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Enhancing Innovation among Actor Roles in an Urban Living Lab

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Abstract: Urban areas are often characterized by complex problems, such as social and economic deprivation, segregation, or bureaucratic administration. Urban living laboratories (ULL) provide a promising approach to redefine and tackle such problems in novel ways. The present study examined an ULL initiative in a suburban area, where guided workshops based on the Change Laboratory method were arranged. The findings showed that it is important to dedicate sufficient time to early innovation process before development projects are launched, involving building relations, sharing knowledge, exploring ignorance and innovating new concepts. Successful ULL activities require contributions by all living lab actor roles: enablers, utilizers, providers, and residents as users. Actor roles emerged in actual planning and were situation-contingent. The study emphasises the importance of distinguishing the early innovation process called preject from the project and gives suggestions for managing the preject.

Keywords: actor roles; Change Laboratory; community development; group process; innovation process; living labs; preject; residents; urban development, urban planning; stakeholder collaboration; urban living labs

1 Introduction

Living laboratories have increasingly been used as platforms for innovation and experimentation in urban areas, involving key features of open innovation, multi-stakeholder approach, real-life environment and residents as users (Friedlich, Karsson & Federley, 2013; Veeckman & Graaf, 2015). Goals of urban living labs (ULL) can vary according to their environments, from small-scale experiments of new technology and services to large-scale social and economic improvements. Latter ones are especially typical for suburban living labs which are established in old neighbourhoods. In addition to complex problems in physical environments, there are social and economic problems which are difficult to understand and handle due to their multidimensional nature, such as

poor image, lack of workplaces and segregation. There are also problems called organized complexity that are caused by a multiplicity of organizations steering the region, ending up in a competitive and overlapping system of administration (Baynes, 2009; Wallin, 2013).

Due to multi-layered problems, living labs in such areas call for practice-based innovation with diffuse and heterogeneous knowledge production, instead of homogenous accumulation of knowledge and clearly-defined problem solving (Melkas & Harmaakorpi, 2008). This means that an urban living lab is basically a bottom-up process setting additional challenges for innovation process itself and an appropriate composition of living lab actors. The purpose of this paper is to describe an ULL initiative in a suburban area, focusing on two potentially critical factors for its success: (1) nurturing the early phase of innovation process and (2) composition of living lab roles in innovation process.

2. Early Innovation Process

Several models of innovation emphasise the importance of early innovation process for nurturing creativity and radical innovations. Among the most well-known ones is the model of knowledge creation by Nonaka and Takeuchi (1995), known as the SECI model and further advanced by Melkas and Harmaakorpi (2008). In terms of the SECI model, innovation process is seen a collective learning spiral that increases knowledge through four arenas (*ba*s). In brief, the phases are as follows. (1) Socialization to originating *ba* involves sharing of tacit knowledge through physical proximity and face-to-face contacts, which creates common understanding and mutual trust among group members. (2) Externalization to interacting *ba* means the expression of tacit knowledge and its translation into a comprehensible form, and making it understandable to others through dialogue. (3) Combination to cyber *ba* combines new knowledge with existing knowledge into explicit knowledge, transcending the group in analogue or digital signals. (4) Internalization to exercising *ba* converses explicit knowledge into tacit knowledge in practice through experiments or simulations (see Melkas and Harmaakorpi, 2008).

The SECI model points out the importance of sharing tacit knowledge and explicates much what happens in ULL activities. While the model creates general understanding about innovation process, it seems too theoretical in practical matters of ULL management. Therefore, we turn into a model developed by Lotte Darsø (2003) who investigated innovation teams of a large international company and identified two distinctive phases for a successful innovation process: a *project* and a *preject*. The project refers to the usual project management with goal-definition and limited time; it seeks results, prefers linear progress towards goals, and employs convergent thinking and fast decision-making. In successful innovation processes, the project is preceded by the project, meaning prolonged goal-seeking and the emergence of divergent thinking in open decision space, where a group of people searches for novel knowledge and probe new possibilities. From the perspective of management, the preject may seem chaos, even though it is inevitable for radical innovations to break out. Darsø (2003) emphasises that the preject needs a different type of management which utilizes diverse leadership roles and functions, identified also previously in the group theory literature (Johnson & Johnson, 2002). Most importantly, to enhance preject development, one needs to know

the critical parameters of the preject which Darsø has crystallized in the Diamond of Innovation Model: *knowledge*, *relations*, *ignorance*, and *concepts* (see Figure 1).

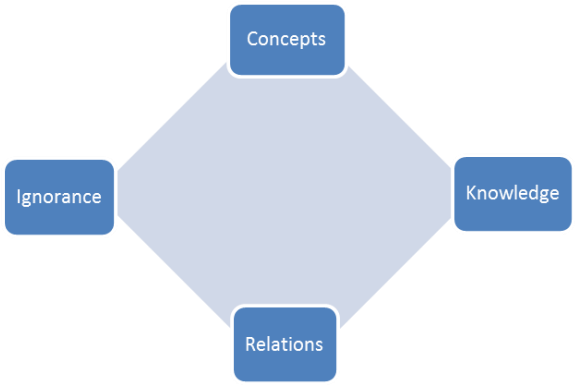

Figure 1. The Diamond of Innovation (adapted from Darsø, 2003)

Knowledge in innovation processes is under constant development and has different modes, such as scientific knowledge and personal knowledge that is developed through experience, reflection and practice. In the innovation literature, personal knowledge is linked to pragmatic knowing and seen mostly as positive contribution, but Darsø warns that it may include personal beliefs and attitudes that may hinder group development, rather than opening up for new possibilities. In addition to these modes of knowledge, it is important to acknowledge the role of tacit knowledge in innovation processes (Nonaka & Takeuchi, 1995).

Relations have a great influence on the quality of the results; mutual trust and honest communication is needed for venturing into areas of new possibilities. Relations can be worked out by talking about each one's expectations, wishes, and the level of ambition in relation to the project. Possibilities to link evolving common goals with personal ones are important, because later ones spark individuals' motivation and enhance commitment (Bandura, 2001). In the living lab context, it is especially important to catch users' motivations that are usually based on personal rather than professional interests. Their participation is voluntary, and consequently, strong motivation is needed for long-term engagement.

Ignorance is the most important parameter of the Diamond of Innovation, because it provokes questions boosting innovation process. "Ignorance is about in part, what we know we do not know, in part, what we do not know that we do not know, and finally, what we cannot fathom could be known" (Darsø, 2003, p. 6). Revealing one's ignorance however makes oneself susceptible to criticism, requiring again mutual trust and supportive atmosphere. Finally, developing new concepts signals the emergence of innovation ideas. Words are not often sufficient, and therefore, conceptualization be advanced through drawings, figures or 3D-models. Concepts are not yet innovations, but they can become such through further development, varying from incremental to radical ones.

Darsø (2003) emphasises that the poles of the axes are not contradictory but complementary and reinforcing, and they can be worked on at the same time. Knowledge and ignorance can be present simultaneously; of importance is continuous movement between them. Similarly, conversation about personal interests may stimulate and expand understanding about concepts and vice versa.

3. Living Lab Actor Roles in ULLs

ULL is defined as a forum for innovation that integrates residents and other stakeholders to develop and test new ideas, systems and solutions in complex and real contexts (Friedlich et al., 2013). Referring to a definition of living lab by Almirall and Wareham (2008), it can be seen as a specific type of open innovation network that acts as an intermediary between residents, public organizations, and private organizations to capture and codify user insights in their real-life environments. Leminen, Westerlund and Nyström (2012) pointed out that regional living labs easily lose their objectives and remain plainly information sharing networks, being not attractive to other actors, especially enterprises. Successful ULL activities therefore require more nuanced differentiation among actor roles. *Enablers* include various public-sector actors and financiers, such as cities and area-development organizations that have far-reaching goals for regional and societal improvements, providing infrastructure and resources. *Utilizers* in turn refer to enterprises and other service providers that want to develop their businesses in the area. Utilizers include public services and non-governmental associations which increasingly provide complementary welfare services or advance interests of special groups. *Providers* represent various development organizations, such as universities, educational institutes and consultants offering tools and methods for research and development. *Users* represent ordinary people who want to solve their real-life problems in their environments (Leminen et al., 2012). In the ULL context, users refer to residents and other people who regularly inhabit the area, such as students, working people and hobbyists.

Juujärvi and Pesso (2013) have further elaborated the roles of each actor for successful ULLs. City representatives as enablers and public authorities bear an important role in creating a vision and allocating public resources. They also provide strategic leadership, promote networking across administrative units and create public-private-people partnerships. Utilizers, in turn, produce place-based knowledge and set small-scale objectives and pursuit to create products and services suitable to the area and its residents. Research institutions engage researchers and students in development work, provide innovative methods and take responsibility for systematic knowledge augmentation. Residents as users produce place-based user experience, participate in experiments, and empower other citizens through co-creation.

The role of residents seems to be far more comprehensive in urban living labs than in other types of living labs. Staffans (2004) examined resident activists' influencing efforts in urban planning and found that during the process they turned into professional "advocates of everyday life" whose influence was based on solid expertise. Veeckman and Graaf (2015) found that citizens' skills and capacities to participate are varied and they need targeted support. Friedlich et al. (2013) point out that is nevertheless critical to get those residents engaged to whom anticipated goals are highly relevant and whose

lives will be affected but who are not yet active participants in civic society. In the ideal case, residents should be engaged as contributors and co-partners through the whole development process, not plainly as informants or testers (see Leminen, Westerlund & Nyström 2014), which sets further challenges for the ULL methodology.

To synthetize of the previous theoretical viewpoints, we expect that due to the multidimensional nature of urban problems, ULL activities are characterized by a bottom-up process that is at high risk to ill-define problems or to lose their objectives in a long run. Therefore, a successful ULL initiative requires a sufficient period of the early innovation process, the preject, and an appropriate composition of living lab roles to get innovation intents realized. The challenge is, however. that when inviting people join ULL activities, their actor roles are based on guessing, rather than exact knowledge. We argue that successful living lab roles emerge as a result of the preject that enables participants to explore limits of their knowledge and personal goals within the climate of growing mutual trust. We address to this issue with two research questions: (1) how are the features of the preject manifested in ULL teams? (2) how are the living lab actor roles manifested in ULL teams?

4. Research Design

This study is part of a three-year participatory action research (Kemmis &McTaggart, 2000) aiming at examining and enhancing residents' participation and developing efficient means for residents and stakeholders' collaboration in urban development. The focus area is a part of the municipal district in the city of Espoo, in southern Finland, consisting of the administrative centre of the city with a railway station and two shopping malls, surrounded by two neighbourhoods of 17 000 people altogether. The area is characterized by different historical layers in terms of construction and waves of migration, mainly refugees, from the 1970's onwards. Cultural diversity in daily life is reflected in a high proportion of immigrants and more than 70 spoken languages. In the light of social and economic indicators, the area represents the least advantaged area in the City of Espoo. Turnouts in local elections have been high, and therefore, the citizens of the area are underrepresented in the City Council and other governmental units. The area has also strengths, such as good transportation and services, and surrounding nature enabling outdoor activities (Residents' Welfare in Espoo, 2013). Several academic research projects have pinpointed the challenges of the area, and consequently, the city of Espoo has undertaken several projects to improve the environment and launch a regeneration process. In the last decades, NGOs in the area have been eager to start different kinds of development initiatives to improve social cohesion and citizens' wellbeing.

The present research project is motivated by two main observations which were confirmed by the first-round data collection including interviews, workshops and participant observation (Juujärvi & Lund, forthcoming). First, residents' low engagement in development endeavours so far, and second, a lack of systematic collaboration between various stakeholders and developers. The living lab approach was assumed to provide an appropriate innovation platform for a systematic collaboration initiative that would bring together actors who do not necessarily know each other but who would exploit each other's resources and expertise. For this purpose, a special method called Community

Workshops was designed and implemented. The Community Workshops represents an application of Change Laboratory® which has been widely applied for promoting innovation and learning within organizations but not explicitly used in regional or urban development to date. The Change Laboratory (CL) is a formative intervention method where new ideas are developed and put into action in a social process of innovation. Researchers act as interventionists in the process providing tools for envisioning, designing, and experiment with novel forms of activities. The rationale behind interventions is to expand participants' understanding about the objects of development work enabling shared goals and enhancing collaboration. Each workshop has a specific purpose to deepen the innovation process (Virkkunen & Newnham, 2013).

The Community Workshops included five successive workshops in winter-spring 2015 as follows: (1) General goal-setting for near future; (2) analysis of disturbances and conflicts in prevailing work practices in community and urban development; (3) shaping the objects for proximal development and starting to plan experiments; (4) planning experiments for new ways of working, followed by an experiment period of two months; (5) evaluation of experiments and decision-making about their implementation. The workshops consisted of small group sessions and plenary discussions that were stimulated by the presentation of pieces of research data, speeches about future lines of development, and various innovation methods. The workshops were scheduled to start at 04.30 p.m. in a local city hall and took approximately two and half hours. Forty-seven invited people attended to the workshops, varying from 30 to 38 people across the workshops. The participants involved residents and members of resident associations, managers of regeneration projects, city planners, public servants and experts in the city administration, representatives of non-governmental organizations and local parishes, and managers of shopping malls. The workshops were managed by a consultant qualified for practicing the CL method in collaboration with four researchers who acted as group facilitators. For research purposes, all workshop activities were recorded and documents photographed.

This particular analysis is confined to the third workshop, while newly-formed teams started to innovate and plan experiments based on the shared interest and to the fourth workshop, while the teams finalised and cross-evaluated their plans for experimenting new ways of collaboration. The authors listened to the recordings several times and reviewed observations made earlier by the group facilitators. Listening was accompanied by note-making on explications of living lab roles and features of innovation process that were then thematised. For enabling understanding the context, the description of the workshop interventions are included in the Findings section.

5. Findings

Workshop interventions

The objective of the third workshop was to shape goals for near-future development and start to plan experiments based on the previous analysis of contradictions and conflicts in current practices that have hampered development actions in the area (Virkkunen & Newnham, 2013). The participants were guided to choose a group with a pre-determined theme that would match their interests (multicultural integration, common premises,

coordination of urban development, "wild card"). Following guidelines of the CL method, three sets of stimulus were given at different points of the workshops to provoke innovative thinking: a synopsis of contradictions in current development presented by a principal researcher, a speech about future lines of urban development in the area given by a director of the city planning department, and a shared group reflection on future possibilities by five participants. The purpose of these interventions was to enhance common understanding and goal-setting, and to help participants shape their roles in planned experiments, but the retrospective analysis also revealed unintended positive effects. The most powerful one was the director's speech that triggered creating new concepts among participants described as follows.

The director told about future lines of urban planning in the area until 2030, based on an envisioned zoning scheme of the area. City planning is focused on laying foundations for physical environment of high quality, which in turn shall enhance residents' wellbeing and sense of community, for example, through creating meeting places. He furthermore emphasised that urban planning procedures do not involve means that would directly address to the problems identified by the participants in the current workshops. Social and cultural aspects are not sufficiently taken into account in the zoning process, and there is a lack of multi-professional cooperation due to the rigid boundaries of administrative units. He admitted his ignorance about how to proceed with these deficiencies and invited the audience to give him some good advice and ideas how to do that.

The speech was followed by reflections in pairs and a lively plenary discussion, in which participants pointed out critical aspects lacking in city planning: the plan did not cover aspects of social and cultural development, and more specifically, it did not provide any means to prevent further segregation of immigrant groups. The recordings in small-group reflections revealed that the speech had triggered innovating new concepts to overcome limitations of the current city planning. The concept was lately explicated in the plenary discussion as social zoning.

> "I have never thought before that in zoning, there are no marks for social things. It is a weird idea, an interesting idea, it fascinates me."
> "Is building a community a solution for involving social and cultural development in the zoning process? But what is a name for this process? Is it a zoning scheme? How could social aspects be marked on the scheme in some way? How do you put them on it?"
> "We need social and cultural strategies in zoning, but what is the word for this?"
> "We can elaborate what it (social zoning) could be. Now it is hidden between the lines of scheme markings"

After the interventions, the groups were instructed to start planning an experiment for a new way of stake-holder collaboration within the next two months. The participants were encouraged to change the chosen group, if it did not match their interests any more. The planning continued in the successive workshop. The evolving plans were cross-evaluated at several points.

Innovation Processes

Table 1. Innovation processes and actor roles

Concept	Regional Development Group	*Tuunaamo*	Citizen Square	Multicultural Food Festival
Experiment	Multi-stakeholder group for organizing user-driven urban development actions	Two-week hybrid experiment of co-creating community house concept in a local shopping mall	Square owned by a shopping mall offered for citizen activism	Organized informal encounter for immigrants and elderly people
Focus of Process	Concepts	Relations	Ignorance	Relations
Living Lab Roles	All present, several double roles	All present	Utilizers missing	All present
Key Person	User-provider-enabler	User	Enabler	Utilizer
Threats	No role differentiation among team members	New team members do not know and share the concept	Concept remains premature Utilizers are not found	Imbalance between actor roles

Findings based on the analysis of group discussions are summarized in Table 1.

In all groups, new or renewed concepts were probed and discussed. The most nuanced discussion about the emerging concept was held by the team Regional Development Group, whose intention was to develop a model for stakeholder collaboration in urban development. The members felt that there was not an appropriate name to cover all aspects of their initiative. They felt uncomfortable if the new model would be mixed up with a previous regional cooperative group which was ceased as useless was pejoratively referred to as "a coffee-drinking club" by other workshop participants. The team probed several names but did not succeed to find a satisfying one.

"Even though a regional welfare group we used to have in past has been ceased, it should be something like this. But it must have a different name. But unlike it, this group must have responsibility, duties and resources; it cannot be any sort of discussion or coffee drinking club."
"Based on its tasks, it is a regional development group. But it is an awful dull name but it is what this all is about."
"We are not satisfied with this name. It must be much cooler, more attractive. Let's put it in the quotation marks."
"Could it be Aggregation? Or Agitator? Or ACRE? (Laughter)"

The concepts under discussion were varied in terms of their complexity, Regional Development Group and *Tuunamo* being more complex than two others that represented rather concrete actions. The concept of Regional Development Group was stimulated by the concept of social zoning that was "stolen" from the plenary discussion and was included in the invented model of collaboration. *Tuunamo* (Pimp-up Workshop literally translated) was described as a process where "it is examined how space is socially produced". The concept was purported to illustrate a piecemeal co-planning process of a local community house, involving several ways of gathering user experience, and taking place in a local shopping mall.

The complexity of the concept was related to the length of the joint group process. *Tuunaamo* and Regional Development members had already joined together in the previous workshops, and had shared ideas to some extent. In contrast, the Citizen Square and Multicultural Food Festival teams had several member changes between the workshops. They spent a lot time for exchanging knowledge and getting to know each other and were forced to do premature decisions due to time limits in the previous workshop, leading to reshaping ideas in the next workshop. Processes in the teams were therefore different and reflected the phase of the group process. To compare, the team Regional Development Group was concentrated on enriching the new concept, whereas the Citizen Square shared their experiential knowledge on different squares, and probed different names for their forthcoming experiment. The teams *Tuunaamo* and Multicultural Food Festival were both focused on relations, but in different ways. The first one elaborated roles in terms of living lab roles, whereas the later one arranged tasks for the event under planning.

It is worth noting that outside goal-setting, the participants built friendships and working alliances within and across the groups. Multiple pair and group discussions encouraged them to reveal their personal interests, motivations and feelings to each other in informal ways. With regard to knowledge building, the participants shared lots of personal, local and expertise knowledge, scientific knowledge remaining scarce in exchanges.

Living Lab Actor Roles

Living lab actor roles emerged only after the groups had reached at least partial agreement about their experiments and started to plan concrete actions. Even though the members were not aware the classification of actor roles, they were able to identify missing roles and started searching for them from other teams or outside. For example, the Citizen Square was looking for NGOs who would utilize a vacant square by creating citizen-attractive activities or events therein. At the end, all the teams, except for Regional Development Group, had identifiable living lab roles. This team consisted of several people who were responsible for development functions in their organizations and they had access to variety of resources. The planned new model, in which they all would be involved, could also be beneficial to their organizations. Therefore, the members had double actor roles that however remained implicit in the group process, while the team was heavily concentrated on concept-building.

The contents of each actor role varied according to the planned experiments. It is however possible to make some generalizations. Enablers mostly provided funding, facilities, equipment and networks, and their role was the most clear-cut. The managers of local shopping malls and development projects proved to be the most influential enablers. Utilizers represented organizations whose missions were related to urban development and wellbeing of the population in some way. The main utilizers were city planning and construction departments, social services and NGOs. Their presence was essential for carrying out the experiments, in which they were in charge for core functions. Users represented residents and resident associations and their role varied from opinion-giver to co-developer. They possessed place-based knowledge and networks which was utilized in planning. The role of some residents remained limited due to poor Finnish language skills.

The role of providers remained the most obscure having several dimensions. First, the providers included the members of the research team who acted as managers and interventionists in the process, facilitated group work and delivered current research findings. Second, the role of provider was adopted by several people acting as experts or researchers in their organizations. Their actions in groups were varied, including facilitating group process towards the goal, delivering knowledge, giving opinions and explanations, and guiding planning process. The role of some providers was rather limited to giving ideas that the rest of group would utilize. According to the observations, the actor roles were situation-contingent until they were agreed in the teams.

Finally, it is worth pointing out that the actor roles could be assigned only to those participants who committed themselves to the experiments; there were also several people in teams who only participated in concept-formulation. Another important additional observation was that in each group, there was a key person who was strongly committed to the evolving concept and eager to push it forward and take care of it, regardless of her or his actor role.

6. Conclusions

The present paper elaborated early innovation process and emergent actor roles in the ULL initiative using the applied method of Change Laboratory and yielding four innovation experiments. In conclusion, four key lessons can be taken from the study.

Successful urban living lab activities require a bottom-up approach and sufficient amount of time dedicated to early innovation process. ULLs are usually established to solve complex problems that have been attempted to solve several times before without considerable success. An ULL initiative provides an opportunity for bringing together stakeholders with diverse knowledge and experience, to collaborate for tackling those problems. The ULL represents a community of interest, where a shared understanding of the task at hand is incrementally and collaboratively evolved, and where participants need to learn to communicate and learn from others in the first place (Fischer, 2010). In order to actualize innovation potential and achieve sustainable results, sufficient time should be dedicated to early innovation process, preject, before development projects are launched. Participants need time for getting to know each other, exchanging knowledge, and reaching common understanding about the current situation in the area. The ULL provides a platform for building relationships and working alliances across different boundaries hindering collaboration. This can be considered as a valuable result as such, even though not all participants would engage in development projects as a result of the bottom-up process.

Innovations are resulted from successful group processes. Building relations and knowledge, as well as exploration of ignorance and concepts are argued to be critical parameters for early innovation process taking place in teams (Darsø, 2003; 2011). The present findings suggest that building relations and sharing knowledge precede exploring ignorance and innovating new ideas and concepts. Iterating circles form a progressive spiral, leading to exploration of actor roles and lack of expertise, and to developing more nuanced concepts at the successive rounds (see Figure 2).

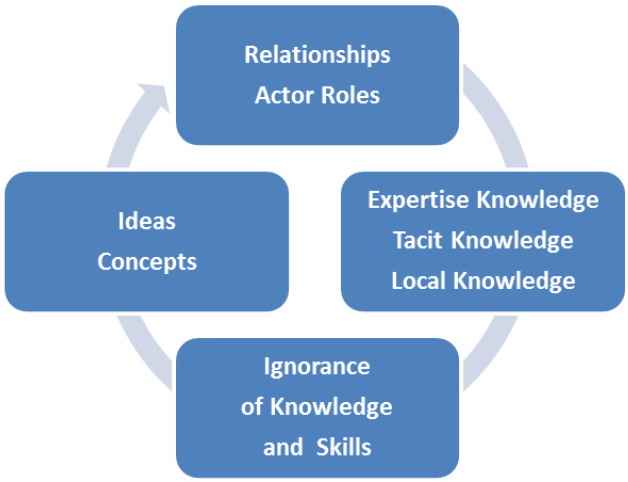

Figure 2 Group process of preject

Face-to-face encounters with non-verbal communication enable sharing and translating tacit knowledge that is needed for innovations (Nonaka & Takeuchi, 1995). There must be sufficient amount of trust and confidence before members dare to reveal their ignorance and to give unconventional ideas, as well as to confront others' opinions. Members also need to understand and share an evolving innovation concept in order to commit themselves to development projects. The present findings are consistent with previous ones pointing out that successful innovation teams involve a key person or a group of 2–3 people that are enthusiastic, highly committed to their innovation idea, and ready to work hard to implement it (Taatila, 2009).

All actor roles are required for successful ULL activities. The successful implementation of innovation concepts in the context of urban development requires contributions by all living lab actors: enablers, utilizers, providers and users. The present findings replicate the significance of public servants and authorities as enablers in creating a vision, allocating resources and providing strategic leadership (Juujärvi & Pesso, 2013). Local service providers, enterprises and NGOs have indeed a central role in the implementation process. Residents' role as users ranged from opinion-givers to co-partners (Leminen et al., 2014), depending on one's motivation and skills. Residents' participation even in low-threshold settings seems to require some citizen skills and relevant basic knowledge, and consequently, additional support and encouragement are needed (Veeckman & Graaf, 2015). Residents' engagement is nevertheless of utmost importance, because they possess detailed local knowledge and provide insights into hidden needs, and ultimately, their experiences as end-users validate the results of innovation projects. Resident activists also have versatile networks that can be utilized in many ways. Finally, the role of providers, that is, developers, was the most multifaceted in the present study and needs to be taken under scrutiny in future studies. Providers are responsible for systematic data-collecting and knowledge augmentation, which is demanding due to the unpredictable nature of the bottom-up process. The ULL framework further challenges the traditional role of academic researchers and experts in various ways, pushing them towards action.

As a rule of thumb, a successful ULL initiative requires a mixture of all living lab roles that can be roughly guessed based on participants' expertise and positions in advance. The findings revealed that several participants did not match the role expectations, and furthermore, the roles seemed to be situation-contingent, rather than permanent actor characteristics. It could be more useful to see living lab actor roles as living lab functions, comparable to leadership functions, instead of individual-consistent behaviours (e.g., Johnson & Johnson, 2001). Another important observation was that the actor roles became salient only after the teams started to plan their innovation projects; they were "asleep" in the phase of early innovation process. This indicates that exploring ignorance and limits of common knowledge help people to get rid of their roles and make them equal in brainstorming.

Preject can be managed. Whereas innovation literature is focused on the project management, the preject management has not received a similar attention (Darsø, 2003). The present study provides some insights into the preject management. First, the alternation of plenary discussions and working in groups created tension between general goals and participants' interests and cross-fertilized participants' innovative thinking. The plenary discussions enabled spreading ideas across the groups, as well as receiving

feedback and resources from other participants. Second, special attention should be given to protecting and nurturing group processes. In order to grow a successful innovation team, members need time for building relationships, sharing knowledge, and exploring ignorance and concepts. Premature decisions may lead to rather conventional projects and limited commitment; therefore, the team should process their idea until something new to them really sparks and they get emotionally engaged. Group processes are, however, difficult to maintain across the workshops due to fluctuations in participation. It could be advisable to build teams around key people with strong motivation. Third, innovations can be enhanced through interventions aiming at exploring ignorance and limits of expertise. This can be simply done by asking questions, but also more sophisticated tools are available (e.g. Virkkunen & Newnham, 2013). Finally, the most important is the constructive atmosphere accepting ignorance, and welcoming questions and criticism. With these conditions, urban living labs can provide forums for creative collaboration and problem-solving.

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