Redesign of Home Care Service Delivery:
A Systemic Approach to IT Innovations

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ABSTRACT

This paper delineates how systemic innovations coevolve with organisations in the context of home care and describes the dynamics in shared innovation activities when information technology (IT) systems are developed for such services. Innovation literature is presented from the system perspective to highlight non-technological characteristics. The case study of home-care services in Finland in 2010–2014 shows that systemic innovations result from collaborative actions because the complexity of these innovations requires knowledge and skills from different fields, which no single entity possesses. The multi-level dynamics challenges the management alternatives that focus either on larger development platforms for transitions, or product-based diffusion – then facing later obstacles related to fragmented solutions when merging IT systems and processes. This study contributes by exploring the complexity of developing innovative solutions under dynamic conditions, when actors have different focuses, interests and interdependencies.

KEYWORDS

Care Service, Case Study, Finland, Information Technology, Innovation, Systemic

INTRODUCTION

In Finland, there has been much debate about public healthcare IT-projects in which fragmentary IT solutions are created instead of solutions that utilise larger platforms to support healthcare and welfare services. Innovation research has revealed that a substantial amount of public funding is used to benefit incremental innovations supporting separate products instead of creating radical and systemic innovations. Recent international innovation studies have identified the difference between innovation and transition policy in complex innovation environments (Alkemade, Hekkert & Negro, 2011). Meanwhile, many information technology professionals are frustrated with unclear specifications and changing project scopes that are usually addressed at the process level by synchronizing parallel projects and developing project and specification management tools [e.g., updated state-gate models (Cooper, 2008) and agile software methods].

Although these challenges are common in countries other than Finland as well, they have rarely been studied from the systemic innovation perspective. Some national health and welfare sector studies have included elements of the systemic perspective, for instance, examining the perspectives

of management (Kivisaari, Kokkinen, Lehto & Saari, 2009) and co-developing information systems in healthcare (Korpela et al., 2013; Martikainen, Korpela & Tiihonen, 2014). Bessant and Mahrer (2009) noted that the most radical innovations are taking place within the public sector, where traditional, linear development approaches are reaching their limits. Bessant and Mahrer also proposed alternative approaches for service innovation, including "co-creation," for public-sector healthcare (Bessant & Mahrer, 2009). Our study addresses this research need by focusing on system-level challenges from an organisational perspective through observation of the actors, resources and activities in an IT project that served as a longitudinal case study.

This study presents new information about innovation occurring in complex home-care systems. Municipalities in Finland provide home care to support the basic needs of elderly and disabled persons living at home; one home-care innovation project served as an in-depth case study to address our research question of "How do systemic innovations evolve in the home-care context?" The purpose of this paper is to analyse the project dynamics and the connections between innovation catalysts and obstacles to achieving systemic changes. This paper advances the discussion about new ways of delivering home-care services and identifies the collaboration needed for successful actions.

First, the paper presents the concepts of systemic innovation, innovation systems and sociotechnical transitions. The discussion is extended to the dynamic environment of actors, resources and activities (the ARA framework), highlighting interaction at the fuzzy boundaries between organisations and business sectors. The empirical section presents the data and its analysis, drawing upon an in-depth case study in the home-care context. The findings demonstrate the coevolving nature of interconnected innovations and organisations. Last, the paper presents some future research avenues.

THE DYNAMIC APPROACH TO INTERCONNECTED INNOVATIONS AND ACTORS

Innovation has been defined as the "…process of turning opportunity into new ideas and of putting these into widely used practice" (Tidd, Bessant & Pavitt, 2005, p. 66). Innovations can be categorised as independent "autonomous" or interdependent "systemic" innovations whose "benefits can be realized only in conjunction with related, complementary innovations" (Chesbrough & Teece, 1996; Maula, Keil & Salmenkaita, 2006). Systemic innovations are defined in this study as "an interconnected set of innovations, where each influences the other in the system and in the ways in which they are interconnected with the actors and the environment". These interlinked innovations are often characterised under such terms as product, process, service and organisational innovations; or they are novel, incremental, radical, discontinuous or disruptive innovations (Tidd et al., 2005; Augsdörfer, Bessant, Möselin, Stamm & Piller, 2013). Some studies have focused on converging technologies, while others focus more on sociotechnical aspects or on the interactions between actors.

The Various Approaches to Innovation Systems

Currently, innovation is considered to be a collective activity that occurs within a wider systemic context, often discussed as an "innovation system". The concept of the innovation system emphasises the flow of information between multiple actors that have the resources and perform the activities to transform an idea into an innovation on the market (Nieminen, Valovirta & Pelkonen, 2011; Johannessen, 2009; Hekkert, Negro, Harmsen & Heimeriks, 2011; Hekkert, Suurs, Negro, Kuhlmann & Smits, 2007; Coenen & Díaz López, 2010; Bergek, Jacobsson, Carlsson, Lindmark & Rickne, 2008; Smits & Kuhlmann, 2004). There are several innovation system approaches. The national innovation system (NIS) places the most importance on country-specific factors that influence innovations. National boundaries define actors according to their common culture, history, language, and social and political institutions (Edquist, 1997). The focus of NIS is to identify the significance of interactions among many agents within a single country and the way in which they support learning to promote innovation (Hekkert & Negro, 2011). The basic idea of the regional innovation systems (RIS)

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