



LUND UNIVERSITY

Advancing Sustainable Urban Transformation through Living Labs

Hellstrom-Reimer, Maria; McCormick, Kes; Nilsson, Elisabet; Arsenault, Nicholas

2012

[Link to publication](#)

Citation for published version (APA):

Hellstrom-Reimer, M., McCormick, K., Nilsson, E., & Arsenault, N. (2012). *Advancing Sustainable Urban Transformation through Living Labs*. Paper presented at International Conference on Sustainability Transitions, Copenhagen, Denmark.

Total number of authors:

4

General rights

Unless other specific re-use rights are stated the following general rights apply:

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

Read more about Creative commons licenses: <https://creativecommons.org/licenses/>

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

LUND UNIVERSITY

PO Box 117
221 00 Lund
+46 46-222 00 00

Advancing Sustainable Urban Transformation through Living Labs: Looking to the Öresund Region

Maria Hellström Reimer¹, Kes McCormick², Elisabet Nilsson¹ & Nicholas Arsenault²

¹ School of Arts and Communication, Malmö University, Sweden

² International Institute for Industrial Environmental Economics, Lund University, Sweden

Abstract: The Öresund Region, which encompasses a population of 3.5 million across Southern Sweden and Eastern Denmark, aims to be a regional "powerhouse" in Europe for sustainability, innovation and clean-tech. It can therefore provide a "laboratory" by which to experiment, implement, examine and evaluate the progress of (local) transition governance and infrastructural investments. The Urban Transition Öresund project (2011-2014) is a cross-border cooperation between Swedish and Danish partners (including academic institutions, local governments, regional authorities, and clean-tech businesses) in the Öresund Region to evaluate and improve collaborative efforts to promote sustainable urban transformation. The working approach is the co-exploration of case studies – encompassing existing and planned buildings and districts in the Öresund Region – from which essential lessons are being extracted and subsequently tested on further projects in order to obtain general lessons. Importantly, the case studies from the Öresund Region are being supplemented by research on international experiences with a particular focus on new forms of collaboration, specifically the format of Living Labs, which can be simply described as a concept to integrate research and innovation processes within a public-private-people partnership. This paper presents a discussion of how the concept of Living Labs can support (local) transition governance towards sustainable urban transformation in the Öresund Region and beyond.

Keywords: Sustainability, Innovation, Urban, Governance, Transition, Transformation

Introduction

The Öresund Region is a unique area where academia institutions, local governments, regional authorities, and clean-tech businesses are actively working towards sustainable urban transformation with the aim to be a regional "powerhouse" for sustainability, innovation and clean-tech (City of Copenhagen, 2009; City of Malmö, 2009). This encompasses working with adaptation and mitigation, and enhancing resilience, in response to climate change and sustainability challenges. With a population of 3.5 million, the Öresund Region covers both Southern Sweden and Eastern Denmark. The Öresund Region hosts leading universities and ambitious cities striving to achieve sustainable urban transformation, both at the city and district scale, and to contribute to the regional urban structure.

The purpose of this paper is to present the Urban Transition Öresund project (2011-2014) in the context of (local) transition governance, to provide insights into Living Labs in Europe that are working with sustainability, innovation and clean-tech, and to discuss how (and if) the concept of Living Labs can help to advance sustainable urban transformation in the Öresund Region and beyond. This paper represents a discussion of ideas rather than concrete findings. However, the Öresund Region is particularly interesting because it provides a "laboratory" by which to experiment, implement, examine and evaluate the progress of (local) transition governance and infrastructural investments.

Methodology

This paper is based on the initial mapping activities conducted within the Urban Transition Öresund project, which involved two parallel tasks: mapping of methods and tools currently used by the partners in the Öresund Region concentrating on the local governments; and mapping of international cases and examples relevant for sustainable urban transformation, focusing on Living Labs in Europe. The mapping of methods and tools used in the Öresund Region was conducted in collaboration with the local governments participating in the Urban Transition Öresund project. The data serving as input to the process was generated during study visits to all of the local governments and at forum meetings for the Urban Transition Öresund project. Furthermore, two respondents were interviewed, and three respondents shared insights via email and phone. The generated data was transcribed, analysed, and categorised.

The exploration of Living Labs was conducted through a literature review, case study research, and two structured interviews with experts. The case study research concentrated on existing Living Labs addressing sustainability, innovation and clean-tech. The central resource for discovering and sorting through Living Labs was the European Network of Living Labs (ENoLL), which resulted in the analysis of four Living Labs – the Urban Living Lab in France, the Flemish Living Lab Platform in Belgium, the Coventry City Lab in the UK, and the Malmö New Media Living Lab in Sweden. Two interviews were conducted with experts, including Esteve Almirall, who is a member of the ENoLL council and present in the literature regarding Living Labs, as well as Mark De Colvenaer of the Flemish Living Lab Platform. Overall, the section on Living Labs in this paper provides only a glimpse into this intriguing concept.

Presenting the Urban Transition Öresund Project

The Urban Transition Öresund project is a cross-border cooperation between Swedish and Danish partners to advance sustainable urban transformation in Öresund Region through bridging the divide between cities and universities. This includes working with adaptation and mitigation, and enhancing resilience, in response to climate change and sustainability challenges. The partners in the project (see Fig. 1) include both academic institutions, including Lund University (10), Malmö University (6), Roskilde University (1), Aalborg University (4), and the Swedish Agricultural University (8) and local governments in Copenhagen (3), Malmö (7), Lund (9), Ballerup (5) and Roskilde (2). The Öresund Environment Academy is playing a role to engage key stakeholders in the region, including regional authorities and clean-tech businesses.

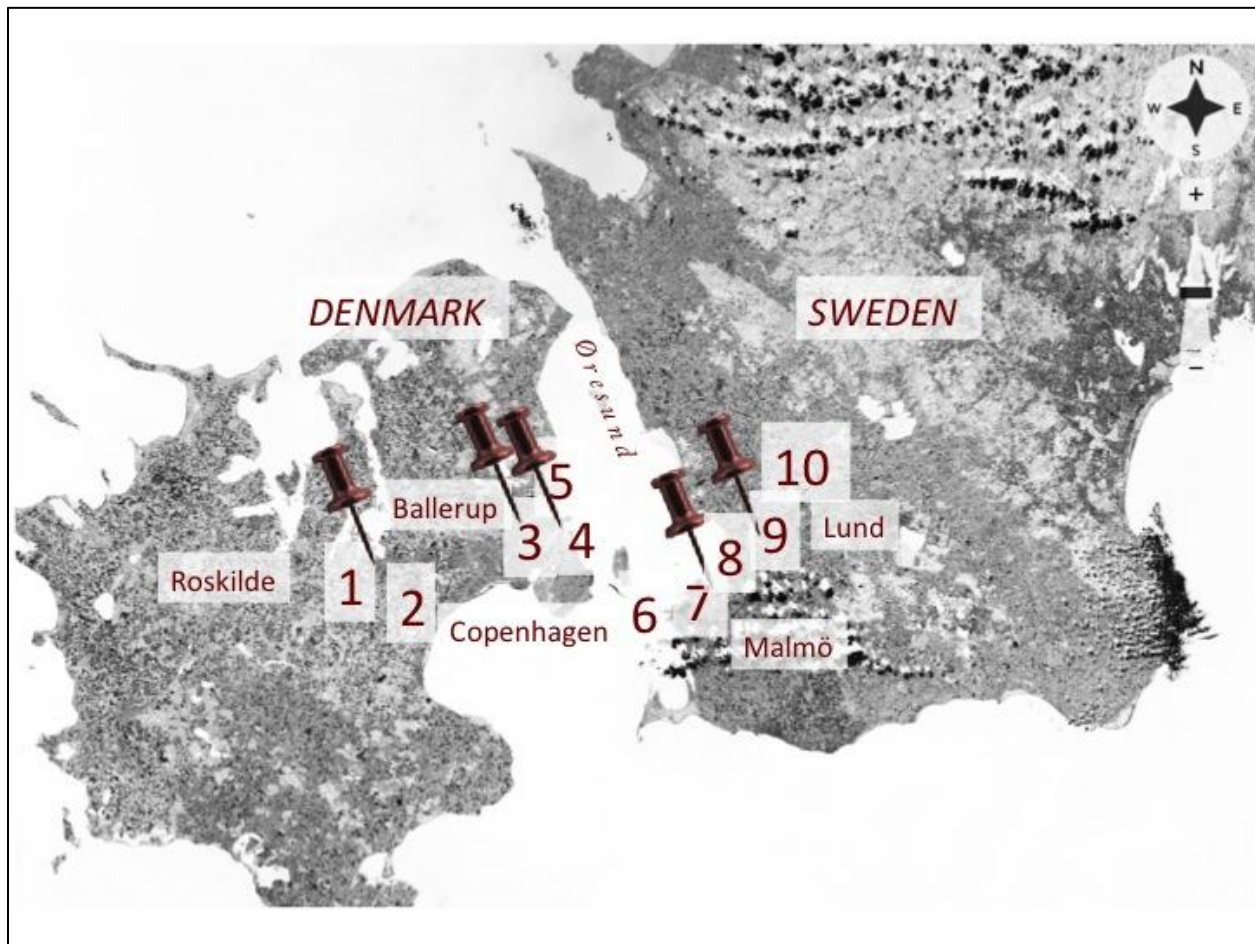


Fig. 1. The partners in the Urban Transition Öresund project

The Urban Transition Öresund project aims to develop cross-border methods and tools for sustainable urban transformation within three themes: sustainable planning processes, sustainable construction, and financing. There is also an important cross-cutting activity on Collaborative Methods and Tools for Urban Transitions (CoMeT), which has a special focus on tools and methods for working that allow and promote collaboration to drive forwards sustainable urban transformation. The initial phase of the CoMeT activity consists of mapping

existing experiences of forms of collaboration and cross-border working formats in urban processes. This includes examples of methods and tools utilised within the Öresund Region, but also beyond, on international areas, particularly on Europe.

The working approach for the Urban Transitions Öresund project is the analysis of case studies – including existing and planned buildings and districts in the Öresund Region – from which essential lessons are being extracted and subsequently tested on further projects in order to obtain general lessons (see Fig. 2). Importantly, the case studies from the Öresund Region are being supplemented by research on international experiences with a focus on Europe. The workflow for the case studies will use cooperation and implementation methods, which provide both the framework for the process and are simultaneously developed in the process. The total learning achieved will form the basis for developing models and tools for collaboration on sustainable urban transformation.



Fig. 2. Urban developments in Malmö, Sweden.

Source: www.malmo.se

The results of the Urban Transition Öresund project will be continuously disseminated through workshops, seminars, conferences, meetings, reports and websites and maintained through the development of a course at Aalborg University. Results will also be anchored in the relevant administrations in participating local governments, the academic institutions, and dispersed through international networks. An underlying objective of the Urban Transition Öresund project is to interact and engage with academic institutions and local governments who are actively working on bridging the divide between cities and universities in different parts of the world. This can provide valuable inputs to the Urban Transition Öresund project.

Experiences with Living Labs in Europe

It is imperative to begin re-thinking and re-purposing the cities of today and of the future. The current paradigms of planning cities for a predictable future are not only insufficient but also potentially destructive (Cooper et al., 2009; Lindberg, 2009). At present cities and their planning processes do not adequately reflect

the necessity for urban transitions towards sustainability in practice (Bulkeley & Betsill, 2005; Ernstson et al., 2010; Corfee-Morlot et al., 2009). A response to this problem possibly lies at the research, practice and design process levels. An innovative and flexible model or approach may be through the concept of Living Labs focused on sustainable urban transformation. Living Labs can be considered as an emerging approach based on two main ideas: a user-based innovation process and real-life experimentation that aims to provide structure in the user-based and participatory innovation process (ENoLL, 2012a; EC, 2009). This section explores the concept of using Living Labs as a participatory experimentation ground for advancing sustainable urban transformation.

Definition and Origins of Living Labs

According to Mark De Colvenaer (personal communication, February 23rd, 2012), Living Labs are an open innovation ecosystem where partners or stakeholders from different backgrounds can work together to find solutions to a defined challenge. Esteve Almirall (personal communication, February 28th, 2012) expands on this idea of Living Labs by suggesting that they are a methodology founded on three main points: situated experimentation by users, a participatory approach in real-life scenarios, and the inclusion of major institutions. These points appear to be the underlying foundations of Living Labs and can be observed on a whole, or in part, in most Living Labs (Almirall & Wareham, 2008). This methodology certainly differs in its application, but it is generally applied in the R&D phase of technologies and innovations as a user-centred methodology for sensing, prototyping, validating and refining complex solutions in multiple and evolving real-life contexts (Eriksson et al., 2005).

The origins of the concept of Living Labs can be credited to William Mitchell at the Massachusetts Institute of Technology in the USA, who recognized that with an increase in information technology, computing and sensing technology there was an opportunity to move innovation from an "in vitro" setting into an "in vivo" setting in order to allow researchers to observe users and test hypotheses in the real world (Eriksson et al., 2005; Dutilleul et al., 2010). The interesting aspects about the work when considering sustainable urban transformation is that the initial ideas for Living Labs were in the realm of urban planning and the use of smart/future homes. Since then, however, especially in the European context, urban planning has not been a central focus of Living Labs, rather they were further developed to bridge the gap between successful R&D and the commercialisation of products in the area of information and communication technology (Almirall & Wareham, 2008).

Emergence and Development of Living Labs

Living Labs emerged, as mentioned, with the vision to research from an "in vivo" user-based approach. This certainly remains a pillar of Living Labs, however there are additional factors that have contributed to the popularization of Living Labs today. The opportunity to create a platform and methodology to help incorporate innovation into systems and policies, which are missing in the traditional R&D approach to innovation, is behind many Living Labs (Almirall & Wareham, 2008). As Higgins & Klein (2011) suggest, the traditional approach to understanding the response by users to innovation by employing focus groups and usability studies lack insight into the social dynamics of using an innovation. It is ultimately this gap in understanding

that Living Labs addresses. Rather than a controlled setting, a Living Lab should provide a permeable environment for collaborative learning and “future-making” (Björgvinsson et.al., 2012).

The idea behind the “in vivo” methodology of Living Labs is consequently to offer insights into the dynamic, unpredictable, and idiosyncratic nature of real world environments, potentially “promising to produce more *useful* knowledge” (Evans & Karvonen, 2012), and providing opportunities beyond observation for real-time reaction, development and refinement (Higgins & Klein, 2011). Living Labs are therefore often “highly *visible* interventions with the purported ability to inspire rapid social and technical transformation” (Evans & Karvonen, 2012).

If the notions of use and engagement are central to the Living Labs approach to innovation, there is also another aspect that Living Labs help to mitigate, and this is the adversarial relationship between various stakeholders. Governments, companies, researchers, and users do not always see “eye to eye”. They often have seemingly contradictory motivations to innovate or are engaged in a “race” towards innovation. Living Labs help frame innovation in an experimental manner, breaking down traditional hierarchical and competitive approaches to innovation (Higgins & Klein, 2011). In the European context, Living Labs have emerged to help European countries deal with the difficulty of bridging the gap between research initiatives and commercial success. Again, this is framed in the development of a commercial product, but can certainly be framed in any number of categories, including the implementation of ideas involving urban transitions.

As Esteve Almirall (personal communication, February 28th, 2012) argues, commercialisation actually happens because of the involvement of governments and companies in real-life environments. In a Living Lab context, this “involvement” may be played out and re-negotiated, questioned and challenged. Through an interventionist approach, Björgvinsson et.al. (2012) emphasize what could be seen as the more controversial aspects of Living Labs. Rather than techno-centric incubators, they prefer to regard Living Labs as “agonistic thinging events with adversaries for diverse interests and perspectives” (Björgvinsson et.al., 2012). Different from deadlock antagonism, the Living Lab provides room for creative unsettlement and mobilization. The “agonistic” is more than socio-material staging, it is an attempt to acknowledge and “make use of” the fundamental social and cultural diversity that characterizes democracy.

Apart from challenging gaps between researchers and users, Living Labs thus also directly address the “democratic deficit” (Cornwall, 2004) by sustaining new forms of citizen engagement in governance processes. As such, Living Labs unfold as inter-locational environments, in between the “invited spaces” of “the political machinery of governance” and the “conquered spaces” or spaces of commitment of urban social movements (Cornwall 2004). As Cornwall (2004) has pointed out, such spaces for border crossing are essential as they are spaces that make the “representatives” of messy commonplace representative.

Examples of Living Labs

Within ENOLL and throughout the world, Living Labs have become a methodology to focus on any number of categories or subject areas. The majority of Living Labs in Europe are focusing on the commercialisation of

technologies or services. However, Living Labs were founded as a methodology to consider future/smart houses in the realm of urban infrastructure. This section focuses on four cases of Living Labs within the European context that are revisiting the origins of the Living Lab methodology and considering innovations within urban infrastructure and ultimately intending to contribute to sustainable urban transformation. These include the Urban Living Lab in France, the Flemish Living Lab Platform in Belgium, the Coventry City Lab in the UK, and Malmö New Media Living Lab in Sweden (see Fig. 3).

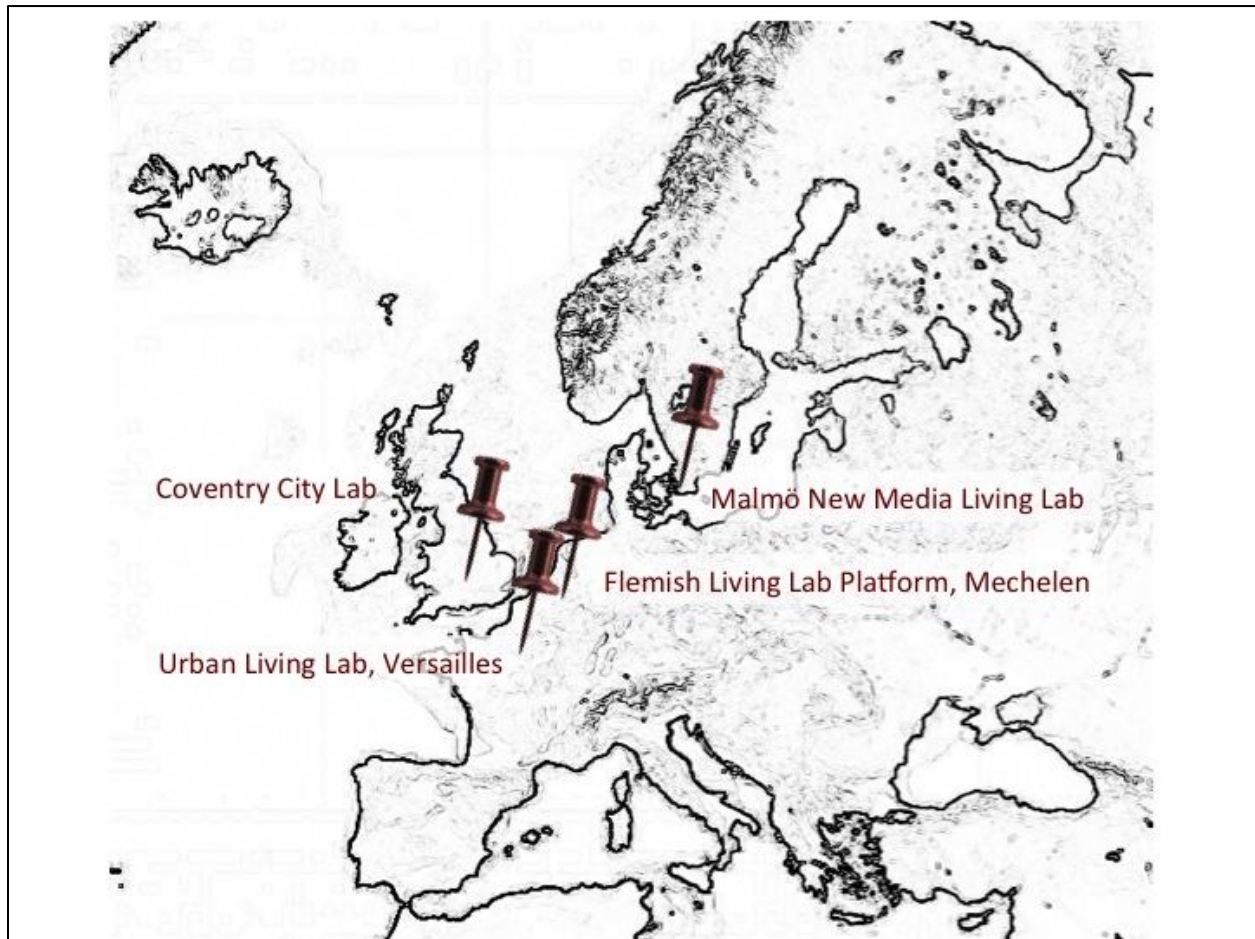


Fig. 3. Examples of Living Labs in Europe

Urban Living Lab: The Urban Living Lab (ULL) states that it is an innovation ecosystem involving students, residents, local government, and business on an eco-campus in Versailles in France. It is a multi-stakeholder Living Lab involved in innovation in the field of education, sustainable development and regional economic strengthening with an ultimate goal to support the transition to low carbon cities and promote a high quality of life (ENoLL, 2012b). The ULL funds and implements demonstration projects as well as actively engages in awareness and the dissemination of knowledge through the collective intelligence of communities, universities, citizens, associations, and companies (ULL, 2012).

Flemish Living Lab Platform: The Flemish Living Lab Platform (FLLP) in Belgium is a venue open for collaboration with any party involved in developing new technologies, products or services in the digital and interactive environment within the realm of “Smart Grids”, “Smart Media” and “Smart Cities”. The FLLP engages in a Living Lab methodology in an environment where users can test a new technology, product or service in a “real-world” setting (Enoll, 2012c). Simultaneously, researchers from two universities in Belgium monitor and gather data. Currently, the FLLP has several projects running, including a community based urban project focused on reducing greenhouse gas emissions as well as supporting senior citizens and local retailers (FLLP, 2012).

Coventry City Lab: The Coventry City Lab (CCL) in the UK is a partnership with the Coventry Council and Coventry University. The CCL is located at the Coventry University Technology Park and it has several projects and programmes underway in the realm of transportation energy management (Coventry University, 2012). The CCL is a real-life testing bed for low carbon innovations with an objective to strengthen the city and university green agenda whilst improving the quality of life for urban citizens and creating an exemplary low carbon community (ENoLL, 2012d). The Living Lab status was considered important to attract interested partnerships for open innovation.

Malmö New Media Living Lab: The Malmö New Media Living Lab (MLL), initiated in 2007 and expanded in 2009, currently embraces three independent Living Labs – “The Stage”, “The Factory”, and “The Neighbourhood” – all of which focus on socially sustainable innovation. The Living Labs are located in different parts of the city of Malmö, in different ways reflecting its cultural diversity, its special demography with a very young population, and its growing media industry. The Living Labs are all based on user-driven design and innovation and they have all emerged out of different citizen initiatives. The MLL furthermore applies what is described as “an interventionist action-research-oriented approach” (Björgvinsson et.al. 2012) inspired by the “collaborative services” model for sustainable development developed by Prof. Ezio Manzini at the Politecnico di Milano in Italy (Jégou & Manzini, 2008).

Based on the Living Labs presented (see Table 1), which represent only a sample from the ENoLL database, it is clear that there are Living Labs working on urban transitions towards sustainability. Each Living Lab has a particular context and a unique set of focal challenges and interests, but they all aim to contribute to improving the lives of urban populations. These Living Labs also have a diverse group of partners ranging from local governments to academic institutions. With these partnerships in place and a willingness to collaborate in an open environment all these Living Labs are positioned to deal with the multi-faceted issues that arise when considering the dynamic challenges of sustainable urban transformation.

Insights from Existing Living Labs

The starting point for this section was to explore the concept of Living Labs. Mark De Colvenaer (personal communication, February 23rd, 2012) suggests that there is no absolute definition of a Living Lab. The label can be identified all over the world, in different platforms and focused on various contexts and specific objectives (EC, 2009). Although there is a significant variance of how Living Labs exist, function and interact with society,

*International Conference on Sustainability Transitions
29-31 August 2012, Copenhagen, Denmark*

most fall somewhere within the spectrum of the commonly accepted theory underpinning Living Labs. A Living Lab can be considered as a methodology founded in three (over-lapping) points: situated experimentation by users, a participatory approach in real-life scenarios, and the inclusion of multiple stakeholders. These three points are the underlying foundation of a Living Lab and can be observed on a whole, or in part, in most Living Labs.

| | Urban Living Lab (ULL) | Flemish Living Lab Platform (FLLP) | Coventry City Lab (CCL) | Malmö New Media Living Lab (MLL) |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Location | Versailles, FRANCE | Mechelen, BELGIUM | Coventry, UK | Malmö, SWEDEN |
| Mission | To support the transition to low carbon cities and a high quality of life. | To optimize and boost value creation in information, communication and entertainment. | To improve quality of life for urban citizens and create an exemplary low carbon community. | To provide a platform for sustainable social innovation, collaborative development new and cross-boundary services. |
| Interests | Energy efficiency, Mobility, Nutrition, Education, Transportation, Telemedicine, Personal services. | Smart Grids, Smart Media, Smart Cities. | Green Buildings, Smart Buildings, Smart Cities, Low carbon economy, Low carbon transportation, Traffic systems. | Cross-media, Cultural production, Social media, Collaborative services, Mixed-media productions, Open source. |
| Function | The ULL is a network of interested collaborators that can link into the ULL ecosystem to test and be supported in various projects relating to low carbon communities. | The FLLP sets up infrastructure, tests user panels, provides services, mobilizes stakeholders and acquires projects. It is open to any collaborations. | The CCL provides a test bed, incubation hub, and access to researchers and industrial bodies. It is a strategic partnership between the city and council. | The MLL provides spaces for charged interaction and negotiation between different stakeholders in urban transformation processes. |
| Users | An ecosystem of innovation involving students, residents, local communities, associations and companies. | It is currently connected with 250 households (or 600 people). Another panel is on the way with 2000 users. | The Coventry University Technology Park provides direct access to citizens and key stakeholders. | Small new media entrepreneurs as well as citizen and community organizations. |

Table 1: Background on Living Labs in Europe

Situated experimentation by users: A pillar of Living Labs is the intentional and strategic collaboration with users. Although this is not necessarily different from other innovation processes or approaches, the Living Lab methodology enhances the user perspective, making it possible for more complex aspects of production and consumption to emerge. In this sense, the methodology behind Living Labs demands an iterative, eco-systemic approach and long-term involvement (in stark contrast to short-term interactions with users that are common in market and product-oriented innovation processes). The idea of involving users in experimentation or research aligns with urban transitions towards sustainability – in that projects and activities involve the idea of communities of use embedded in the “real” world (Ernstson, 2010; Higgins & Klein, 2011, Evans & Karvonen, 2011). In this approach, Living Labs can accomplish a realistic understanding of how people live, interact with, and evolve within an urban setting.

Participatory approach in real-life scenarios: The participatory approach employed by Living Labs essentially engages people in real-life scenarios, reflectively framing responses and usage of resources, technologies or infrastructure in order to inspire design or further research. The interactions between people and technologies, services, and products are thus staged and “rehearsed” (Halse et al. 2010), and therefore challenging more controlled procedures for knowledge production (Evans & Karvonen, forthcoming). The obvious and overarching benefit of this approach in urban transitions is that it presents a re-vitalization of the potential of the laboratory environment of “extra-mural” interpolation of scientific knowing, the kind of composite transference of experience, whereby a wide range of users, contractors, entrepreneurs and researchers are engaged in the production of knowledge. Evans & Karvonen (2011) have expressed it as “Living Labs for sustainability interfere quite purposefully, harnessing the power of laboratories to remake society in accordance with new forms of knowledge”.

Inclusion of multiple stakeholders: The multi-stakeholder approach is not a new idea when it comes to design processes or urban transitions. Any significant problem addressing urban issues inherently involves many stakeholders. Yet, there are several reasons why Living Labs offer a slightly different approach and potentially improved outcomes. Living Labs are framed as laboratories, as spaces for experimentation, which allow stakeholders to relax their “guard” in terms of their specific objectives, perceived contradictions, relational histories, and traditional barriers to collaboration. At the same time, side-stepping simple opposition between top-down and bottom-up, Living Labs promote real-time, physical interaction, which allows for “agonistic” friction and tense synergies to be maintained and explored. This way, human interactions and experiences can develop into future-making, and the co-construction of worlds rather than systems.

Challenges for Living Labs

There is considerable enthusiasm for the concept of Living Labs based on the assumption that they are real-life experiments that can produce useful knowledge and promote rapid change. However, how to initiate, develop and “succeed” through Living Labs remains poorly explored and defined (Dutilleul et al., 2010). Further, there are identified barriers to the use and implementation of Living Labs. First, there exist cognitive and motivational barriers to any collaborative methodology. Cognitive barriers emerge when stakeholders from different backgrounds fail in establishing a shared language or a format for dialogue. Spatial asymmetries or

different degrees of access to data can create dominant "expert" voices. Motivational barriers exist when stakeholders have different economic conditions or potentials for receiving environmental feedback.

Second, a further barrier is the inherent need to identify stakeholders that can work together to produce innovation in a joint problem solving effort. Identifying the "right" stakeholders, and not just the interested or invested shareholders is essential. In the same realm can be the difficulty in motivating organisations to collaborate, as it may blur or change their representational position in relation to the prevailing order of governance. And finally, another barrier or issue is the ethical involvement of users. Although the idea of Living Labs is to involve users to tap into their knowledge, rather than regarding users as objects or data providers in a research process, there are some inherent ethical issues associated with what could be considered when implementing a "living" epistemic shift.

Applying the Living Labs Concept to the Öresund Region

The mapping process within the Urban Transition Öresund project established a point of departure in results from earlier reports, including: the Interactive Institute Space and Virtuality Studio, *Design Spaces* (Binder & Hellström, 2005); COST Action C20, *Urban Knowledge Arenas: Re-thinking Urban Knowledge and Innovation* (Nolmark et al., 2009); *Rehearsing the Future* (Halse et al., 2010) presenting experiences from the Design Anthropological Innovation Model (DAIM); and the forthcoming report of the MEDEA Living Labs experiences, *Future Making Futures: Marginal Notes on Innovation, Design and Democracy* (Ehn et al., forthcoming). The results presented in these and other reports emphasize the need to materialize and stage collaboration in new ways, that is, to develop new objects around which to gather, objects that could complement models, plans and documents, and facilitate collaboration.

"Let people make systems when they need systems" has emerged as a leading principle (Binder & Hellström, 2005), suggesting the need for less explicit governing and more consideration of local situations. In particular, the COST Action C20 report (Nolmark et al., 2009) builds on a large number of case studies throughout Europe and interestingly points to the need of developing what is referred to as new "urban knowledge arenas" – new cross-sector and multi-professional spaces and formats for the sharing and developing of specific urban knowledge. In many cases, these formats need to allow for open contestation or relying on "alternative" or "artistic" practice (Nolmark et al., 2009), and in most cases explicitly filling out what can be considered as "gaps" or middle grounds in the development process. Clearly, the call for "urban knowledge arenas" in the COST Action C20 report is closely linked to the concept of Living Labs.

Exploring Transitions in the Urban Context

It is important to keep firmly in mind that the importance of cities is expected to increase due to the role of metropolitan areas as growth centres of the emerging globalising service economy. For this reason, policies formulated by international bodies and national governments need to be implemented at the community and city level (Murphy, 2000). The local level has therefore been identified as a key for sustainable development and there is a general agreement that effective and integrated solutions can only be found and efficiently implemented at the local level (URBACT, 2012). Furthermore, the concentration of population, activities and

resource use in cities bring potentials for important efficiency increases as well as for multi-purpose solutions combining different sustainability goals.

The specific complication is that not only is systemic transition generally speaking complex and difficult – the prefix “urban” also implies another level of complication. It is therefore especially important to consider what is specific to urban transitions towards sustainability as opposed to transitions in general (Ernstson et al., 2010). This raises many challenging questions that the Urban Transition Öresund project is tackling. How can we approach the specific complexity of urban environments and the diverse social, cultural and political dimensions that we associate with urban life? What are the special requirements in urban contexts in order for transitions to take place and what can we do to catalyse and shape transitions?

These difficulties have, however, already generated a considerable amount of methods-oriented experimentation and innovation. Yet, the know-how in this field is still scattered and difficult to retrieve. To a certain extent, this depends on the fact that know-how about urban transitions is largely site-specific, or context-dependent; conditioned by the very environment and situation where it is developed. Despite this fact, or perhaps precisely because of it, there is a need for the gathering of examples and practices rather than models, before further development can take place. The Urban Transition Öresund project is engaged in learning from international experiences with sustainable urban transformation and Living Labs, particularly in the European context.

Emerging Tools in Urban Planning

The emergence of new technologies, new tools for visualising scenarios and occurrences, alternative channels for networking, participation, and sharing has changed the conditions for collaboration and knowledge transfer (Jenkins, 2006), not only in everyday life but also in urban planning processes. Accordingly, a working hypothesis of the Urban Transition Öresund project is that the operational modes in planning and urban development today are converging with modes currently used in other fields, particularly where composite communication is a major issue.

Planning practice and urban development processes are increasingly informed by methods used in media laboratories and various types of studio environments for innovative, often expressly practice-based research and development. A key characteristic for these environments is that they are thematic rather than directly problems-oriented. Furthermore, they are often based on a strong common commitment, yet combined with a flexible structure, as such allowing the adaptation to specific, local and timely circumstances, to the crossing of boundaries between different expert fields, and to the bridging of gaps between experts and locally informed and experienced laymen.

The question is if there are examples of development that could be specifically relevant to processes of urban transitions? What we initially ask is therefore how the need for cross-fertilisation of ideas and know-how is handled in practice, primarily on the municipal level. What “forms” of collaboration, what kind of meeting culture, is currently employed? How are different experts and stakeholders with different forms of know-how

brought together? How are the issues of differences in language and terminology addressed? And how are conflicts of interest negotiated? The Urban Transition Öresund project is tackling these types of questions, and the Living Labs approach may facilitate these efforts.

Collaborating in the Öresund Region Today and Tomorrow

Mapping collaborative activities in the Öresund Region has revealed the methods and tools currently used by local governments. On the question what collaborative methods and tools are utilised in everyday practice, a long list of more or less traditional, digital or analogue examples were mentioned by the respondents, including everything from traditional meetings and study trips, to online activities, social media, and drama actions in public space. The respondents also expressed a wish to continue to develop their methodological toolbox for collaborative work. Based on the outcome of this mapping, a selection of topics that could be subjects for further development include:

- Social media tools in urban planning processes,
- Methods for facilitating dialogues and meetings with developers, builders, citizens, and politicians, but also colleagues,
- Methods for facilitating, and running dynamic, open planning processes,
- Visualisation of scenarios, occurrences and long term effects of investments,
- Value systems measuring “soft” values (the social), and
- Methods for “prototyping the city”, small scale testing, and design thinking in urban planning processes.

To create a richer picture of some of the methods and tools currently used in the Öresund region, a set of innovative urban planning actions were selected and further explored in the research process. These featured key examples from different local governments including: the Climate Butler Project in Ballerup, a Game for Collaborative Innovation in the Public Sector in Copenhagen (see Fig. 4), the Sustainable Building Program in Lund, the Creative Dialogue in Malmö, and Planning on Demand in Roskilde. All of these examples pointed to the willingness of the local governments to “break” with “business as usual” governance activities to “test” new approaches to open up opportunities for urban transitions towards sustainability (Evans et al., 2006).

The outcome of this regional mapping process serves as a starting point for six upcoming thematic workshops organised in the next phase of the Urban Transition Öresund project. At these workshops, project partners will meet for further sharing of insights and experimentation with new kinds of methods, tools, and settings for urban processes. The workshop themes are currently being developed. Topics that have been discussed as potential themes are, among others: “Mobile/smart phone video and streaming technologies in urban planning”, “Urban games, and game development in urban planning”, “Prototyping the city”, “Facilitating open planning”, “The art of hosting creative dialogues”, “Soft values – handling the social in urban transitions”, and “Negotiating and visualising long term effects of investments”.



Fig. 4. Gaming sessions to inspire creative thinking in Copenhagen, Denmark

Source: www.gametools.dk

Inspiring the Urban Transition Forum

The creation of an Urban Transition Forum (UTF) is a central component in the Urban Transition Öresund project. It is intended as a permanent forum in which dissemination, discussion and exchange of experiences from the pilot projects within the three thematic areas for a wide range of stakeholders inside and outside the Öresund Region will take place. It is argued here that the UTF should be designed with the Living Labs concept in mind to encourage integration of research and innovation processes within a public-private-people partnership that can support (local) transition governance towards sustainable urban transformation in the Öresund Region and beyond.

Although the research conducted and presented in this paper is by no means exhaustive, some guiding patterns can be distinguished for the UTF, such as, that urban transitions are dependent upon creative communication between many different stakeholders, and continuous representation and mediation of complex “data” or “knowledge”. What is also possible to trace throughout the examples is the need for non-confrontational situations or platforms where collaborative learning processes can take place. Although in several of the examples this is articulated in terms of “the developing of tools” it is generally very difficult to pinpoint exactly what these tools look like or how they work. Instead, there is a tendency of a shift from regulated or tool-based processes to situation-based processes, with clear links to the sites of implementation.

Conclusion

Based on the analysis and discussion in this paper, it is suggested that a deeper understanding is required of how different urban sub-systems, such as the physical as well as the socio-cultural and the economic, overlap or are played out against each other (Evans et al., 2005). The role of composite media and new vocabularies in order to be able to handle and reconfigure these relationships and inter-linkages, new approaches, platforms and mind-sets for creative policy-making and transitional action, and solutions for the prototyping, exploring

and testing of new ideas are all underlying challenges to address in the Urban Transition Öresund project. In summary, this initial research suggests the following key actions:

- professional, yet case sensitive and transparent methods, tools and instruments, including sophisticated urban indicators, composite mapping procedures, participatory modelling and simulation tools, and interactive forms for data management, and
- forms for debate, reflexion and accumulation of results, findings and conclusions, locally, regionally and on an international level, in order to raise awareness and stimulate further change, that is, forms for critically reviewing and evaluating not only results but also forms of organisation and programming, modes of operation and ways of implementation.

References

- Almirall, E. & Wareham, J. (2008) Living Labs and Open Innovation: Roles and Applicability. *Electronic Journal for Virtual Organizations and Networks*, 10: 21–46.
- Bulkeley, H. & Betsill M. (2005). Rethinking Sustainable Cities: Multilevel Governance and the "Urban" Politics of Climate Change. *Environmental Politics*, 14(1): 42-63.
- Binder, T. & Hellström, M. (eds.) (2005). *Design Spaces*. Edita: IT Press.
- Björgvinsson, E., Ehn, P. & Hillgren, P-A. (2012). Agonistic participatory design: working with marginalised social movements. *CoDesign: International Journal of CoCreation in Design and the Arts*, 8(2-3): 127-144.
- City of Copenhagen. (2009). *Copenhagen Climate Plan: The Short Version*. Copenhagen: Technical and Environmental Administration.
- City of Malmö (2009) *Environmental Program for the City of Malmö 2009-2020*. Malmö: City of Malmö.
- Cooper, R., Evans, G. & Boyko, C. (eds.). (2009). *Designing Sustainable Cities*. Chichester: Wiley-Blackwell.
- Corfee-Morlot, J., Kamal-Chaoui, L., Donovan, M., Cochran, I., Robert, A. & Teasdal, P. (2009). *Cities, Climate Change and Multilevel Governance*. Retrieved from <http://www.oecd.org/>
- Cornwall, A. (2004) "Introduction: New Democratic Spaces? The Politics and Dynamics of Institutionalised Participation". Retrieved from <http://www.ids.ac.uk/>
- Coventry University (2012). *Coventry City becomes a UK "Living Lab"*. Retrieved from <http://wwwm.coventry.ac.uk/>
- Dutilleul, B., Birrer, F.A.J. & Mensink, W. (2010) *Unpacking European Living Labs: Analyzing Innovations Social Dimensions*. *Central European Journal of Public Policy*, 4(1): 60-84.
- European Network of Living Labs (ENoLL). (2012a). *European Network of Living Labs*. Retrieved from <http://www.openlivinglabs.eu/>
- European Network of Living Labs (ENoLL). (2012b). *Urban Living Lab*. Retrieved from <http://www.openlivinglabs.eu/>
- European Network of Living Labs (ENoLL). (2012c). *Flemish Living Lab Platform*. Retrieved from <http://www.openlivinglabs.eu/>
- European Network of Living Labs (ENoLL). (2012b). *City Lab Coventry*. Retrieved from <http://www.openlivinglabs.eu/>

International Conference on Sustainability Transitions
29-31 August 2012, Copenhagen, Denmark

- Ernstson, H., van der Leeuw, S., Redman, C., Meffert, D., Davis, G., Alfsen, C. & Elmqvist, T. (2010) Urban Transitions: On Urban Resilience and Human-Dominated Ecosystems. *Ambio*, 39:531-545.
- Ehn, P., Nilsson, E. & Topgaard, R. (eds.) (Forthcoming). *Future Making Futures: Marginal Notes on Innovation, Design and Democracy*. Malmö: Malmö University.
- Eriksson, M., Miitamo, C.P. & Kulkki, S. (2005). State-of-the-art in utilizing Living Labs approach to user-centric ICT innovation: A European approach. *Technology*, 1(13): 1-13.
- European Commission (EC). (2009). Living Labs for user-driven open innovation. Retrieved from <http://ec.europa.eu/>
- Evans, J. & Karvonen, A. (forthcoming) Give me a laboratory and I will lower your carbon footprint! Urban Laboratories and the Pursuit of Low Carbon Futures. *International Journal of Urban and Regional Research*.
- Evans, J. and Karvonen, J. (2011) Living Laboratories for Sustainability: Exploring the Politics and Epistemology of Urban Transitions. In: Bulkeley, H., Broto, V., Hodson, M. & Marvin S. (eds). *Cities and Low Carbon Transitions*, London: Routledge.
- Evans, B., Joas, M., Sunbach, S. & Theobald, K. (2005), *Governing sustainable cities*. London: Earthscan.
- Evans, B., Joas, M., Sunbach, S. & Theobald, K. (2006). Governing local sustainability. *Journal of Environmental Planning and Management*, 49(6), 849-868.
- Flemish Living Lab Platform (FLLP). (2012). Flemish Living Lab Platform. Retrieved from <http://vlaamsproeftuinplatform.be/en/>
- Halse, J., Brandt, E., Clark, B. & Binder, T. (2010). *Rehearsing the Future*. Copenhagen: Danish Design School Press.
- Higgins, A. & Klein, S. (2011). Introduction to the Living Lab Approach. In: Tan, Y., Bjorn-Andersen, N., Klein, S. & Rukanova, B.(eds.) *Accelerating Global Supply Chains with IT-Innovations*. Berlin: Springer-Verlag.
- Jégou, F. & Manzini, E. (2008) *Collaborative services: Social innovation and design for sustainability*. Milan: Edizioni POLI.design.
- Jenkins, H. (2006). *Culture Convergence: Where Old and New Media Collide*. Cambridge: MIT Press.
- Lindberg, C. (2009). Governance for Resilient, Sustainable Cities: Best practices for bridging the planning-implementation gap. Resilient Cities Workshop, Vancouver, Canada, October 21, 2009.
- Murphy, P. (2000). Urban governance for more sustainable cities. *European Environment*, 10(5): 239-246.
- Nolmark, H., Andersen, H., Atkinson, R., Muir, T. & Troeva, V. (2009). Urban Knowledge Arenas: Re-thinking Urban Knowledge and Innovation. Retrieved from <http://www.cost.eu/>

*International Conference on Sustainability Transitions
29-31 August 2012, Copenhagen, Denmark*

Urban Living Lab (ULL). (2012). Urban Living Lab. Retrieved from <http://www.urbanll.com/>

Urban Action (URBACT). (2012). Understanding Integrated Urban Development. Retrieved from <http://urbact.eu/>