Telematics and Informatics 28 (2011) 271–282

Contents lists available at ScienceDirect

Telematics and Informatics

journal homepage: www.elsevier.com/locate/tele

A Living Lab research approach for mobile TV

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ARTICLE INFO

Article history:
Received 8 September 2009
Received in revised form 16 March 2010
Accepted 8 November 2010
Available online 25 November 2010

Keywords:
Living Lab
Mobile TV
Open innovation
User-centric research
ICT-adoption

ABSTRACT

More and more, a user-centered approach is adopted for information and communication technologies (ICT) innovation research. One of the recently emerging concepts within this research tradition is the so-called 'Living Lab'. Within this paper, we argue that the Living Lab-concept is closely linked to the notion of 'open innovation', the 'interactionist' stance regarding user research and concepts from the social shaping of technology such as 'social learning' and 'innofusion'. We explore the origin and roots of this concept, explain the different visions and review a bottom-up approach of Living Lab-characteristics. We then present a concrete application of Living Lab-research into the possibilities of mobile TV, a notable example of ICT-innovations that incorporates the convergence of mobile telephones and television. This research was carried out within Flanders' mobile TV trial 'MADUF' and echoes a long tradition of interactive and digital TV trials. We describe the different research steps and the most notable results they yielded, and relate these to the characteristics of the Living Lab-concept in the first part of the paper. We also propose an analysis of the strengths, weaknesses, opportunities and threats of Living Lab-research based on this case study. This way, we contend that a Living Lab-approach might serve as a way to meet the challenges posed to companies when developing ICT-innovations in general and seems suited for innovation research into television technologies in particular, but that certain issues remain to be tackled in order to optimize this kind of research.

1. Introduction

The current ICT-environment is witnessing a so-called 'innovation spiral', where the number of innovations coming to the market is growing, as well as the number of failures (Poiesz and Van Raaij, 2002). In order to cope with this, companies are shifting attention more and more away from a technology-centered approach towards user-centered innovation methodologies. They do this along the lines of the unification of the competing 'diffusionist' and 'domestication' perspectives on technology adoption into an 'interactionist stance', trying to bring together the 'best of both worlds'. This evolution runs in parallel with the advances in the literature on innovation management. After the technology push and market pull paradigms, an interactionist stance was adopted. From the '1990s onwards, the innovation process was opened up and extended beyond the boundaries of one company or firm. As Chesbrough (2003) states, that evolution culminated in the era of open innovation, which implies that academic ideas on innovation find their way to industry practices more quickly.

Several authors (e.g., Lievrouw, 2002; Flew, 2002) mention that the diversity in the field of new media studies led to problems of understanding and cross-disciplinary communication. This has induced scholars to look for new research methodologies incorporating the described advances in user research and innovation management theory. The most prominent and widely discussed result of this search is the Living Lab-approach (cf. Eriksson et al., 2005; Schaffers and Kulkki, 2007;

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doi:10.1016/j.tele.2010.11.004

Almirall and Wareham, 2008). Within this method paper, taking foremost an industry perspective, we will argue how the Living Lab-concept is firmly rooted within the mutual shaping-tradition of technology adoption, with related concepts such as 'innofusion' and 'social learning', and why it can be seen as the current state-of-the-art ICT-innovation research methodology successfully incorporating most elements from the open innovation paradigm. If implemented and carried out in a proper way, it can be seen as an instrument to overcome the current challenges posed to companies that engage in ICT-innovation. However, a lot of issues regarding the concrete implementation of a Living Lab-approach remain to be solved.

We will demonstrate this by means of a concrete case study: the mobile TV trial in Flanders, Belgium. This research, conceived under the open innovation paradigm, tried to incorporate a Living Lab-approach within its research design. The goal was to get a better insight into the potential of mobile TV for the Flemish market and to test and further develop mobile TV services. However, although the project yielded some interesting results, the full potential of the Living Lab-method and the open innovation approach was not attained. This allows us to draw important lessons from this concrete implementation of a Living Lab-approach and to propose some guidelines for future research.

2. Towards an open innovation-paradigm

Besides being considered a main factor for competition amongst companies, innovation can also serve as a starting point for success on the global market (Kusiak, 2007). Regarding the general approaches towards innovation, the literature on innovation management identifies four historical 'periods' with differing views on innovation (Ortt and van der Duin, 2008). From the post-war period to the mid-1960s is indicated as the era of technology or science push. The innovation process is seen as linear from scientific discovery to commercialization on the market, with single companies following this straight path. There is little attention for the innovation process or for the market.

From the mid-1960s to the late 1970s, a shift occurs towards the market and the user, indicated as market or need pull. Market research tries to identify the needs within the market before an innovation project is started. One of the downsides of this innovation approach is the so-called 'incrementalism', or the fact that innovations based on user needs tend to be incremental in nature, and not radical. This is argued by Mowery and Rosenberg (1979) in their seminal review paper of 'market pull' literature. They state that the presumed importance of market demand over technology push is not justified by empirical evidence.

From the late 1970s to the early 1990s, a combined innovation approach was dominant. Instead of focusing either on 'technology push' or 'market pull', a more interactionist stance between both was adopted (Bijker and Law, 1992). During this period, von Hippel (1976) identified the users as (possible) source of innovation. This means that users were no longer seen as 'passive' respondents, which was the case in the market pull-paradigm. More and more research started incorporating users' knowledge and ideas. This kind of research can be labeled 'user-centered research' and requires specific methodologies, structures and tools (Kusiak, 2007). The linear model of innovation was also challenged by insights from studies of the social shaping of technologies. Notions such as 'social learning' (Williams et al., 2005) and 'innofusion' (Fleck, 1988) put the focus on an extension of the innovation process when technologies are effectively implemented and used. Innofusion, a contraction between innovation and diffusion, highlights the fact that innovation does not stop when the innovation is diffused, but rather continues when implemented and used. The social learning perspective highlights the importance of practical local activity and knowledge for both developing the innovation and developing usages for the innovation. Both are closely related to the domestication paradigm within user research and are echoed within the Living Lab-perspective (cf. infra). These insights have further opened up the innovation process, with a greater emphasis on the user and the eventual usage of the innovation. Parallel to this, from the early 1990s, conscience grew on the fact that innovations could be improved when creating alliances or partnerships between different companies. This all culminated in the fourth period with a new paradigm within innovation management literature and practices: 'open innovation'. Chesbrough (2003) identified this as a model for 21st century innovation, characterized by a non-linear, or even cyclical, innovation process, more cooperation between internal research and development (R&D) and the outside world, and with companies benefiting from the synergies associated with this collaboration. He sees this 'open innovation'-paradigm as "the antithesis of the traditional vertical integration model where internal R&D activities lead to internally developed products that are then distributed by the firm." (Chesbrough et al., 2006). In order to understand this transition, Levén and Holmström (2008) identified four factors that have facilitated the decline of the closed innovation model in favor of open innovation: (1) the existence of critical sources of knowledge outside the research laboratories of large companies, (2) knowledge flows between (competing) companies caused by changing job positions of employees which take their knowledge with them, (3) the increasing number of possibilities for developing ideas and technologies outside firms (e.g., through spin-offs) and (4) the increasingly important roles played by other actors in the value chain, such as customers and users, in contemporary innovation processes.

3. Frameworks for user research in ICT-innovation

ICT is one of the sectors where innovation currently plays a key role (Flew, 2002). Globalization, an increased competition and the far reaching process of digitization have induced a proliferation of new ICTs and have resulted in the shortening of the innovations' life cycles. This trend has led to an 'innovation spiral', which stands for more innovations coming to the market, but also for more failures (Poiesz and Van Raaij, 2002). Frissen and van Lieshout (2006) also point to this duality between