

Publishable summary of Periodic Progress report 1

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LIVING LAB design study

Project acronym: LIVING LAB

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Project title: Design Study for the LIVING LAB Research Infrastructure, to research human interaction with, and stimulate the adoption of, sustainable, smart and healthy innovations around the home

Duration project: from 01.01.2008 to 01.01.2010

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This Design Study (2008 – 2010) aims to develop a LIVING LAB Research Infrastructure to research human interaction with, and stimulate the adoption of, sustainable, smart and healthy innovations around the home.

Within the course of this two-year study we will define:

- The desired physical and virtual infrastructures,
- The research agenda,
- Models of collaboration between academia and industry, and
- The research protocols (i.e. selection and exclusion criteria, data collection procedures, instruments used and methods for data quality control).

LIVING LAB concept

The first year of the project was focussed on the development of one basic concept for the LIVING LAB infrastructure.

The partners envisage that the infrastructure will consist of a number of newly built LIVING LAB locations networked across Europe. The main facility at each location is a LIVING LAB building with a flexible, modular design. These LIVING LAB buildings will have one or more multi-sensor dwellings that can be inhabited on a voluntary basis.

A LIVING LAB dwelling will look just like an ordinary home but, invisible to its inhabitants, it will have sensors, cameras and microphones that record specific aspects of home life. This will allow researchers to systematically test, evaluate and improve sustainable innovations for the home in a natural setting.

The LIVING LAB building will also house the research staff, facilities for open innovation sessions, and a public exhibition. The building will ideally be located in or close to a residential area and close to the knowledge institute that hosts it.

In addition, each LIVING LAB location will have access to a stock of existing homes and new (demo) homes that can be used for performing longitudinal research. These homes will be monitored using suitcase solutions: observation equipment that is installed in order to follow in detail the activities of the inhabitants, their interaction with the home and the innovations.



Fig.1 Three phases of LIVING LAB

LIVING LAB's research agenda aims at three key phases in the development of sustainable innovations:

- Generating insights in the existing situation in the field (with real users/customers in their homes).
- Prototyping, co-creation and validation of sustainable innovations (in dedicated modular LIVING LAB test houses). This is a unique capability.
- Longitudinal testing in the field by installing suitcase solutions in homes incorporating sustainable innovations.

LIVING LAB will not focus on one research area exclusively but instead takes a more holistic perspective from the architecture and construction of the home to building-integrated systems and consumer products that are used in it.

Unique qualities of LIVING LAB

In parallel to the concept development the project benchmarked the LIVING LAB concept with existing, more or less similar initiatives and scrutinized most relevant research lines for a LIVING LAB. This allowed us to position the LIVING LAB concept among other initiatives and to define a set of unique qualities that distinguish this LIVING LAB concept from others:

- Open and accessible to all companies and research entities interested in performing research with LIVING LAB.
- Unique focus on user adoption of sustainable innovations.
- Users are considered a source of inspiration and innovation in order to co-develop and validate innovative solutions for sustainable households.
- Longitudinal research with people living in the 'lab' in a natural setting gives insight into long-term user adoption.
- Approach focuses not just on end user (consumer) but role of intermediate users (in construction, installation, product development, etc.)
- Simultaneous cross-cultural research, evaluating use and acceptance of sustainable innovations in different countries.
- Continuous development and dissemination of new methods, assuring state of the art expertise on user interaction research and adoption of sustainable innovations.

Research pilot/ Open Innovation Session

In order to validate and showcase the possible activities of LIVING LAB, a small-scale study was piloted for two weeks in 2008. The theme of the research pilot was 'Sustainability in bathing practices'. The pilot used a new research methodology in the areas of insight generation and co-creation.

In a concluding Open Innovation Session all participants from the research pilot were brought together to discuss their findings and generate ideas for sustainable bathrooms. Participants came from academia and industry (innovation departments involved in bathroom design). The research approach yielded promising ideas for sustainable innovations in bathrooms, and will be developed further in the coming year.

Next steps

In 2009, we aim to finalise the Design Study of the LIVING LAB research infrastructure and involve key stakeholders necessary for its implementation. The most important activities:

- Detailing of the research agenda and protocols for LIVING LAB.
- Conceptual and technical design of the LIVING LAB building and research infrastructure based on an extensive programme of requirements.
- Detailing of organisational and financial models for the LIVING LAB research infrastructure.
- Obtaining commitment from our main stakeholders for the implementation of LIVING LAB.

Contact details

The LIVING LAB consortium partners are:

- Delft University of Technology, the Netherlands (coordinator)
- Wuppertal Institute for Climate, Environment and Energy, Germany
- ETH Zurich, Switzerland
- Universidad Politecnica de Madrid, Spain
- BASF, Germany
- Acciona, Spain
- Procter&Gamble, Belgium

More information on the project, project updates and results can be found on www.livinglabproject.org. For any further questions, please contact our project coordinator Professor Daan van Eijk under projectoffice@livinglabproject.org.