Institutionalizing a service innovation in complex networks:
The case of developing and diffusing electronic prescription in Finland

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Abstract:
In order to succeed, an innovation has to integrate with the resources in the market and surrounding environment. Therefore no individual actor can alone successfully create and diffuse an innovation, but the process is affected by practices, values, and institutional structures maintained by the industry with its embedded networks of stakeholders. This paper examines the development and diffusion process of a heath care service innovation – the Electronic Prescription – as a process of institutionalization. We develop our contribution by integrating service innovation research, institutional theory and the network approach to analyze an extensive case study displaying a multi-stakeholder network that institutionalizes electronic prescription in Finland. Our findings highlight the tensions arising between heterogeneous actors who represent divergent perspectives, logics and interests towards the E-prescription. The main contribution of this study is to highlight that the development, commercialization and diffusion of major innovation is akin to a process of institutionalization. This view contributes to the IMP literature that has remained relatively silent on the role and influence of institutions. The findings also demonstrate the importance of studying multiple layers of the innovation ecosystem as together they host the range of stakeholders that gradually institutionalize the innovation. A better understanding on the challenges of innovating in complex multi-actor networks helps firms to proactively foresee factors that may facilitate or hinder the institutionalization of their innovation.

Keywords: service innovation; innovation networks, institutionalization, innovation ecosystems, eHealth

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INTRODUCTION

Innovation takes place in an increasingly interconnected and dynamic world (Vargo et al., 2015). Both IMP and innovation research have acknowledged that inter-organizational relationships and networks are crucial throughout the innovation process from R&D to commercialization (see Aarikka-Stenroos et al. 2014; Story et al. 2011, Perks & Moxley 2011). In brief, one firm alone is seldom capable of making the innovation happen.

The IMP perspective conceptualizes innovation as taking place by resource integration, where actors embedded in networks combine their resources to create new resources (Easton, 1992, p. 24; Baraldi and Strömsten, 2009). Furthermore, new resource (innovation) becomes valuable only when it is integrated with other resources in the markets (cf. Harrison and Håkansson, 2006), i.e. when the new product or service is used by other actors. Therefore, in order to create value, the innovation has to resonate with the needs, practices, values, and institutional structures of the market and all of society, so that it becomes easily for the actors to integrate it into their value processes (Edvarsson & Tronvoll, 2013). At the same time, however, an innovation typically causes change and disruption in the prevailing system, and new practices and structures may be needed before the value can be realized (Edvarsson & Tronvoll, 2013).

For example, many innovations in the health care industry aim at reducing health care costs, but the prevailing institutions such as administrative, technical, or legislative infrastructure and systems do not support or adapt for the necessary change. This means that the innovation requires changes in the prevailing institutions, and at the same time, institutions may hinder and constrain the innovation. When an innovation is successfully adopted by relevant actors and diffused in the market, it becomes “institutionalized”; i.e. it becomes the appropriate, commonly agreed way of operating. In this research, our focus is on the link between institutionalization and successful commercialization, adaption and dissemination of innovations by stakeholders at the market.

Even though both IMP and innovation research has highlighted the relevance of the stakeholder network surrounding the innovation, this research has predominantly focused on the technical development of the innovation (e.g., Rohrbeck et al., 2009), typically by partners involved in formal partnerships such as alliances or joint ventures (e.g. Eisingerich et al., 2009). Furthermore, extant research has mainly focused on actors with specified roles, i.e. producers as innovators, and customers as adopters, which has resulted in a limited understanding on how multiple participants contribute to innovation (Vargo et al., 2015). Less research has been conducted to address the whole development and diffusion process throughout which novel service processes evolve and become regimes in the interplay of versatile actors (cf. Geels 2002), i.e. how service innovation is institutionalized by the surrounding network of stakeholders, the innovation ecosystem. This aspect is relevant especially in the case of radical innovations that require extensive changes in a broad range of existing institutions.

Inspired by these gaps, this paper examines the development and diffusion process of a health care service innovation – the Electronic Prescription – as a process of institutionalization. More specifically, we study the drivers and barriers of the institutionalization of an innovation. We develop our contribution by integrating service innovation research, institutional theory and the network approach to analyze an extensive case study displaying a multi-stakeholder network that institutionalizes electronic prescription in Finland.
Institutions can be defined as “a set of rules governing interpersonal governance” (North, 1990, p. 70). According to Scott (1995), there are three kinds of institutional pillars: 1) regulative institutions manifested by the existence of rules, laws, sanctions that constrain and regularize behavior; 2) normative institutions defining what is appropriate, i.e. what are the goals as well as the appropriate means of achieving them; and 3) cultural/cognitive institutions referring to culturally supported practices taken for granted; relating to the common beliefs and shared “logic” in a field. Together, institutions set the “rules for the game” in a given industry and affect resource integration by individual actors. Institutional settings and logics (e.g. norms, rules, standards) of service systems (networks) affect individual actors’ intensions, motivations and behaviors, but also the actions taken by actors influence existing institutions (Edvardsson et al., 2014).

Vargo et al. (2015) argue that institutionalization, defined as the maintenance, disruption and change of institutions, is the central process of innovation. In this research, innovation refers to the object – a novel technology, product, service, or business model (e.g., Markides, 2006) – as well as the process, involving activities such as visioning, development, and commercialization (facing markets) (e.g., O’Connor et al., 2008). The institutionalization of a radical innovation implies a change in the institutional logic within the industry as it involves the reshaping of institutions to better suit the new practices required by the innovation (cf. Edvardsson et al., 2014). This is highlighted in the context of service innovations that typically entail changes in the processes and activities not only by individual actors, but between actors. No single actor can therefore alone successfully create a market-shaping innovation, but the innovation is affected by a set of institutions of different kinds, maintained by the industry with its embedded networks of stakeholders.

Various stakeholders and network actors such as distributors, consultants, suppliers, research institutes and universities, government agencies, and associations can advance or hinder the success of innovation (Biemans, 1991; Aarikka-Stenroos et al., 2014) and therefore influence its institutionalization in the market/society (Geels, 2002). Intermediaries are crucial in the case of consumer products because they make the product available to users (Woodside and Biemans, 2005). Public organizations and educational institutions may support the diffusion by articulating positive visions of the use of the innovation in society (Troschani & Doolin, 2007); and public and political authorities shape priorities of innovative actions (Geels, 2002). Furthermore, expert opinion leaders, lead users, and user groups impact the formation or change of opinion, provide publicity, give advice and function as lead-teachers, demonstrate the new product, and explain its unique benefits over what is currently available and thus accelerate or block the adoption of the product (Woodside & Biemans, 2005; Harrison & Waluszewski, 2008; Aarikka-Stenroos et al. 2014). Together these stakeholders constitute the innovation ecosystem.

The network actors’ contributions to the can be divided into three groups (Aarikka-Stenroos et al. 2014): on strategic level actors create markets for innovations, as regulators, investors, public organizations, and media as well as related firms together shape markets by breeding ecosystems; on more practical level users, media, and divergent organizations and communities build awareness and educate other actors and markets on the employment and benefits of the innovation; and finally all adopters and users facilitate and accelerate further adoption in markets by impacting attitudes and choices, and by creating the influence of critical mass.

As in this paper we focus particularly on barriers and tensions that complicate diffusion and adoption and the consequent institutionalization of innovation. Even though interest on
innovation barriers has been growing, the barrier approach remains a much smaller and less-organized research stream than the driver approach (Mohnen & Rosa, 2002). Innovation barriers are issues that either prevent or hamper innovative activities: they can be “total barriers” that prevent innovative activities in firms or they can be understood as obstacles that can be overcome with effort (e.g., D’Este et al., 2012; Sandberg & Aarikka-Stenroos, 2014). Barriers are largely relative and context dependent; what constitutes a barrier and the extent to which it hampers innovative activities depends on the firm and its characteristics (Sandberg & Aarikka-Stenroos, 2014). For example, obstacles that are crucial for small firms might be overcome effortlessly by bigger firms (Mohnen & Rosa, 2002). Some of the deterring barriers are positioned in structures and concern routines, changing status-quo and lack of market (structure) (D’Este et al., 2012). Barriers can occur on systemic levels (e.g. large technical systems that tend to be strongly path-dependent); in such situations there is a need to overcome prevailing standards and to compete against the established product and technologies (Markard & Truffer 2006).

As especially radical innovations require changes in a range of “rules and norms”, and thereby practices by a number of industry players whose interests may not be harmonious with each other, tensions may emerge throughout the innovation institutionalization process. These tensions may be viewed as barriers to the innovation process, but also as stimulants of development (Vaaland & Håkansson, 2003). Conflicts and tensions may arise especially between heterogeneous actors who often operate according to different logics, such as in the case of public-private collaborations (Nissen et al., 2014; Olsen et al., 2014). According to Driessen & Hillebrand (2013), stakeholders related to innovating can be divided into "market stakeholders" (comprising customers, competitors, suppliers, and retailers) and "non-market stakeholders" (comprising regulators and special interest groups). Their different perspectives result in tensions. Such tensions between stakeholder issues can be managed through coordination mechanisms, prioritization principles, and learning to integrate.

In sum, a prerequisite for successful market-shaping innovation is that it becomes institutionalized. Therefore it becomes essential to understand what facilitates successful institutionalization, and what kind of tensions and conflicts may arise that create barriers to institutionalization. Next sections report our empirical study exploring the emergence of an industry-shaping radical innovation in a service innovation ecosystem.

**METHODS AND DATA**

This study applies a single case strategy as it aims to investigate in detail an extensive, complex multi-actor case study on the development and implementation of electronic prescription in Finland. This context is a relevant area of eHealth worldwide: different Electronic Prescription Systems have been implemented, or are being implemented in several European countries and America. Among implementing countries are at least Canada, Denmark, Germany, the Netherlands, Portugal, Spain, and Sweden (Salmivalli 2006).

Electronic prescription is a particularly rich context to study institutionalization: it is an overarching system with the requirement of simultaneous change in regimes of many kinds, such as legislation, professional practice, information system protocols as well as practices of citizens. The electronic prescription system represent a major shaping of institutions as it is an ‘irreversible’ intervention in the large, multifaceted and deep-rooted network of hospitals, doctors, clinics, pharmacies, authorities, commercial executors (e.g., software vendors) and patients with occasionally divergent objectives (Salmivalli 2006).
In the studied Finnish context, an electronic prescription (ePrescription) is a prescription for pharmaceuticals that a physician writes up and signs electronically and enters in the national Prescription Centre. The Centre thus constitutes a database of all the information related to the prescribing and delivery of medicinal products. Data in the Prescription Centre are accessible by physicians, dentists, pharmacists and students in these fields, and also by health care professionals assigned to handling requests for renewing prescriptions at health care service units (Ministry of Social Affairs and Health, 2015). The Electronic Prescription System (EPS) is a representative of the entire socio-technical system, with various actors and subsystems (Salmivalli, 2008).

Our study relied on retrospective and multiple sources of data and therefore it comprises also features of a historical analysis that has an established method of studying innovation (e.g. Chiesa & Frattini, 2011).

In detail, our follow-ups are based on the following data sets: interviews of key persons, meetings and collaboration workshops (observations and memos), scientific publications (e.g. publications and theses on electronic prescription), media material, reports, marketing material (e.g. brochures), and administrative documents related to electronic prescription; e.g. meeting minutes. These diverse datasets consolidated the intention to investigate the perspectives of the network actors. By collecting different types of data along the development and commercialization process of electronic prescription and from different network actors, we increased data triangulation (e.g. Flick, 2004).

**FINDINGS**

**THE CASE STORY LINE: THE DEVELOPMENT AND DIFFUSION OF FINNISH ELECTRONIC PRESCRIPTION**

The Finnish health care system resembles those of other Nordic countries and the UK in the sense that it covers the whole population and its services are mainly produced by the public sector and financed through general taxation. A distinctive feature of the Finnish system is the National Health Insurance scheme, which partly reimburses the same services that are funded by taxation, but also other services, e.g., medications prescribed by a doctor, private sector examinations and treatments performed or prescribed by a doctor or dentist (Järvelin, 2002; Häkkinen, 2005; Salmivalli, 2008). The Finnish system is exceptionally decentralized: the main duty for organizing health care in 2007 is borne by 416 local authority municipalities round the country. The local authorities are responsible for organizing primary and specialist medical care for residents of the municipality (Järvelin, 2002; Häkkinen, 2005). Public health care is supplemented by private health care actors, especially in the larger municipalities.

In Finland, medicines may be sold to the public only by pharmacies and subsidiary pharmacies with the exception of sparsely populated areas, where non-prescription products may be sold by medicine dispensaries owned by pharmacies. An order by doctor, dentist, or veterinary surgeon is needed for the purchase of prescription medicines from a pharmacy (National Agency on Medicines 2004). There were 601 pharmacies in Finland in 2003. Pharmacies are privately owned, with the exception of the University Pharmacy chain.

The first steps towards developing EPS in Finland were taken in the 1990s, with card-based trials, organized by the Social Insurance Institution. The system was abandoned, due to the lack of the processing capacity and prescription software being inadequate to produce an efficient prescribing process (Salmivalli, 2008). There were also problems in terms of inadequate attention to the entire process of prescription data processing, lack of attention to patients’ rights, data security and technological interoperability, lacking agreement about financing the
system and rights to access the data as well as lack of national regulation (The Social Insurance Institution of Finland 2001; Salmivalli 2006).

The process of the actual development project was set in motion by the Finnish government (Vuolanne, 2009). In 2000, the Ministry of Social Affairs and Health (STM) commenced a project to draw conclusions on experiences from earlier trials and to recommend a national concept for electronic prescribing to synchronize the development work. Based on the Ministry’s assignment, in 2001 the Social Insurance Institution published a preliminary disquisition of electronic prescription with the National Agency for Medicines. The report concluded recommending a national database-system with access to doctors, pharmacies, Social Insurance Institution and later also patients. (Social Insurance Institution 2001)

In 2002, the Ministry established a national project to construct and pilot the system suggested in the report. The ministry selected units from health care organizations and a couple of nearby pharmacies in four different regions to pilot the national concept described in the report. The actors involved comprised of units of health care organizations, pharmacies represented by the Association of Finnish Pharmacies (AFP) and pharmacy sublets represented by the University Pharmacy. A national steering group coordinated the locally organized pilots with a small budget (Salmivalli, 2008).

An experimental decree on ePrescribing was issued in 2003. It laid down provisions among other things on preparing, signing, technical content, altering and delivery of electronic prescriptions. The technical construction of the system took 2 years, and the first clinical pilot started in 2004. The pilot project was not very successful: by the end of 2004 only two out of the four piloting health care units had implemented the EPS integrated into electronic patient record (EPR), pilot pharmacies still used a stand-alone system, which was not integrated into pharmacy systems and created extra work at the pharmacies (Salmivalli, 2006).

In June 2005, the third integrated EPS and the first integrated pharmacy system were implemented. Furthermore, in the spring 2005 the organization of the national e-prescription pilot was changed thoroughly: the part time project manager of the pilot was changed to a major consultancy company, which re-organized the administration of pilot entirely. The amount of produced e-prescriptions remained very small: during the entire pilot, 1075 electronic prescriptions were written, 436 were dispensed in total and 137 on a partial basis. The writing of electronic prescriptions was terminated on 30 June 2006 – on the same date, the steering group ended its work. The project was taken over by the Social Insurance Institution (SII/Kela) in June 2006 (Salmivalli, 2008).

Despite challenges in the pilot, the Finnish government legislated a law on ePrescription to be deployed nationally by 2011. In May 2007, the Social Insurance Institution of Finland announced that Fujitsu Services Ltd. had won the public procurement on constructing the EPS. Implementation of the EPS was conducted between 2008 and 2010 (Salmivalli 2006).

The fully operating ePrescription service was launched in Turku in 2010. The principle of the system is that prescriptions written by doctors are stored in a national prescription centre run by the Social Insurance Institution of Finland, where doctors and nurses can, with the patient’s consent, access information about all prescription medication taken by a patient. Patients can also access their own e-prescriptions online (Health Care in Finland 2013). Today, all pharmacies have already joined the electronic prescription system (Ministry of Social Affairs and Health, 2015). The implementation of the ePrescription is nearly 100% in pharmacies and public sector health care, and around 70% among private sector health care providers (Ministry of Social Affairs and Health). Patients can refuse to take ePrescription until the end of 2016 but subsequently it becomes obligatory (Ministry of Social Affairs and Health, 2015).
STAKEHOLDERS IN THE INNOVATION ECOSYSTEM INFLUENCING THE INSTITUTIONALIZATION

Diverse public “non-market” and private “market” stakeholders were involved in development process, playing leading or supporting roles: Ministry of Social Affairs and Health was responsible for steering the national development of healthcare IT and prompted the development process in motion; The Social Insurance Institution (KELA) was responsible for national ePrescription Center (among other things); National Authority of Medicolegal Affairs was responsible for PKI and certificate services; and National Institute for Health and Welfare (THL) was responsible for common code sets and classifications (see Vuolanne 2009). Other key stakeholders included HL7 Finland (association for organizations that are interested in systems integration issues and solutions in healthcare and social services) that created implementation guidelines for ePrescribing; several providers of hospital and pharmacy software and servers (Fujitsu, Logica, PharmaData, Tieto, Receptum), pharmacies, as well as public and private health care providers.

Key stakeholders are depicted in Figure 1. Figure 1 illustrates the network of actors having direct or indirect influence on the development and diffusion of the EPS. Stronger lines indicate actual information system connection to the EPS.

Figure 1: Stakeholders for the development of ePrescription

The stakeholders that mainly influenced the specification of the EPS included The Social Insurance Institution and the Ministry. Stakeholders involved in the actual development

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2 Currently National Supervisory Authority for Welfare and Health (Valvira)
included software companies who had a subordinated role in the standardization process and basically implemented the specifications of the first group.

The role of the Ministry of Social Affairs and Health (STM) and the project manager was to develop the strategy, prepare the legislation, and define the system architecture as well as the necessary data structures for the EPS project (Interview STM 2010, Dovancescu et al. 2010). The National Institute for Health and Welfare (THL), subordinate to STM, was involved as an observer and consultant for health care issues. KELA as the national insurance institution was designated as the technical producer and administrator of the system (Interviews KELA, STM 2010, Dovancescu et al. 2010). It was the responsibility of software companies like Logica, Tieto, Receptum and PharmaData to deliver software to health care providers and pharmacies according to the given technical specifications. Finally, legislation obliged health care providers and pharmacies to issue and dispense ePrescriptions (Dovancescu et al. 2010).

PERCEIVED BENEFITS DRIVING THE INSTITUTIONALIZATION

According to the interviewees, in the beginning of the project, the stakeholders shared the mutual understanding that an EPS pilot was necessary and saw many benefits it could generate on the national level. They mentioned benefits related to rationalization of medication and medication costs, bringing health care up-to-date, and increasing the productivity of health care generally. The system could increase efficiency in prescription handling, for example, reduce telephone prescription queries from pharmacies to physicians. Another perceived benefit was the potential for improving the patient quality of care as an integrated system would make it easier to detect overlapping medication and thereby reduce medication errors and adverse drug interactions.

TENSIONS AND BARRIERS SHAPING THE INSTITUTIONALIZATION

Our analysis revealed different barriers and tensions that occurred or were triggered in different levels of the service innovation network complicating diffusion and institutionalization of the ePrescription.

Perhaps the most important barrier to institutionalization was that the expected benefits of the EPS were too unclear or distant to motivate the stakeholders to change their practices. A major source of tensions between the stakeholders was that many of the costs realized in the activities by one group of stakeholders (e.g., public and private health care providers), while the benefits realized in the activities of other stakeholders (e.g., patients, Ministry of Social Affairs and Health). The organizations participating in the pilot phase did not receive any financial incentives for participation: rather, they were expected to allocate resources for the pilot. Throughout the project, there was also confusion about who should pay the costs of transition to ePrescriptions.

Moreover, the measurability and provability of the expected benefits remained rather unclear through the piloting phases of the project. In fact, the costs seemed to fall upon individual organizations, whereas benefits were to be generated on the societal level, and were indirect and rather difficult to calculate, such as improvements in life quality due to the more rational medication of the patient. Individual stakeholders such as pharmacies and health care providers did not really expect any financial savings from the system, but on the contrary, they assumed that EPS would create more costs in terms of extended need of IT personnel and the upgrading of existing systems. Furthermore, while the costs of the project were to be borne in the beginning of the project, the potential benefits would only realize in the long run: the generation
of any actual benefits would require that a significant proportion of all prescriptions were electronic, and as long as two systems were in operations (one for the paper prescriptions and one for ePrescriptions), the full scale benefits could not be achieved. Instead, the costs of both systems were running from the beginning. In general, many of the stakeholders shared the stance that the transition from paper prescription to ePrescription did not provide any great benefits, so the strong motivation to push and facilitate institutionalization was absent.

Another source of tensions and barriers was the different logics and perspectives held by public and private actors which brought on several conflicting issues. For example, the Association of Finnish Pharmacies had a generally negative stance towards changes in the current practices and perceived even irrational risks in the EPS, for example, that the introduction of ePrescription could harm the pharmacy business by resulting in a situation where “people would buy online all their medicines” – even though that scenario had nothing to do with the EPS. Some of the individual pharmacies adapted a positive approach to change whereas some others were resisting it.

One challenge creating obstacles related to coordination and management of key actors. For example, the leading actor initiating the change, the Ministry of Social Affairs and Health, had no authority over the Social Insurance Institution KELA: it could provide some strategic instructions but it could not command or delegate any activities to it, or monitor whether it followed instructions.

One barrier originated from the fact that the end-users’ perspectives were not prioritized or taken into account. Consequently, in the piloting phase, the ePrescription was not very attractive for the key end-user adopters, i.e. physicians. The primary users of the ePrescriptions are physicians and pharmacy personnel, but our findings suggest that the user-acceptance on the part of physicians was the critical factor in the early phases of the institutionalization. Pharmacy personnel had to dispense prescriptions regardless of format, paper or electronic, but physicians, could between paper and ePrescription. Physicians who did not perceive any significant advantage in using EPS would not easily choose the ePrescription in their busy daily practice. A factor contributing to their reluctance was that the first software versions were rather cumbersome to use: tens of mouse clicks were required to log into the system and to write a prescription. Physicians also had to explain patients the data security issues related to the system and ask for patients’ written consent, which in turn created extra work and time loss. This set first serious barriers to adaption among physicians.

Using the ePrescription was at first inconvenient also for the patients, as in the piloting phase, the ePrescription could be collected only in certain pharmacies that often were far away from the health centre where the prescription was written. Patients therefore preferred a traditional prescription that they could collect in their nearest pharmacy. In practice, these inconveniences on the level of daily practices of primary end-user adopters overruled the potential benefits that could be gained on the society level, over a long period of time.

**DISCUSSION AND CONCLUSIONS**

This paper examined the development and diffusion process of the electronic prescription as a process of institutionalization. Our study demonstrates how a service innovation is gradually institutionalized over time, in the course of many phases of development and diffusion activities.

Our case illustrates a very complex network consisting of versatile market and non-market stakeholders (Driessen & Hillebrand, 2013) all of whom affect the institutionalization of the innovation throughout the innovation process. Together these stakeholders constitute an
innovation ecosystem that consist of multiple layers: the primary user layer; professional and industry layer, technological layer, and finally regulative and political layer (Figure 2).

Figure 2. The layers of the electronic prescription innovation ecosystem

The main contribution of this study is to highlight that the development, commercialization and diffusion of major innovation is akin to a process of institutionalization. This view contributes to the IMP literature that has remained relatively silent on the role and influence of institutions. The network approach has created understanding on the systems of relationships between multiple organizations who combine their activities and resources in interaction (Easton, 1992). Our study shows that this resource integration may be critically affected by the norms, practices, and logics – i.e. institutions – residing in the innovation ecosystem surrounding the actors. Furthermore, the actors themselves affect the reshaping of institutions as they change the way they perform activities (cf. Vargo et al., 2015). We believe that examining institutionalization in networks would be a fruitful avenue for future research on interaction and networks.

This study demonstrates the importance of studying multiple layers of the ecosystem (Figure 2) as together they host the range of stakeholders that gradually institutionalize the innovation. This notion contributes to the innovation research that has mainly focused on examining one of the layers, such as the layers of end-users (e.g. Harrison & Waluszewski 2008) or technological infrastructures (Rohrbeck et al. 2009). In the studied case, successful adoption and diffusion of the service innovation was set back by overemphasizing the logic of technological effectiveness and the perspective of technological stakeholders: the success of the ePrescription was not only about deploying new information systems, but changing the everyday processes and norms of a range versatile actors. Our research brings new insights also into research on technological transformations by examining a service innovation context (Geels, 2002).
Our case also shows that sometimes the innovation has the potential for providing benefits for a wide range of stakeholders but due to the extent of changes needed, as well as lack of vision or unclear short-term benefits, majority of the actors are unable or even unwilling to commit to the new regime, but a change agent from higher layers of the innovation ecosystem – a regulative body – needs to force the action. Our research demonstrates that some stakeholders in the innovation ecosystem are more equipped to facilitate the institutionalization process. A more indepth examination on what empowers actors to facilitate or hinder the institutionalization would be an interesting avenue for future research.

The implication of this study is that innovating actors should not focus only on the process of product or service development and the immediate partners involved, but take into consideration the entire ecosystem with its versatile layers of stakeholders that may critically facilitate or hamper the institutionalization of the innovation in the long run. In other words, the long term success of an innovation is determined by its ability to become institutionalized (cf. Vargo et al. 2015).

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