Chapter XLI
Technology Roadmap for Living Labs

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ABSTRACT
The concept of “Living Labs” in general is not completely new in R&D. Available publications focused on local requirements and targeted on business specific needs. In this chapter available ICT for use in a Living Lab are assessed and an implementation roadmap on behalf of ICT is presented. Besides buzzwords like Web 2.0 and Triple Play, ICT enables fast and substantial advancements. To bring a clear view into the range of solutions the authors orient on an ICT layering-architecture and the client/server nature of today’s Web-technology. The roadmap takes into account currently applicable technologies and likely future trends. Technological maturity, social compliance, consumer acceptance and politics & market-regulation are considered in the critique. The breakdown shows that a few core technologies are not only sufficient for the skeletal structure, but also from the main bulk of a Living Lab infrastructure. Thus the technology for most of the desirable features of a Living Lab is on-hand, future functional extensions can be provided by open interfaces and a modular architecture of the system.
INTRODUCTION AND BACKGROUND

70-95% of private and public investments in research and development of ICT-based products and services fail to produce market valid value. One major type of deficiency observed is that traditional ICT R&D projects are initiated and executed in a closed and/or artificial laboratory environment with too limited and too late interaction with, and understanding of the potential market and its users.

Industrial benchmarks [CoreLabs IST-035065 (2008)] indicate that large open user communities outperform very significant in-house industrial efforts, when it comes to produce high quality results over time. However, there are several ways to further develop and improve open user-driven innovation. When open user-driven innovation is improved to empower innovation in real-world (not virtual) contexts and when it is based on broad private-public-person partnerships (PPPP - no single vendor) systems we call this Living Lab.

The Living Lab concept was developed by Prof William Mitchell (MIT MediaLab and School of Architecture and city planning). Living Labs represents a research methodology for sensing, validating and refining complex solutions in multiple and evolving real life contexts. Here, innovations, such as new services, products or application enhancements, are validated in empirical environments within specific regional contexts. The individual in focus is in the role of a citizen, user, consumer, or worker. The user experience focus involves areas of user interface design and ergonomics as well as user acceptance, extending to user co-design process, finally leading to service or product creation.

The concept of Living Labs is relevant to the necessities of evaluating e.g. the mass deployment potential of ICT enabled solutions. Living Labs represent regional innovation environments focusing on user communities embedded within “real life”. Besides technological aspects Living Labs allow insight on to the human dimension of technology, which is of paramount importance for a successful societal deployment of new technologies.

However, from the industrial perspective there is still a need for clarifying the field of activities needed for the Living Labs approach and a necessity to support industry to start and adopt new user-driven innovation practices. Industry wants to know how to take advantage of these new user-driven innovation and opportunities in their innovation processes. The demonstration of what “Living Labs” is and how it could be used by industry and public sector in their user-driven innovation process is essential.

A first step in this direction was made with the project “Living Lab Vorarlberg” which was funded by the Austrian research foundation FFG. The goal of this basic research study is to apply the Living Lab approach to the requirements of the industry. The project is situated in Austria (Vorarlberg) but the outcome is relevant for all Living Labs related research in Europe and even globally.

As stated in a questionnaire prepared for the local Living Lab: From a business perspective a Living Lab is an innovation enterprise (big enterprise, SME). This enterprise operates either in the business-to-business or in the business-to-consumer area. Thus the customers of a Living Lab are on the one hand professional customers (B2B) or private consumers (B2C). These customers are integrated with methods for customer involvement in the innovation process of the enterprise and to find out the needs. In this document especially methods taken from real life and supported through new technologies and the user as co-creator approach are taken into account. The technological infrastructure is responsible for supporting these methods.

Other studies present a “systematic analysis and comparative study of the methods and tools currently employed at both the individual sites and at a multi-stakeholder infrastructure level”. While