

Sustainable Innovations I LivingLabs: Exploring the Potential of a German Research Infrastructure for User-lead Product and Service Innovations

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Many product and service innovations with high sustainability potentials do not reach the market or induce negative rebound effects through unexpected user behaviours. Designing interactive value chains via user-integrated product and service development offers opportunities for this problem and enables the development of diffusion scenarios for sustainable innovations. This paper presents results from an exploratory study investigating the potentials of a German Sustainability Living Lab research infrastructure for the user-lead development of sustainable products and services, as well as preconditions for its realization.

Studies interested in how to transform value chains towards sustainability often approach the issue either from the production or from the consumption angle. Recently, a crosscutting “third way” approach has emerged that attempts to transcend the boundaries between production and consumption by focusing on the sustainability potentials of integrating consumers and users into innovation processes. The importance of tacit knowledge to many user-initiated innovations highlights the need to consider the actual user behaviour in this context. The paper is based on the proposition that sustainability-oriented living labs (SLL) have the potential to provide a framework that enables the integration of actual user practices, demands, and requirements into innovation processes. Integrating users and relevant actors in the user’s context at an early stage of the innovation process can facilitate the discovery of opportunities for more sustainable production and consumption, the successful diffusion of innovations, as well as intended user behaviour.

The paper is structured as follows: Firstly, it provides an overview of the current research landscape with respect to living labs in Germany. Secondly, application areas, where SLLs could make a particular impact with respect to resource efficiency, are described. Thirdly, potential drivers or barriers for the establishment of an SLL infrastructure are presented. Here, factors relating to the establishment of product-service-systems, ways of user integration and selection, network coordination, limits and potentials of open innovation, conflicting interests among stakeholders, sustainability assessment methodologies, and rebound effects will be presented and discussed in relation to each other. Finally, a strategy for the establishment of an SLL research infrastructure will be described.

The paper highlights core results of the applied sustainability research project “Sustainable Innovations in LivingLabs” involving researchers from the Wuppertal Institute, Fraunhofer IAO, Fraunhofer ISI and Faktor10 Institute. It is based on desk-based research, about 20 expert interviews and two workshops, one validation workshop and one visioning workshop. The research has been commissioned by the German Federal Ministry of Education and Research.