from the CareMobile project served as a strong source of inspiration for agencies across the home care field (Appendix, Table A6). Moreover, the normative appeal of mobile IT usage was strengthened as the Prime Minister and other key Ministers on several occasions promoted mobile IT as an important tool to ensure a more up-to-date public sector (e.g., *Politiken*, November 16, 2006). The language used was appealing but the implied meaning was rather vague and ambiguous, including slogans such as "from cold to warm hands" and "from paper to PDA" (e.g., Ramböll Management 2007).

IT providers continued to praise the use of mobile IT and new methods were used to articulate benefits. For instance, CSC developed a 20 minute video (www.scandihealth.dk) demon-strating how mobile IT supported home care services. The presentation focused on how the technology performed: managers improved their decision-making, employees saved time, and clients were content with the services they received. Politicians, managers, care workers, and clients from *Large*-HCA participated in the video, thereby actively theorizing mobile IT usage in the broader home care field based on their own translations.

Although providers promoted different ideas about mobile IT, they all presented mobile IT as a package (Newell et al. 2000) to the involved stakeholders, providing better information for

managers, saving time and minimizing paperwork for administrators, and a less busy workday for care workers and nurses. Controversial topics, such as the question of control and the challenges of translating mobile IT into day-to-day work practices, were notoriously downplayed. However, while the publicity was predominantly positive from the first initiatives and until the rapid adoption of mobile IT, the media became more critical from 2006 and onward (Appendix, Table A5). In fact, looking solely at 2007, the proportion of articles with negative publicity started to exceed the positive, thereby questioning the widespread understanding of the usefulness of mobile IT that was evident in earlier phases. More critical articles emerged under headlines such as "Mobile IT Chaos Is Costly" and "Resistance to Minute Tyranny." In the latter article, an interviewed care worker noted,

> After we have started to use mobile IT our work environment has worsened. We feel stressed of the minute tyranny, because we have to record time when we enter and leave the client´s home. It feels like our managers do not trust us (*Sjællands Nyheder*, December 11, 2007).

Moving to our three observed cases, it also became more evident how the translation of mobile IT into daily practices sometimes became troublesome and collided with a welfare-professional logic while at other times smoothly integrating with existing routines. The cases illustrate similarities, but also striking differences in working practices although the adopted technology was fairly uniform**.** At *Large*-HCA, the political-administrative translation of mobile IT as a management and control project turned out to have a decisive impact on the way care workers used mobile IT for time registration. Hence, PDA usage helped satisfy management needs:

> Our motivation has persistently been that we would be better at managing and documenting. And we have achieved our goal. We can answer how many visits we have each week. We can answer how many care workers enter in client homes. And we can answer the cost of provided services. We could not answer these important questions three years ago (Municipality of Copenhagen 2006).

Managers welcomed the technology and perceived it as a way to collect accurate information about working hours and services delivered to improve decision making. However, it was not possible for *Large*-HCA to document and trace efficiency gains to the introduction of mobile IT. Instead, the budget continued to be exceeded (for example, due to technical problems and a shorter PDA life span than expected).

The chosen system of offline connectivity was also questioned in this phase. As one manager stated,

> *We could choose a limousine model or a Volkswagen model....Our organization has chosen the Volkswagen model. There were some interesting new technological opportunities, but it was not economically attractive.*

CSC had now developed a system with online connectivity, and sponsored by government seed money *Large*-HCA established a pilot in 2007. However, an evaluation concluded that there were technical difficulties (Devoteam Consulting 2007) and, in 2008, the city council decided not to adopt online technology.

While the interviewed managers at *Large*-HCA generally appreciated mobile IT use (although they asked for a technology with online connectivity), care workers held different and sometimes conflicting perceptions. The vast majority of care workers found mobile IT easy to use (Appendix, Table A8) and useful when it came to retrieving information "on the go." As noted by a care worker,

> *I can see information about my clients' health condition, their doctor, relatives, and all sorts of things…I think it is brilliant.*

However, some experienced mobile IT as controlling and tightly monitoring their work. Some felt this reflected distrust from management, as expressed by one worker:

> *It feels as if Big Brother keeps an eye on us.*

Others had different interpretations, as expressed by a colleague:

> *Many care workers go before time, so clients do not get the help they are entitled to….I think it is all right that managers control us.*

Overall, the care workers remained split and ambivalent to mobile IT usage. In 2008, 52 percent preferred mobile IT usage, 40 percent wished to return to the previous system, and the remaining 8 percent could not decide (Appendix, Table A7). Moreover, the care workers at *Large*-HCA still acted as translators and contributed to the material manifestation of how daily work with mobile IT was performed. As an example, they circumvented managerial guidelines and used the PDAs differently than planned by performing time registration at the end of their work day rather than at the point-of-care.

In contrast to *Large*-HCA, *Medium*-HCA represents an approach to mobile IT in which the technology was used to improve communication and to develop a modern image. The health care personnel used the PDA in communication with colleagues or managers internally and with hospitals or general practitioners externally. Interestingly, *Medium*-HCA did not rely on detailed time registration. As expressed by one manager,

> *We embrace the idea of value-based management, so we are for trust rather than control.*

Still, care workers had different and conflicting perceptions of mobile IT usage and they engaged in the translation process by sometimes circumventing managerial guidelines. For example, they continued to print schedules rather than access them on the PDA. In general, though, they experienced the new communication possibilities (telephone, text messages) and the ability to retrieve information at the point-of-care as positive. Nonetheless, approximately one third still preferred to return to the previous system without mobile IT (Appendix, Table A7), not so much because they felt controlled, but mainly because they experienced technical problems inhibiting usage (Appendix, Table A8). As emphasized by one worker,

> *Imagine that you visit a client and write on your PDA. Suddenly there is no longer connection to the PDA and then all is lost.*

Also, some felt the workday became more troublesome due to the required documentation at the point-of-care. As in *Large*-HCA, managers were in general enthusiastic about mobile IT usage.

*Small*-HCA focused to a greater extent on improving efficiency in home care services in the sense of converting face-to-face meetings into care. Hence, care workers based their working day on information exchanged through mobile communication. Still, joint coordination meetings with care workers, nurses, and managers were held in the early afternoon two to three times a week. Although mobile IT was intensively used in internal communication and for documentation (especially time registration), abolishing the traditional morning joint meetings at headquarters remained controversial as it was experienced as a reduction in knowledge sharing and collegial relationships. As one care worker stated,

> *I do miss our meeting in the morning…I never know which of my colleagues are at work. We do have other meetings...but it's not the same.*

After more than two years of use, the new work arrangements were still not taken-for-granted by the health care personnel, whereas the managers interpreted mobile IT in positive terms. The home care manager elaborated:

> *I do not know if there are any savings in it when all costs are counted, but I can see that we have more time with clients than we had before because we have cut away the morning meeting. I think it is important.*

Among care workers, different and sometimes conflicting perceptions of mobile IT were apparent, and opinions were split when they were asked to choose between mobile IT and the previous system (Appendix, Table A7). As in the other two cases, it was not the technology itself that created controversy, but there was reluctance to use mobile IT for time registration and to reduce the morning meeting activity. However, scepticism had been reduced over time, as illustrated by an experienced care worker:

> *I was an opponent of mobile IT in the beginning and I had nearly terminated my job. Today, I do not want to work without it.*

Again, the health care personnel were engaged in translating ideas of mobile IT into daily work practices. From the beginning of the project, managers expected workers to write journal notes (record keeping) via the mobile device (Municipality of Brönderslev 2005). Yet, care workers and nurses did not follow such guidelines; instead, they still used desktop computers. Eventually, managers accepted this practice.

Overall, this phase represents progress toward stabilization but also some movement toward fragmentation in mobile IT institutionalization in the Danish home care field. There were increased field-level pressures for conformity as government efforts to promote mobile IT usage became more prominent. Sponsorship from the Danish government facilitated dissemination, and adoption of mobile IT increased noticeably after the funding in 2006. However, such field-level pressures did not result in universal adoption. Instead, adoption had "different faces" as recursive intertwining between theorization and translation practices shaped the institutionalization process across organizations with unique histories and structures. Multiple ideas were articulated around the new technology, by IT providers and other powerful actors like government bodies, and also by home care agencies based on differences in traditions and management thinking. In *Large*-HCA, mobile IT usage was shaped by CSC's offline solution and inscribed into a context where documentation and time

management were already a key focus. In *Medium*-HCA, mobile IT usage was shaped by Ramböll's online solution for improving communication and inscribed into a context where home care traditionally had been at the forefront of new technology, and mobile IT was perceived as an opportunity to improve the status and image of home care. The approach in *Small*-HCA was shaped by Zealand Care's online solution, and lessons learned from the CareMobile project combined with a political (city council) demand for administrative time-savings through introduction of mobile IT. Additionally, translation occurred at different points of practice; for instance, from *Large*-HCA, the management level translated mobile IT into a system of documentation and monitoring, while employees translated this to record time at the end of the day and not at the point-of-care (with all the time inaccuracies that this involves). However, despite these translations of translations, the most important variations resulted from the particular ideas chosen by each home care agency in the first place (predominantly at the management level) to justify adoption.

When the study ended in 2008, mobile IT may best be described as semi-institutionalized within the Danish home care field, reflecting that the technology was widely recognized as a means for modernizing services and adopted by the vast majority (91%) of agencies. Still, the many experiences from translating mobile IT into new use arrangements continued to shape the ongoing debate over technology's role in transforming Danish home care. Discussions focused not so much on whether mobile IT was the right way to go, but more on how it should be practiced. Mobile IT usage was still emerging and a variety of theorizations and translations were unfolding. Some home care agencies did not adopt; health care personnel had different and conflicting perceptions about mobile IT usage; new use arrangement (e.g., time registration and new meeting structures) did not simply become adopted and institutionalized but collided with existing practices; media reports took a more critical stance after 2006, reporting on problematic implementations. These critical voices, however, never seemed to gain much ground in the contexts where IT providers and government bodies remained active supporters of mobile IT usage.[2]

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[2]One may have expected a more prominent role for other organizations that are dedicated to theorization such as universities and research centers. However, according to our data (interviews with key stakeholders in the home care field and our analysis of newspapers), these organizations did not play a significant role in the present case.

## Discussion

Institutional theory has traditionally focused on the cultural embeddedness of organizations, with organizational actors presented as cultural dopes, mindlessly following scripts to conform to institutional pressures (Fligstein 2001). In the IS field, this perspective has been used to demonstrate how institutional pressures influence the adoption of IT, sometimes mindlessly (Swanson and Ramiller 2004). These IT institutionalization studies, inspired by DiMaggio and Powell (1983), have emphasized how organizations within a field become similar as they adopt the same technology. Against this backdrop, this study contributes to the emerging process and discourse literature on IT institutionalization (see Table 1) by directing attention to the diversity of adoption practices within a particular field based on the traveling of ideas metaphor. We have proposed a new theoretical framework (see Table 2) and demonstrated its utility through a study of mobile IT within Danish home care. Although the proliferation of mobile IT created a kind of surface-level uniformity (isomorphism) among the observed organizations (the vast majority of home care agencies adopted fairly uniform technology), the actual local practices varied greatly. The three observed home care agencies vary in size and geography, they had different histories, they drew on different management ideas, and they applied and offered different "scripts" for making sense of mobile ITs. In this way, the idea of mobile IT usage was redefined and appropriated for different purposes as ideas traveled between home care field theorizations and individual home care agencies' translations.

As long ago as 1991, Oliver identified alternative responses organizations could make to even strong institutional pressures. More recently authors have pointed out how many organizational fields are infused with multiple, sometimes conflicting, types of institutional logic, which its members must navigate (Van Gestel and Hillebrand 2011). This emphasizes that institutions are not static structures that impel organizations to behave in particular ways; instead, institutions are constantly enacted and (re)created, even when they appear to be relatively stable (Heugens and Lander 2009). Accordingly, the presented theoretical framework links agency to the broad range of players involved in IT institutionalization through their engagement in theorization and translation practices under the umbrella of the travel of ideas concept (Czarniawska and Joerges 1996). The framework explicates how these practices are influenced by (as well as influence) existing institutions and it offers a number of specific contributions to our understanding of IT institutionalization.

## *Recursive Intertwining of Theorization and Translation: Organizational Visioning*

While theorization and translation practices have tended to be looked at independently by previous scholars, it is by looking at the two together that we gain new insights into processes of IT institutionalization. Building on Greenwood et al.'s (2002) perspective on theorization in organizational fields in combination with Czarniawska and Joerges' (1996) perspective on translation of ideas into individual organizations, our analysis illustrated how theorization and translation practices complemented each other and together shaped the process of mobile IT institutionalization in the Danish home care field. Looking at theorization and translation practices together, we saw how theorization practices are ongoing, influencing but also being influenced by the translation practices within particular organizations. Thus, while Greenwood et al. (2002) depict theorization as a distinct stage of institutional change, our empirical study indicates that theorizing more fruitfully should be seen as an ongoing practice across different phases of institutionalization.

This leads us to suggest that Swanson and Ramiller's (2004) idea about the importance of creating an IT organizing vision needs to be reconceptualized. The vision for the use of mobile IT in the home care organizational field in Denmark was constantly evolving. Some might argue that this is because this institutionalization process is still ongoing. We would rather suggest that this is because institutionalization is always ongoing. Even in the stable phase, when a particular IT is taken-for-granted, maintaining this status involves institutional work (Lawrence and Suddaby 2006), and our analysis shows how theorization is an important aspect of this work. Indeed, this may be the case with IT institutionalization in particular because IT artifacts are continuously evolving.

We therefore propose the concept of organizational visioning to emphasize the dynamic aspect of the ongoing theorization practice. Swanson and Ramiller (1997, 2004) do recognize that the development of an organizational vision is an emergent process, driven by the engine of discourse across a community. However, they note that, "In time, a persistent lack of clarity will try community members' patience, as it frustrates their efforts to gauge the organizing vision's ultimate practical value" (1997, p. 463). Thus, they propose that "the vision receives its formative shaping during the highly uncertain period of the innovation's earliest diffusion, when interpretation of innovative events is most wanting within the community and the strongest developmental impetus exists" (1997, p. 468). Our empirical data suggests that this emphasis

on the organizing vision being most fluid during the early phases of innovation diffusion may underestimate the extent to which theorization (and so visioning) is an ongoing dynamic process.

## *Interdependencies Between Field and Organizations: The Power of Zooming*

As discussed earlier, institutional theory has become a more dominant perspective in IS research through which processes of continuity and change are interpreted and understood (Mignarat and Rivard 2009). Notably lacking from the existing literature, however, is explicit attention to how field-level dynamics and organizational processes coevolve (Wang and Ramiller 2009). We have proposed and demonstrated a way to integrate these elements by taking a travel of ideas view (Czarniawska and Sevón 2005; Sahlin-Andersson 1996), which focuses on how IT institutionalization is constituted through recursive intertwining (Orlikowski 2000, 2007) of theorization and translation.

The important implication of this recursive intertwining is that we do not see these interdependent practices as occurring at different levels; theorization does not occur at the field level and then get translated in an adopting organization. Instead, an organizational field is constituted by a host of organizations and as researchers we can zoom-in and zoom-out (Nicolini 2011) to observe the unfolding practices. By zooming out, we see dynamics across the field and the range of players that are involved in theorizing, and by zooming in, we see dynamics within a specific organization (or even department) as actors translate new ideas into specific material arrangements. For example, IT vendors are involved in both theorization (as they publish material about the benefits of a particular IT to sell their services) and translation (as they work with particular organizations adopting their ideas and solutions).

In turn, some of the home care agencies engaged in theorization, which we observed by zooming-out to see ideas circulating across the field, and these theorization practices were intimately related to what the agencies learned from their translation practices (which were themselves predicated on prior theorizations and which we observed by zooming-in). Thus, field-level dynamics and organizational processes coevolve during IT institutionalization. This demonstrates the importance of zooming-in and zooming-out in institutional research to see how organizations within a field influence and are influenced by other organizations and how this affects IT institutionalization.

## Multiple Moments of Translation: Different Types of Institutional Logic

Taking this idea one step further, we can zoom-in on users' practices as they appropriated mobile IT in ways that were sometimes rather different from managerial visions and intentions. Thus, not only did each of our case municipalities translate and theorize mobile IT somewhat differently in their initial implementation efforts, the ideas also continued to travel once implemented. Thus, mobile IT in the three case organizations initially reinforced practices that were being presented as legitimate by managers and politicians (documenting actual visit times; attracting new employees; improving efficiency by cutting down on face-to-face meetings). However, these practices did not automatically become taken-for-granted (Colyvas and Powell 2008) because users had different ideas about what is legitimate. In this sense, we saw how users were drawing upon different types of institutional logic (Friedland and Alford 1991) compared to the managers, IT vendors, consultants, and government bodies that had dominated the process up until the point of actual use.

While the early influential actors developed somewhat different theorizations, their articulations were mostly dominated by a market-efficiency logic (Jazabkowski 2009). However, users and trade unions developed a variety of discourses based on a welfare-professional logic and this resulted in translations-in-use that were rather different to those anticipated by managers. Hence, ideas were first perceived to have legitimacy by decision makers with power over resources and meanings (Swan and Scarbrough 2005). Although these decision makers encouraged particular ideas to travel to their own organization and can translate information technologies in ways that supported what they perceived to be legitimate, there were subsequent and ongoing travel moments when users found ways to improvise on prescribed use by drawing on an alternative institutional logic about what is legitimate. This suggests the importance of looking at a myriad of ongoing theorizations and translations within as well as across organizations. It also indicates the importance of looking at responses to institutional pressures beyond acquiescence (Oliver 1991).

Many IS studies have focused exclusively on acquiescence; yet as Mignerat and Rivard (2009, p. 388) indicate "IT implementation and adoption are research areas where strategies such as compromise, manipulation and avoidance very likely exist." Accordingly, we may find different translations within the same organization indicating the importance of longitudinal research that considers multiple stakeholders. Abrahamson (2011, p. 627) confirms the importance of

looking at local theorization–translation efforts, suggesting that it is possible to identify "mini-fashion communities of consumers."

## Structure and Agency: Institutions Still Matter

While our focus on practices has addressed the agency involved in IT institutionalization, our findings also demonstrate how existing institutions affect this agency, the remit of earlier institutional theory research (Meyer and Rowan 1977). For example, IT vendors operating in Denmark were influenced to focus on the organizational field of home care by the availability of state financing; moreover, their theorization and translation practices were adapted to fit the priorities of the municipalities. Thus, these organizations selectively appropriated and contributed to ideas that were circulating in the organizational field and in turn translated ideas that were consistent with current institutional pressures and priorities. In other words, while the creation and appropriation of particular ideas and of their translation suggest agency, the selective nature of this appropriation is a reflection of the cultural embeddedness of the actors involved and the pressures they are facing (coercive, mimetic and normative; DiMaggio and Powell 1983).

Returning to the general idea of the traveling of ideas, our research demonstrates the usefulness of this metaphor in focusing on both the theorization and the translation practices involved in institutionalization. However, the metaphor itself says little about which ideas travel to whom and why. Our consideration of existing institutional pressures helps us understand this. We see that particular ideas are created (theorized) and travel (get translated) in particular Danish municipalities. So, while we can treat the Danish home care context as one organizational field, our findings suggest the importance of looking at differences within the field in terms of how ideas travel. This does not imply that the organizational field is a redundant concept—certainly there were similarities across the municipalities since they were all responding to a national agenda on home care—but it does emphasize that while all organizations in the field may be "in the same boat" (Dacin et al. 2002), each organization is a little different (just as each rower in a boat has a different physique) and so will respond uniquely to the boat's circumstances. Thus, our findings stress the importance of looking at both the boat (the common organizational field and the existing institutional structures) and the rowers (the particular organizations within the field and the specific institutional pressures they emphasize and enact) simultaneously. We need to

examine the recursive ways in which institutions affect organizational decision makers as well as how actors affect institutions, privileging neither structural constraints nor agency voluntarism.

### *Linguistic and Material Objects: Embracing Both Simultaneously*

Throughout the observed phases of institutionalization, we illustrated how mobile IT in Danish home care became popular not only because of its artifactual character, but also because of how it was packaged (Newell et al. 2000) and who championed the idea. While these processes were mainly exercised at the organizational field level and were cognitive in nature, we drew on the concept of translation (Czarniawska and Joerges 1996) for understanding how these processes in the end shaped the actual usage of new technologies by organizations and individuals. As a result, our empirical results show that the idea of mobile IT usage was far from well-defined or unequivocal. Instead, there was room for translating the idea into new and different forms as it circulated across the field and was passed between actors within different organizations. Hence, our study illustrates that while it may be important to theorize the material artifact in IS research (that is, embracing the material turn; Benbasat and Zmud 2003), this cannot be done independently of considering the linguistic aspects of how IT is theorized (that is, embracing the linguistic turn; Kaganer et al. 2010; Newell et al. 2000; Swanson and Ramiller 1997).

## Concluding Remarks ▬▬▬

Mobile IT institutionalization in Danish home care is an attractive subject for analysis because it is a highly structured setting infused with pluralistic types of institutional logic, but it only represents one example of IT institutionalization. Future research should, therefore, investigate whether other popular information technologies demonstrate similar patterns across different types of fields. It may well be that some do, while others reveal different stories when it comes to the recursive intertwining of theorization and translation practices. Yet, rather than generalizing case data to a particular context or population, our study generalizes to theory (Lee and Baskerville 2012). We provided new insights into IT institutionalization by demonstrating the ongoing interactions between theorization and translation practices. This complexity in our findings highlights the importance of comprehensive IT institutionalization research across organizational

fields and individual organizations. Hence, we encourage further efforts by other researchers in other settings that will extend (or challenge) our results.

Our analysis does not speak directly to the quality of the theorizing and translation practices through which new IT ideas become (or fail to become) institutionalized. It is vital to emphasize that the outlined framework is not founded on normative premises. The question whether these processes and their outcome are good or bad falls beyond the scope of this article. This question could, therefore, be an important direction for future research. Such movement toward a more normative perspective on theorization and translation has started to emerge (Rövik 2007), and may also be beneficial in IS institutional research. Taking this route, we encourage future research to focus on IT theorization and translation competences, for instance, sensitivity to the IT idea that is to be translated; knowledge of the contexts from which the new IT idea originates and to which it is to be applied; and knowledge about the theorization–translation process itself. Insufficient theorization and translation competence will increase the risk of an uncontrolled and potentially ineffective institutionalization process, leading to undesirable results of IT usage.

Although institutional analysis already has borne much fruit in IS research, new research avenues still remain to be explored if we are to fully exploit the richness of institutional theory (Mignarat and Rivard 2009). We have started to explore such new avenues by drawing on the travel of ideas perspective in the organizational literature (Czarniawska and Joerges 1996) and combining this with an enactment lens (Leonardi and Barley 2011; Orlikowski 2000) to arrive at a new understanding of IT institutionalization. In this sense, we signify the fruits that examining the interaction between Organization Studies and Information Systems research may provide (Orlikowski and Barley 2001).

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# MIS Quarterly

# THEORIZATION AND TRANSLATION IN INFORMATION TECHNOLOGY INSTITUTIONALIZATION: EVIDENCE FROM DANISH HOME CARE

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# Appendix

## Case Study Design

Our longitudinal investigation of the institutionalization of mobile IT in the Danish home care field followed previous travels of ideas studies (e.g., Morris and Lancaster 2006).  It is advocated that illustrative case studies are particularly valuable in longitudinal studies to help readers focus on the proposed conceptual relationships (Siggelkow 2007).  In addition to comprehensive data from the broader home care field (Table A1), we therefore compiled detailed data from three home care agencies (Table A2) to illustrate more concretely the recursive dynamics of translating ideas of mobile IT usage into day-to-day practices.  To increase the study's internal validity we used mixed methods, including both primary and secondary data based on surveys, interviews, and documents (Jick 1979; Tashakkori and Teddlie 1998).  Although our investigation covers a 10 year period of time (1998–2008), our data collection occurred during 2007 and 2008.  The data collection was carried out by the first author.

As summarized in Table A1, we collected *field level data* to understand the overall dynamics shaping mobile IT institutionalization, involving articulation of mobile IT usage within the Danish home care field.  As a starting point, we undertook a survey of home care managers in the 98 Danish municipalities to map the diffusion pattern of mobile IT and to improve our understanding of the research context.  We used a structured interview guide and all 98 managers were interviewed by telephone, ensuring a 100 percent response rate.  The questions we asked included:  How many home care agencies are using mobile IT?  Which groups of healthcare personnel make use of the technology?  When did they start using mobile IT?  Another purpose was to get a sense of each home care agency's interplay with the broader organizational field, asking about their reasons for adopting (or rejecting) mobile IT, the influence of government funding, and sources of inspiration for adopting mobile IT.  Recognizing that IT linguistic practices manifest in a variety of forms or channels (Kaganer et al. 2010), we chose to consider expressions (1) in newspapers and practitioner magazines, (2) on IT providers' web sites, and (3) in government reports and web sites.  Although other expressions were also in play (e.g., TV and radio), these were selected to represent the major forms of expression readily available for

## Table A1. Field Level Data

| Source | Respondent | Purpose | Date |
|---|---|---|---|
| **Survey** | | | |
| Survey (focal population) | Home care managers in all 98 Danish municipalities | Identifying the diffusion pattern of mobile IT and the major sources of inspiration for adopting mobile IT | September 2007 – October 2007 |
| **Documents** | | | |
| Policy documents | Publishers:<br>• Modernisering.dk<br>• Ramböll Management<br>• The Ministry of Finance<br>• The Ministry of Social Affairs | To get insight into how political stakeholders promote mobile IT usage | 1998 – 2008 |
| IT providers` webpages | Three main competitors within Danish home care | To get insight into how providers market and communicate about mobile IT | 2007 |
| News articles | 298 practitioner magazines and newspaper articles about mobile IT | To get insight into how the media presented and communicated about mobile IT | 1990 – 2008 |
| **Interviews** | | | |
| Interviews with key stakeholders in the political environment | Representatives from:<br>• The Ministry of Social Affairs<br>• The Ministry of Finance<br>• Local Government Denmark (LGDK) | To get insight into the entrepreneurial effort to promote mobile IT usage as way to modernize Danish home care | October 2008 – December 2008 |

## Table A2. Selected Cases

| | *Large*-HCA | *Medium*-HCA | *Small*-HCA |
|---|---|---|---|
| Municipality Population (2008) | 503.699 | 59.040 | 35.445 |
| Geographical location | Zealand | Funen | Jutland |
| Number of care workers (2007) | 3.300 | 400 | 270 |
| Clients recieving home care (2007) | 20.018 | 2.602 | 1.600 |
| IT-provider | CSC | Ramböll | Zealand Care |
| Mobile device | PDA | PDA | Smartphone (Communicator) |
| Mobile devices in use (2008) | 2.650 | 400 | 270 |
| Implementation | 2002-2007 | 2005 | 2005 |

analyses. We identified and analyzed 298 magazines and newspaper articles about mobile IT usage within home care.[1] We also undertook content analysis of the websites of three key IT providers (CSC, Ramböll, and Zealand Care) that promoted and marketed mobile IT in order to examine the rhetoric that surrounded these technologies. We supplemented this with information about the providers and their solutions from newspapers and professional magazines. We read through government reports (e.g., The Ministry of Social Affairs 2005), government websites (e.g., modernisering.dk), and consultant reports (e.g., Ramböll Management 2007) to further our understanding of how mobile IT was articulated in the home care field. Finally, we interviewed key stakeholders in the political environment including representatives from the

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[1]The articles are found in the electronic database infomedia.dk and cover the period from 1990 until 2008. Infomedia.dk monitors approximately 600 Danish print media including all the key media. In our search, we used keywords such as mobile IT, mobile technology, PDA, and CareMobile in combination with home care and elderly care. The search is not a guarantee that all articles about mobile IT is included, but we believe that most articles on the subject were captured as we used different keywords and an extensive database.

Ministry of Social Affairs, Ministry of Finance, and LGDK (a major interest group for municipalities) as they were particularly influential in the discussion on modernizing home care using mobile information technologies. Through semi-structured interviews, we addressed such topics as how they were engaged in the articulation and proliferation of mobile IT. The interviews, lasting one hour on average, were recorded on tape and transcribed.

As summarized in Table A2, we collected *organization level data* to understand how ideas of mobile IT usage transformed into specific usage arrangements in individual home care agencies (HCAs). We selected three illustrative cases—*Large*-HCA, *Medium*-HCA, and *Small*-HCA— for our study. They all had considerable experience using mobile IT (respectively 5, 2, and 2 years), which allowed us to obtain detailed insight into how they engaged ideas of mobile IT usage and how it was translated into day-to-day work arrangements. At the same time, the three organizations differ in number of clients (large, medium, small), geography (three different areas in Denmark), and choice of IT provider. The multiple case design afforded illustration and comparison of various forms of translation processes, thereby ensuring more robust data compared to a single case study (Yin 2009).

To reach an appropriate degree of internal validity, we included multiple sources of empirical evidence: interviews, survey data, and documents (Table A3). Semi-structured interviews in each case represented the major stakeholders: managers and the users of mobile IT (care workers and nurses). Overall, 10 managers or project managers (respectively 4, 4, and 2 in each case) and 24 employees (respectively 7, 8, and 9 in each case) participated in the interviews. We conducted them as either single interviews or group interviews with two or three participants. Interviews included generic questions that allowed the respondents to express how they considered the decision to implement mobile IT, how they experienced the implementation process, their perceptions about mobile IT, and how they used (or did not used) the technology in practice. More specific questions were also asked. For instance, managers were questioned about major sources of inspiration and their collaboration with IT providers and consultants to explore how translation and theorization practices interacted. We ensured that the data from all cases covered similar topics and would allow cross-case comparisons (Miles and Huberman 1994). To supplement the interviews, we conducted a survey of care workers across the three case setting (N = 315, response rate 63%). Although we made use of a quantitative technique, it was not developed for hypothesis testing, but rather as a way to ensure more valid data and more robust conclusions in our qualitative analysis (Silverman 2001). The purpose was to identify the scope of some of the views that emerged in the semi-structured interviews, particularly focusing on care workers' perceptions about the new technology and how they use mobile IT in practice to get a sense of how they engaged in translating mobile IT into daily use. Finally, internal documents (e.g., project descriptions, minutes, from meetings and evaluations) were collected in each case to further our understanding of the institutionalization process, including how mobile IT usage was selected, motivated, objectified and legitimized.

We transcribed each interview and analyzed the data following the well-documented recursive pattern of interpretive research (Miles and Huberman 1994). We reported our results to key participants (e.g., managers in municipalities and representatives from The Ministry of Social Affairs and The Ministry of Finance) for validation of facts and citations. This resulted in a few, minor changes and insured the pragmatic validity of our findings. Overall, they believed our results corresponded to their personal impression of mobile IT adoption and usage in home care.

| Table A3. Organization Level Data: Three Case Studies | | | |
|---|---|---|---|
| **Source** | **Respondent** | **Purpose** | **Date** |
| **Interviews** | | | |
| Interviews with key stakeholders in each home care agency | • Home care managers<br>• Project managers<br>• Care workers and nurses | To gain insight into how ideas of mobile IT were translated into practice | December 2007 |
| **Survey** | | | |
| Survey across the 3 home care agencies | • 315 care workers received a survey and 198 responded (63%) | To quantify the health care personnel perceptions of mobile IT and how they use mobile IT in practice | December 2007 – January 2008 |
| **Documents** | | | |
| Internal documents in each home care agency | • Project descriptions<br>• Minutes from meetings<br>• Evaluation reports | To get insight into how ideas of mobile IT usage were motivated, objectified and legitimized | 1998 – 2008 |

To manage the complexity of data, our analysis unfolded in stages. First, we read through the collected empirical material to gain a chronology of major events (Miles and Huberman 1994). We identified antecedent conditions and major events taking place between 1998 and 2008 in mobile IT institutionalization within the Danish home care field and specifically in the three selected home care agencies. The next stage was more directly linked to our research question and our theoretical constructs served as sensitizing devices (Patton 2002). We identified three distinct periods in the process of mobile IT institutionalization, and in each period we searched for key theorization and translation practices. Finally, to outline a storyline (Golden-Biddle and Locke 2007), we focused on how mobile IT institutionalization practices constituted through theorization in the home care field and translation by its member organizations. Below, we present summary tables from the analyses.

| Table A4.  Adoption of Mobile IT by Care Workers (Absolute Numbers and Percentage) | | | | | |
|---|---|---|---|---|---|
| | **Phase 1: 1998-2001** | **Phase 2: 2002-2005** | **Phase 3: 2006-2008\*\*** | **Non-Adopters** | **Total** |
| Number of municipalities | 0 | 18 | 71 | 9 | 98 |
| % | 0 | 18 | 73 | 9 | 100 |

*Home care managers were asked (in 2007) what year care workers started to use mobile IT.
**Estimate for 2008. Home care managers were asked (in 2007) if they expected care workers to start using mobile IT during 2008. 13 managers answered yes to this question.

| Table A5.  Publicity of Mobile IT in the Media, Categorized by Year (%) | | | | | | |
|---|---|---|---|---|---|---|
| | **Positive Publicity** | **Negative Publicity** | **Mixed Publicity** | **Neutral Publicity** | **SUM** | **Number of Articles** |
| Phase 1:  1998-2001 | 64 | 0 | 18 | 18 | 100 | 11 |
| Phase 2:  2002-2005 | 58 | 10 | 12 | 20 | 100 | 75 |
| Phase 3:  2006-2007 | 43 | 21 | 15 | 21 | 100 | 212 |

| Table A6.  Sources of Inspiration for Mobile IT Adoption | |
|---|---|
| **Source of Inspiration\*** | **The Number of Municipalities Indicating That this Source Was a Primary Inspiration** |
| IT-providers | 29 |
| Other municipalities | 28 |
| CareMobile | 25 |
| From "old" municipalities (in merged municipalities) | 10 |
| Professional networks and conferences | 6 |
| Consulting firms | 3 |
| LGDK | 3 |
| Media | 1 |
| Other | 9 |

*When asked for source of inspiration, there were no predefined options so managers could freely specify multiple sources.

| Table A7.  Preferences of Care Workers:  Current Use of Mobile IT and Previous System, 2008  (%) | | | | | |
|---|---|---|---|---|---|
| | **Current System of Mobile IT** | **Previous System Without Mobile IT** | **Undecided** | **SUM** | **N** |
| All | 53 | 35 | 12 | 100 | 176 |
| *Large*-HCA | 52 | 40 | 8 | 100 | 82 |
| *Medium*-HCA | 58 | 31 | 11 | 100 | 59 |
| *Small*-HCA | 49 | 31 | 20 | 100 | 35 |

| Table A8. Care Workers' Assessment of Mobile Technology Use (%) | | Strongly Agree | Agree | Disagree | Strongly Disagree | SUM | N |
|---|---|---|---|---|---|---|---|
| Easy to use | *Large*-HCA | 25 | 51 | 16 | 8 | 100 | 81 |
| | *Medium*-HCA | 14 | 57 | 26 | 3 | 100 | 58 |
| | *Small*-HCA | 24 | 64 | 6 | 6 | 100 | 33 |
| Saves time | *Large*-HCA | 7 | 28 | 34 | 31 | 100 | 82 |
| | *Medium*-HCA | 9 | 28 | 34 | 29 | 100 | 53 |
| | *Small*-HCA | 9 | 25 | 38 | 28 | 100 | 32 |
| Better task performance | *Large*-HCA | 11 | 35 | 32 | 22 | 100 | 78 |
| | *Medium*-HCA | 11 | 39 | 37 | 13 | 100 | 46 |
| | *Small*-HCA | 3 | 40 | 34 | 23 | 100 | 35 |
| Less stressful working day | *Large*-HCA | 4 | 10 | 58 | 28 | 100 | 73 |
| | *Medium*-HCA | 8 | 19 | 45 | 28 | 100 | 53 |
| | *Small*-HCA | 6 | 6 | 49 | 39 | 100 | 33 |
| Increases the control | *Large*-HCA | 30 | 31 | 34 | 5 | 100 | 80 |
| | *Medium*-HCA | 8 | 24 | 44 | 24 | 100 | 51 |
| | *Small*-HCA | 27 | 46 | 27 | 0 | 100 | 33 |
| Technical difficulties hinder use | *Large*-HCA | 19 | 53 | 24 | 4 | 100 | 74 |
| | *Medium*-HCA | 37 | 52 | 7 | 4 | 100 | 54 |
| | *Small*-HCA | 20 | 62 | 15 | 3 | 100 | 34 |

| Table A9.  Key Empirical Findings | | | |
|---|---|---|---|
| | **Phase 1:  Emergence (1998– 2001)** | **Phase 2:  Experimentation (2002–2005)** | **Phase 3:  Stabilization (2006–2008)** |
| **Key Stakeholders** | Government reforms increased the need for IT support of home care. A few IT providers developed quite simple solutions based on offline connectivity. A few home care agencies tested mobile IT in close collaboration with IT providers. | Government financed an ambitious, large-scale pilot (CareMobile). CareMobile involved key stakeholders (ministries, interest groups, providers, consultants and six pilot municipalities). More IT providers developed advanced mobile IT systems based on online technology. Several home care agencies experimented with mobile IT usage. | Government allocated 45 mill Euros to support mobile IT implementation. Number of IT providers decreased. Nearly all home care agencies used mobile IT. |
| **Theorization** | IT providers, some home care agencies, and the media communicated mobile IT as an interesting innovation that could help address the need for improved management and documentation accelerated by government reforms. The legitimacy sought was more moral than pragmatic as the rhetoric presented mobile IT as functionally superior to existing practices rather than stressing a general organizational failing as core motivation. | CareMobile provided evidence of positive effects from the use of mobile IT, especially efficiency of operations. Experiences from CareMobile were articulated in general terms to make mobile IT usage universally applicable across the Danish home care field.  The language used appealed to economic reason. Key IT providers developed increasingly different articulations of the benefits from mobile IT usage. The media presented mobile IT in predominantly positive terms. Innovative home care agencies communicated their experiences of translating mobile IT into practice at conferences, websites and in practitioner magazines. | The normative appeal increased as the Prime Minister and other key ministers communicated in favor of mobile IT usage. IT providers and consultants praised the use of mobile IT with examples from new working practices in specific home care agencies. Multiple ideas surrounding mobile IT usage evolved. The media published more articles on mobile IT and articles with negative publicity on mobile IT exceeding the positive. |
| **Translation** | An exclusive group of home care agencies started to translate ideas of mobile IT usage into specific usage arrangements.  However, early experiments were impeded by technical difficulties and suspended after pilot. *Large*-**HCA:**  Decision on mobile IT adoption to improve documentation and management control based on PDAs with offline connectivity; inspiration from IT provider (CSC); managers as key promoters.  Mobile IT inscribed in a context in which *Large*-HCA had a tradition for carefully monitoring working hours and services in home care *Medium*-**HCA:**  No concrete initiatives on use of mobile IT. *Small*- **HCA:**  No concrete initiatives on use of mobile IT. | The scope increased with more experiments with mobile IT usage. *Large*-**HCA:**  Pilot, stepwise implementation, critical voices gained ground. *Medium*-**HCA**:  Decision on mobile IT adoption to improve image based on PDAs with online connectivity; inspiration from IT provider (Ramböll) and other home care agencies; managers as key promoter.  Mobile IT inscribed into a context, where *Medium*-HCA saw itself as being at the forefront of new technology. *Small*-**HCA:**  Decision on mobile IT adoption to improve efficiency of operation based on online connectivity; inspiration from IT provider (Zealand Care) and CareMobile; politicians from the City Council demanded administrative time savings and new meeting structures. Considerable resistance among care workers as new work arrangements collided with existing practices. | The majority of home care agencies engaged in translating ideas of mobile IT usage into working practices. *Large*-**HCA:**  Mobile IT in daily use predominantly for documentation.  The overall management approach dominated, but care workers also circumvented managerial guidelines and sometimes used PDAs differently than planned; different and conflicting perceptions towards mobile IT; reactions to control. *Medium*-**HCA:**  Mobile IT in daily use predominantly for communication.  Care workers circumvented managerial guidelines, they continued to print schedules rather than access them on PDAs. Different and conflicting perceptions towards mobile IT; technical problems. *Small*-**HCA:**  Mobile IT in daily use. Different and conflicting perceptions towards mobile IT usage; lack of knowledge sharing and collegial relationships as face-to-face meeting was replaced by mobile communication. |

| Table A9. Key Empirical Findings | | | |
|---|---|---|---|
| | **Phase 1: Emergence (1998– 2001)** | **Phase 2: Experimentation (2002–2005)** | **Phase 3: Stabilization (2006–2008)** |
| IT Institutionalization | IT providers and innovative home care agencies took leadership in early theorization and translation practices. Providers developed new technical solutions, they promoted them linguistically, and they took part in early translations within home care agencies as their ideas on mobile IT usage were mixed with established management traditions in each home care agency. | Government stakeholders entered the scene as mobile IT continued to move towards institutionalization. CareMobile illustrates how this process involved recursive intertwining of theorization and translation practices as the project served as an arena in which heterogeneous stakeholders could translate different ideas, discuss challenges, and identify key lessons from practice. | Progress towards stabilization, but also movement toward fragmentation. Increased field level pressure for adoption, at the same time as adoption had different faces. Many experiences from translating mobile IT into new use arrangement continued to shape the ongoing debate over the role of the new technology. |

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