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# Drivers For End-users' Collaboration In Participatory Innovation Development And Living Lab Processes

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**Abstract**

Design for users often uses user-centered methods and methodologies. However, this requires an active participation of these users. In this article we explore the motivation and drivers for users to collaborate in innovation processes within a Living Lab environment and approach. We do this by means of data gathered during the course of four years of Living Lab-activity by iMinds-iLab.o on three levels: macro-level (general panel activity), meso-level (activity and motivation within a Living Lab), and micro-level (activity and motivation in a Living Lab-project).

**Author Keywords**

Living Labs; User-centered Design; Motivation; User panel; Open Innovation; User Innovation

**ACM Classification Keywords**

H.1.2 User/Machine Systems: Human factors.

H.5.2 User Interfaces: User-centered design.

I.3.6 Methodology and Techniques: Interaction techniques.

## Introduction

Empowered end-users, fierce competition on the market and shortened product life cycles caused innovation development processes to become increasingly user-centric during the past decade. The voice of the (future) consumer became ever more powerful and new frameworks and methodologies emerged to involve them as an equal stakeholder in the design and development process. One such example are Living Labs. Living Labs are (real-life) ecosystems in which end-users and other relevant stakeholders are working together for the development of innovations over a longer period of time using a combination of different methods, following an user-centered iterative process [1]. Whereas users definitely play a central role in Living Lab projects requiring an active and often intense participation during a long time, users' motivations to participate in such research and development tracks are nevertheless largely unexplored. So far, research on user motivations to collaborate with firms or to participate in open source projects has been conducted from different academic disciplines and has been applied to different domains [2]. However, knowledge is lacking when it comes to long-term, multi-method and iterative co-creative collaborations. Insights on this matter are nevertheless very important when working with user panels, especially over a longer period of time. It is essential to have a solid understanding in order to develop efficient and effective communication strategies, incentive designs and interaction platforms. This positioning paper focuses on the drivers of users in Living Lab development tracks, based on the data of three concrete cases, each assessing various participation related metrics. We look at this from a *macro*, *meso* and *micro* level. The macro level view

consists of an analysis of the participation rate of the test panels within three Living Lab environments on media and ICT innovation in Flanders, Belgium<sup>1</sup>. The meso level view takes into account findings on the motivations of users to participate within one Living Lab environment itself. The micro level zooms in on the drivers for collaboration in a concrete Living Lab-project within one such Living Lab environment.

## User participation from a macro level

The research institute iMinds has been playing a central role in Living Labs and Living Lab research in Europe. Since 2004 they have been actively setting up such test and experimentation platforms as well as conducting user-centered research projects on top of them. This has resulted in the iLab.o department – a specific division that focuses on Living Lab methodology and panel management. Currently, iMinds-iLab.o has built up a Living Lab panel of over 19.000 users that have been participating in different Living Lab projects between 2009 and 2013. Managing and building up the panel has been a bottom-up process in which all users voluntarily opted-in to participate in one or more Living Lab activities. The recruitment of these panels was mainly done through various online (mailing) campaigns using own channels or partner networks. However, the call-to-action always happened on the level of the Living Lab itself - and, if possible, linked to a direct, tangible case taking place in this Living Lab, and not on the level of iMinds-iLab.o. One of the main objectives of setting up such a panel-based Living Lab was the idea to gradually build up (background)

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<sup>1</sup> The following Living Labs are investigated: Mediatuin Living Lab, Flemish Living Lab Platform and LeYLab – more info on these initiatives can be found in [3] and [4].

knowledge on these users regarding their profile, their behavior... [5] The activity rate and behavior of 19.620 test users –all part of this iLab.o Living Lab panel- were analyzed recently. Based on their participation intensity we divided them in three groups: active, sleeping and passive panel members. Note that not all panel members were recruited in 2009, but that the panel has since then grown with each new project being carried out. **Active** panel members are people who participated in at least six tests during the time span of 4 years (2009-2013), including surveys, focus groups, co-creation sessions or field trials. This represents only a small part of the panel, as 1.1 % is classified within this category. However, the action varies strongly within this group, with a maximum of 14 participations during the assessed period. The **sleeping** panel consists of individuals who participated in a few tests, but not on a regular basis, and are currently not involved in a project. 22.4% of the panel members can be labeled as sleeping. However, the potential of re-activating them is quite high – depending on the right triggers (see below). Finally, the largest share (76,5%) within the panel can be defined as **passive**, meaning that they only participated in one test or activity. Currently, on the macro level, the communication with the panel mainly consists of selective call-to-actions based on purposeful sampling, restricting the 'calls-to-all' to a strict minimum. Since the start of iLab.o, we have reaped the benefits (e.g. faster and more selective recruiting, availability of historical data,...) of building up such a panel for user-centered design projects. However, the above data demonstrate that maintaining and keeping such a panel actively involved in research is not evident and raises a number of questions and challenges on the level of user motivation. What was the initial motivation to subscribe

and participate? What are the elements that lead to sustainable participation? How can the sleeping panel members be re-activated?<sup>2</sup> Some of these answers can be found on the meso level.

### **User participation from a meso level**

The meso level takes into account user participation within one specific Living Lab environment. One can argue that on a macro level it will be more difficult to engage the user and keep them active as it is more difficult to have a defined frame in which the activities take place and it is therefore less clear for the users what they specifically engage themselves in (type of projects, period of time, efforts to be made). The meso level already gives a better scope and reference to these users. When investigating the FLELLAP Living Lab - a joint partnership between different industrial media and ICT partners in Flanders focusing on boosting the valorization of ICT research and development in Flanders and to support joint value creation for all involved stakeholders – the scope and time were defined and fixed. It focused on three domains (smart cities, smart grids and smart media) and ran over a period of almost three years (October 2010 – March 2013). FLELLAP established a panel-based Living Lab with around 2.000 test users without fixed infrastructure at the homes of the panel members. During the period of Living Lab activities, research was performed concerning users' motivations and attitudes for participating in Living Lab research. This was mainly done through an online questionnaire in which 32% (N=639) of the users participated (dominantly male

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<sup>2</sup> Part of these questions will be subject of research activities (interviews with panel members) conducted during November and December 2013.

with a slight overrepresentation of users below 30). These users indicated that the participation was mainly based on intrinsic motivations such as:

- **Personal interest:** connecting with the existing interest domain of the user (e.g. user with an interest in gaming or sports)
- **Contribution:** the ability to participate and to contribute actively to a certain problem, and to offer possible solutions
- **Curiosity:** being keen to find out new things, having a curious personality. People seem to be intrinsically motivated to engage in new product development processes just because they are curious, or because they want to escape boredom
- **To learn something:** People are motivated to perform an activity because they are striving to improve their skills or to gain additional knowledge about new technologies and products

These intrinsic motivations are especially important to establish a long-term engagement and sustained participation of the users. The fact that the user has the feeling that he or she can make a difference, leads to a longer engagement in the living lab and its various research activities. In terms of profile description, this intrinsically motivated group does not differ significantly in terms of socio-demographic variables in comparison with users driven by extrinsic motivations (e.g. financial incentives). There are some indications that the latter seems to be slightly younger and male, but this requires further investigation.

In the process of designing for and with users, this is an interesting finding. It differentiates the Living Lab approach from more traditional (commercial) market research, in which a pecuniary reward (incentives or cash) is being used as motivator.

However, in terms of user participation in the design and development processes, some other important insights with regard to user motivations have been identified. In order to appeal to intrinsic motivations, projects should be matched with the personal interest of users and integrated with 'fun'-elements in order to reach a longer and higher response rate over time. In addition, the fact that users can learn something from their participation, which is supported by communicating project results with the test-users, also contributes to a more sustainable participation. Over time, the financial or material incentive will decrease the 'connectedness' and engagement of the user. From within a Living Lab setting, it is important to establish a relationship with the test-users, to make them feel engaged and to showcase that their inputs are taken seriously. On the meso level the Living Lab can offer these opportunities, but this depends on the number and type of projects being executed within a Living Lab.

### **User participation from a micro level**

Living Labs – as described above – benefit from establishing a long-term relationship with their test-users and by so facilitate both a bottom-up and top-down user-centered design approach. The former focuses on identifying needs and trends on the one hand, and ideation and co-creation on the other. The latter is more an evaluative and validation based process in which the user participates in specific R&D projects. However, people still need to be engaged and

recruited on a project basis. To investigate the triggers for a user to do so, we have conducted a survey within one of the Living Lab projects within FLELLAP. This survey examined the users' motivations and satisfaction regarding the project. The specific project (which ran from November 2011 till March 2013) focused on the development and testing of a smart-city platform (Nuvonet) enabling user interaction with different services both on a personal level (such as energy-meters within the home or shared calendars) as on a more community-city level (shared eGov-services, local web-shops...). In total, about 40 test-users were involved for a period of nearly two years. During that period they were not only able to test the services, but also needed to participate in specific research activities (interviews, focus groups, co-creation, surveys...). As there were no incentives provided, intrinsic motivations were the key drivers to participate in the project: more specifically having a personal interest in innovative services and products (58%) and curiosity (50%). Important to mention here is that instead of incentives, the free usage and testing of the tablet and other hardware were important triggers for participation in the test project. This was even slightly more important than the testing of the Nunovet platform itself.

Next to this, we also learned that other conditional aspects of the Living Lab can enforce the users' satisfaction and motivation. Providing the necessary support and communication in a clear, transparent way (in the project a mix of communication channels was used such as newsletters, e-mail, phone calls,...) has been considered as an important element in keeping the test users motivated and active. However, the users also had certain expectations regarding the service and technology. If testing the innovation does

not meet the expectations and their feedback is not taken into account through an iterative development process, users get dissatisfied, which results in a loss of interest (both in the product as in participating in research activities). The frequent contact with test-users and keeping them involved as much as possible resulted in a high participation and motivation of the users. At the end of the project almost 90% of the test-users were still using the technology, albeit with varying degrees of intensity. Even after finishing the project itself, they still remained curious about the further development of the platform and wanted to be kept informed. In that sense, motivated users act as good ambassadors for the technology and could even evolve to early adopters of the product or service, which is in line with the observation of [1].

## **Conclusion**

Within this positioning paper an overview of results, gathered from three different data sources at a macro (supra-Living Lab), meso (Living Lab environment), and micro level (Living Lab project), is provided. These data give an indication of how users are driven and motivated to participate in design and development processes within a Living Lab setting. The findings clearly demonstrate that on the various levels of a Living Lab there are different challenges with regards to the motivation, activation and participation of users. This ranges from global motivations of being part of a (panel-based) Living Lab to more concrete actions related to specific project-based research activities such as surveys, offline co-creation workshops and field trials. From the experiences in different Living Lab settings we have found that end-user participation in Living Lab projects seems to be mainly driven by intrinsic motivations (e.g. personal interest, willingness

to learn and a sense of contribution to the innovation process). When it comes to long-term involvement, dimensions such as fun, eagerness to learn and personal interest are positively related with repeated participation, while 'extrinsic only' participants' response rates appear to decline faster over time. In that regard, four end-user profiles can be distinguished of which the 'intrinsic individualistic' and 'multi-level' motivated end-users participate most often. On a practical level, the most important motivational dimensions should be central in the management of Living Lab user panels in order to reach maximum user engagement and to increase the quality of response. It can also be an important dimension for the recruitment and selection of 'most-suited' end-users. This not only implies the establishment of the right communication and message towards to the panel itself, but also to foresee mechanisms, in both the project itself as in the follow-up, that enhance intrinsic motivations like contribution, curiosity... On a more theoretical level, these data are an exploration of user motivations, but it should be the first step towards a theoretical model, which fully understands voluntary engagement in Living Lab research. Many future research questions remain within this largely unexplored domain, such as the relationship between motivations and panel drop-outs, the relation between long-term participation and the effect of incentives, etc... Finally, these insights are important to assess the validity of Living Lab research as well. We believe that this topic and these findings are an interesting input to the debate on how to design with users in a domestic environment. The Living Lab – both as environment and as methodology – puts both the user and the (domestic) real-life environment in the center of the research activities in which the motivation

of the user to participate actively is a key element for the success of the Living Lab-activities.

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