

The Emerging Landscape of Urban Living Labs

Characteristics, Practices and Examples

WHY READ THIS HANDBOOK?

There is a growing trend to involve citizens in city development to make urban areas more sustainable and livable. The urban living labs approach offers a way to foster new collaborative, trans-disciplinary ways of thinking in urban planning and development, and provides a real-world testing ground for urban innovation and transformation.

This handbook aims to bring open innovation and co-creation to urban policy makers and change agents in Europe and beyond, by offering an introduction into the basic concepts and principles of urban living labs. In addition, this handbook provides examples of good practices and guidance on the design, operation and evaluation of urban living labs.



WHO IS THE AUDIENCE FOR THIS HANDBOOK?

While this handbook is targeted at actors planning or launching participatory activities related to urban planning or other development projects in urban contexts, focusing on municipalities, housing companies and universities, it can be equally relevant for private companies, and civil society organisations active in cities.





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Editors: Kes McCormick and Christian Hartmann

Contributors: Annica Kronsell, Marija Breitfuss-Loidl, Harriet Bulkeley, Derk Loorbach, Janice Astbury, Lars Coenen, Lea Fünfschilling, Lindsay Mai, Niki Frantzeskaki, Angelika Sauer, Yuliya Voytenko Palgan, Timo von Wirth and Simon Marvin

Designer: Mia Pantzar

WHAT ARE URBAN LIVING LABS?

Cities face a pressing challenge – how to provide economic prosperity and social cohesion while achieving environmental sustainability?

In response, new collaborations are emerging in the form of urban living labs – sites devised to design, test and learn from social and technical innovation in real time.

Urban living labs are proliferating across Europe and around the world as a means for testing innovations in buildings, transport and energy systems.

Urban living labs can be considered both as an arena (geographically or institutionally bounded spaces), and as an approach for intentional collaborative experimentation of researchers, citizens, companies and local governments.



“Today’s sustainability challenges urgently call for new urban solutions which in turn require experimentation on suitable scales and with multiple stakeholders. This is where urban living labs have a key role to play.”

Carina Borgström-Hansson, WWF

WHEN AND WHY TO DEVELOP URBAN LIVING LABS?

There are multiple reasons to develop or engage in urban living labs.

First, urban living labs connect partners from various sectors who complement each other with a diversity of competences, human knowledge and skills, financial resources, and political influence. Urban living labs can thus become means to successfully pursue ambitious goals collectively.

Second, urban living labs make sustainable innovations highly visible and usable in practice since they test the innovations in real settings, such as buildings, transportation and the energy sector, and hence they can accelerate the adoption of innovative solutions among the users.

Third, urban living labs can transform governance in cities as they test sustainable innovations by providing platforms for knowledge co-production with a mix of stakeholders and users. This approach is based on the quadruple helix model of partnership whereby government, industry, the public and academia work together to generate innovative solutions.

Fourth, for actors trying to establish themselves as innovation leaders in the field of sustainability and smart technologies, urban living labs can become high profile statements of intent. They can help to both attract public attention and secure funding.

Fifth, urban living labs are a means through which new communities of practice with shared goals can be brought together, developing social networks and visions for urban futures. In other words, they can be a mechanism to design and create the future of cities.

“One of the appeals of urban living labs is that they produce knowledge ‘in the real world’ and ‘for the real world’, and this ability to bring alternatives to life is generally viewed as one of their critical advantages.”

James Evans, Manchester University

CHARACTERISTICS OF URBAN LIVING LABS

Five key characteristics of urban living labs can be identified.

- 1. Geographical embeddedness:** Urban living labs are placed or embedded in a geographical area – they are predominately not virtual platforms.
- 2. Experimentation and learning:** Urban living labs test new technologies, solutions and policies in real world conditions in highly visible ways.
- 3. Participation and user involvement:** Co-design and engagement with stakeholders often appears in all stages of the urban living labs approach.
- 4. Leadership and ownership:** It appears that having a clear leader or owner is crucial for urban living labs, although a delicate balance exists between steering and controlling.
- 5. Evaluation of actions and impact:** Evaluation underpins the ability of urban living labs to facilitate formalised learning.



HOW DO URBAN LIVING LABS WORK?

As a means of governing the city, urban living labs are invested with multiple different ambitions and goals. Processes of innovation and learning are integral. Urban living labs test new technologies, solutions and policies in real world conditions in highly visible ways, which can prompt radical social and technical transformation. Evaluation of the actions and impacts of an urban living lab is important to feed back the results, and revisit and refine the goals and visions over time. Here, co-production of knowledge and ideas with users, stakeholders, research organisations and government bodies is key, providing urban living labs with the potential to be flexible to multiple ideas and interests and to produce collective outcomes.

This intention to foster participation takes multiple forms, from identifying stakeholder needs, deciding upon urban living labs goals and visions, planning and designing to developing, implementing, and evaluating urban living labs actions and updating ambitions. An important practical challenge for many urban living labs lies in how to achieve the inclusion of all key stakeholders and account for their interests. Rather than being corporate-led or scientifically determined modes of governance, urban living labs have the potential to re-politicise urban development.

This final argument feeds into the discussion of leadership and ownership of urban living labs. The ability of urban living labs to contribute to urban sustainability depends on how they are designed and executed in practice, and it appears that having a clear leader or owner is crucial. There is an important coordination and management role for urban living labs to be effective, although a delicate balance exists between steering and controlling. Urban living labs need to remain flexible for different stakeholders to engage in their development and direction. Leadership of urban living labs can be broadly divided between three different forms – strategic, civic and grassroots.

A cityscape at dusk with a network overlay and Wi-Fi symbols. The background shows a city skyline with various buildings under a blue and orange sky. Overlaid on the image are three white Wi-Fi symbols and a network of white lines connecting dots, representing a digital or smart city theme.

“Urban living labs are dedicated places providing evidences on new solutions and technology helping larger implementation.”

Thomas Johnsson, E.ON

TYPES OF URBAN LIVING LABS

We identify 3 configurations of urban living labs – strategic, civic and grassroots. These can be considered as ideal types that do not fully represent ‘reality’ but capture the essence of different ways to design urban living labs.

Strategic – these urban living labs are led by government or large private actors, use urban areas as an arena for the pursuit of the interests of other actors, and often operate in the whole city area with multiple projects under one umbrella.

Civic – these urban living labs are led by urban actors such as universities, cities and urban developers, focus on economic and sustainable urban development, are represented by either stand-alone projects or city-districts, and often have co-funding as central to a partnership model.

Grassroots – these urban living labs are led by urban actors in civil society or not for profit actors, focus on a broad agenda of well-being and economy, often host micro-projects or single issue projects and have limited budgets.



For example, an urban living lab could be a strategic platform in that a city government received funding from the national government to establish a platform for experimenting with energy efficiency in buildings.

“Who is involved and what kinds of knowledge and competencies are prioritised by urban living labs plays a key role in determining their goals, outcomes and ultimately their broader impact.”

Jonas Bylund, JPI Urban Europe

We suggest that urban living labs have distinct capacities – or potential to effect change – which are shaped by their disposition. Here we identify 4 types – the trial, the enclave, the demonstration and the platform.

Trial – controls time and space in the urban arena in order to test, under what are often termed ‘real world’ conditions, particular products, technologies, or processes.

Enclave – seeks to undertake innovation under protected conditions, a form of ‘niche’ in the traditional sense of innovation studies but one that is usually protected through spatial segregation.

Demonstration – a managed form of contingency, demonstration provides a showcase or exhibition of what the urban could resemble.

Platform – seeks to create an arena in which different interests are made coincidental and foster the emergence of new urban configurations.

Another example could be an urban living lab that is a grassroots enclave where local citizens organised an urban gardening initiative.



PROF. JAMES EVANS, MANCHESTER UNIVERSITY

What are the key features of urban living labs?

"Urban living labs usually represent a bounded geographical, organisational or institutional environment. This facilitates various types of interventions. Living labs were about ICT in the beginning. But now urban living labs encompass many more areas and topics – from energy transitions to community gardening."

"Urban living labs open up a forum or space for a greater involvement of citizens and other stakeholders in urban planning and development. The involvement of citizens calls for a more sophisticated response to complex urban challenges, which stretches beyond surveys and focus groups. Citizens can have great ideas. They can have visions of new possibilities."

What are the key benefits for partners in urban living labs? And what positive impacts can urban living labs have on cities?

"Cities can seek to innovate, adapt, and transit to a more sustainable future. This is where experimentation comes in, which can help cities adopt and develop the ideas of sustainable cities. At the same time, the funding available to municipalities often does not meet the spending required to achieve ambitious goals. There is a funding gap, which calls for innovative approaches, where business as usual is not an option."

What are some pitfalls or common mistakes to avoid with urban living labs?

"The real challenge in operating an urban living lab is to make it possible for the partners involved to really learn about what works in practice and put this knowledge to work. Often the monitoring and evaluation required to make this happen attracts less budget. Furthermore, large projects have to be presented to funding bodies as successes whatever, while more valuable learning is often associated with what did not work."

"Finally, it is important to have a clear idea of how the learning produced by urban living labs can be incorporated into broader activities, policies or strategies in order to scale up impacts and transform practice."



STRATEGIC URBAN LIVING LAB EXAMPLES

Renewable Wilhelmsburg Climate Protection Concept

Location: Hamburg, Germany

Lead partner: International Building Exhibition (IBA)

Partner types: Government (local and national) and business

Web: <http://www.iba-hamburg.de/>



Using the IBA showcase area, which extends from Veddel to Harburg upriver port, this urban living lab illustrates how urban planners, architects, the public and planners can make creative use of energy savings, energy efficiency and renewable energy potential. In 2015, half of the electricity needs of all buildings on the Elbe islands is produced on site by climate-friendly and renewable energy, whereas by 2025 the entire electricity supply of the buildings will be produced on site. The coverage of the heat demand is aimed for by 2050.

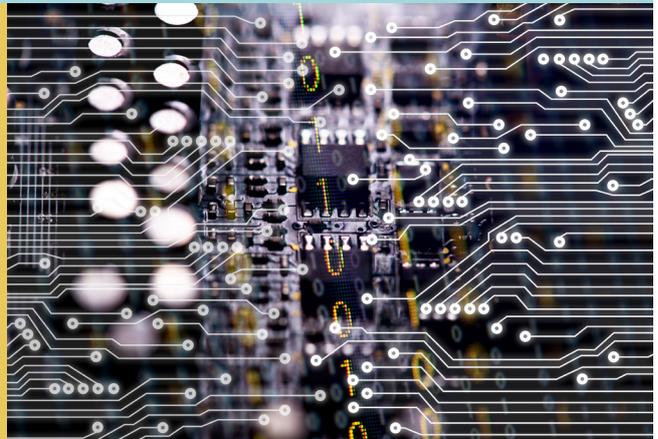
MK: SMART

Location: Milton Keynes, United Kingdom

Lead partner: The Open University

Partner types: Government (mainly local), academia, business (multinationals, state-run, SMEs), and NGOs

Web: <http://www.mksmart.org/>



Milton Keynes was one of the 30 cities in the United Kingdom that were shortlisted in the competition to be a Future Cities Demonstrator. MK:Smart was initiated in 2014. Universities play a major leadership role in Milton Keynes future city development. There is a particular focus on the urban 'smart' elements of making good use of city and citizen-generated data. Key environmental objectives cover the transport, energy and water sectors with a heavy information and data focus. The most striking aspects of this urban living lab are its connection with the enterprise ecosystem in the city, the engagement of citizens in its Smart Citizen Labs, and its educational components, including technical teaching kits, a postgraduate certificate and educational programmes for SMEs and business students.

DOMAINS OF URBAN LIVING LABS

Urban living labs can be categorised into 5 different domains – community/local sustainability, ICT, mobility (or e-mobility) and energy, social interaction/integration, and spatial/area development.

Community/local sustainability – often a focus on integrating diverse stakeholders in research and innovation projects with different thematic focus.

ICT – often a focus on the implementation of technical innovation in the fields of energy, buildings and mobility.

Mobility and Energy – often a focus on sustainable transport, e-mobility and energy.

Social interaction/integration – often a focus on establishing a new sense of community.

Spatial/area development – often a focus on revitalizing buildings and districts.

DR. CARINA BORGSTRÖM-HANSSON, WWF

Why do we need to design and develop sustainable cities?

“Given the impact of today’s urban lifestyles in terms of greenhouse gas emissions and appropriation of ecological productivity and the fact the global urban population is expected to double within the next couple of decades, we need to design and develop sustainable cities both to stay within planetary boundaries and to enable a good life for billions of future urban residents.”

What are some key transitions to make towards sustainable cities?

“Shifting towards a more compact, green and diversified cityscape will be key to enable more easy access to the city for all while using limited space and energy much more productively and equitably.”



What role does urban experimentation (or urban living labs) play in creating sustainable cities?

“Today’s sustainability challenges urgently call for new urban solutions which in its turn require experimentation on suitable scales and with multiple stakeholders. This is where urban living labs have a key role to play.”

CIVIC URBAN LIVING LAB EXAMPLES

Urban.Gro.Lab

Location: Groningen, the Netherlands

Lead partner: University of Groningen and Municipality of Groningen

Partner types: Local government, academia, consultancy, artists, cultural festival, business and entrepreneurs, and NGOs

Web: <http://urbangrolab.nl/>



Urban.Gro.Lab is a creative breeding ground for people, questions, creativity, inspiration and technology in the city of Groningen. It is an initiative of the Municipality of Groningen and the Department of Planning of the University of Groningen. The city of Groningen is used by the urban living lab as a 'testing ground' for high quality applied research that focuses on current spatial and societal issues. The urban living lab wants to be a source of knowledge and inspiration for the livable city of the future where science and practice are intertwined in a dynamic urban experiment.

MEDIALAND Living Lab

Location: Issy-les-Moulineaux, France

Lead partner: Municipality of Issy-les-Moulineaux

Partner types: Government (local), academia and business

Web: <http://www.issy.com/en/home>



Issy-les-Moulineaux follows (since 1995) an ambitious digital technology strategy and it is therefore one of the most connected French towns or districts (90% of the population) with the most innovative online services (from payment of parking fees through mobile phone, to online registration on voter lists, or management of children registration in schools and recreational centers). This urban living lab has indeed developed a proactive policy to build a local information society which is innovative and open to all.

GRASSROOTS URBAN LIVING LAB EXAMPLES

Stapeln Open Maker-Space (STPLN)

Location: Malmö, Sweden

Lead organisation: STPLN

Partner types: NGOs, local government, universities, SMEs and individual activists

Web: <http://stpln.se/>



STPLN is a cultural house that hosts a co-working facility, a venue for performing arts, a space for exhibitions, performances and workshops and several do-it-yourself-workshops for textile printing, sewing, carpentry, digital production, bicycle service and construction, and creative reuse/recycling of waste materials from industry. It is targeted at people active within the arts, technology and innovation, design, education or crafts. In most cases, people may use STPLN for free, but in return people pay with time and knowledge. The building, where STPLN operates, is owned by the City of Malmö, which also provides financial support. This urban living lab provides new solutions for work and leisure for all citizen groups in Malmö, and encourages more sustainable lifestyles among citizens, enhances social cohesion, and allows for new ways of interaction, learning and exchange of skills.

Vienna Shares

Location: Vienna, Austria

Lead organisation: Vienna Shares

Partner types: NPOs and private individuals

Web: <http://www.viennashares.org/>



Vienna Shares is a non-profit organisation in Vienna, founded in 2014. Vienna Shares sets out to bring people together and contribute to a sustainable city. By creating a space for sharing and exchanging goods, skills and ideas on a local level, Vienna Shares aims to reduce waste and strengthen the community of Vienna. But this urban living lab also views itself as an information platform regarding all kinds of topics around sharing past and present, the understanding of sharing and the possibilities to foster a sharing culture.

DR. JONAS BYLUND, JPI URBAN EUROPE

What are the key features of urban living labs?

"It is a forum for innovation, applied to the development of new products, systems, services, and processes, employing working methods to integrate people into the entire development process as users and co-creators, to explore, examine, experiment, test and evaluate new ideas, scenarios, processes, systems, concepts and creative solutions in complex and real contexts."

What are the key benefits for partners in urban living labs? And what positive impacts can urban living labs have on cities?

"Empathy is one crucial benefit for any designer or implementer (at a minimum, to understand other, non-familiar and 'irrational' behaviours – perhaps not necessarily to share them) who is convinced of co-creation or co-design as a way to shape more robust practices and socio-technical systems. Hence, urban living labs open 'access' to and paves the way to learn your ecosystem!"

"Positive impacts include the opportunity to tackle – in diverse ways – democratic deficits in urban development and transitions. Urban living labs also come with a promise of an increased sense of ownership through mutual learning among affected publics (or 'stakeholders')."

What are some pitfalls or common mistakes to avoid with urban living labs?

"It is not uncommon in policy to confuse urban living labs with 'demonstration'. But to only characterise urban living labs by 'demonstration' obfuscates their trial and innovation co-creation aspects and objectives as well as the mutual learning and re-configuration among all directly involved actors."



ROLE OF MUNICIPALITIES IN URBAN LIVING LABS

Municipalities are often important stakeholders in urban living labs. We identify 3 functional roles for municipalities – promoter, enabler and partner. Municipalities can play multiple roles over the ‘life’ of an urban living lab.

Promoter – The role of promoter refers to when a municipality initiates, finances and implements an urban living lab, or when a municipality plays a leading role in the design and development of an urban living lab.

Enabler – The role of enabler refers to when a municipality has an interest in facilitating an urban living lab. Municipalities can open up opportunities for collaboration and create supportive conditions for urban living labs.

Partner – The role of partner refers to when a municipality engages in an urban living lab in partnership on fairly equal terms with other stakeholders. This often means shared leadership and participation, but where the municipality has an explicit function.



MR. THOMAS JOHNSON, E.ON

Why do we need to design and develop sustainable cities?

“Cities can substantially impact the conditions on our planet”.

What are some key transitions to make towards sustainable cities?

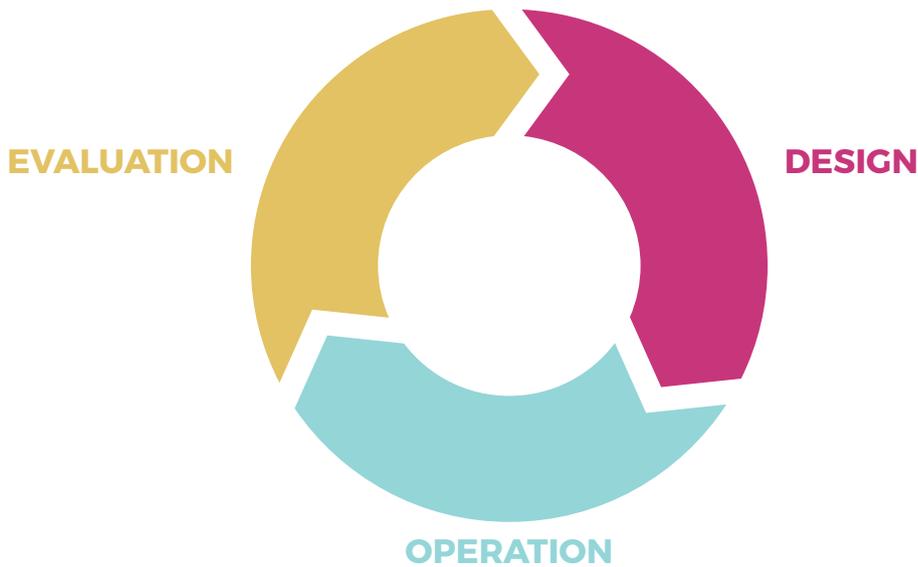
“The use of renewable sources of energy and smart means of transportation.”

What role does urban experimentation (or urban living labs) play in creating sustainable cities?

“Urban living labs are dedicated places providing evidences on new solutions and technology helping larger implementation.”

STAGES IN URBAN LIVING LABS

These checklists can help actors planning or running or evaluating an urban living lab to do a quick diagnosis. Guiding questions can help to go through all the dimensions relevant for the design, operation and evaluation of urban living labs.



Checklist for the DESIGN of urban living labs

- What is the shared vision for the future? How can an urban living lab contribute to this vision?
- How can the population living in the area of the planned urban living lab be characterised (e.g. socio-demographics, milieu)?
- Which stakeholder groups are passive or active in the creation of an urban living lab?
- How will stakeholders be addressed and involved in the proposed urban living lab?
- What kind of local experiments will be organised within the urban living lab?
- Why should local actors participate in the urban living lab?
- What is needed to motivate actors to join and support the urban living lab?
- What kind of impacts or benefits can people living in the area expect from the urban living lab?





Checklist for the OPERATION of urban living labs

- What will the urban living lab deliver in the course of its operation?
- What are the expected or intended outcomes of the urban living lab?
- What are the milestones for the operation of the urban living lab?
- What resources (e.g. personnel, know-how, materials) are needed for the operation of the urban living lab?
- How is the financing of the urban living lab ensured?
- Who is the owner of the urban living lab?
- Who are the key actors in the urban living lab?
- Are decision and management processes defined?



Checklist for the EVALUATION of urban living labs

- What is the purpose of the evaluation of the urban living lab?
- What is the main question that needs to be answered about the urban living lab?
- Should the evaluation be of summative, formative, or interactive character?
- What kind of data is needed for the evaluation – qualitative or quantitative?
- Which methods (e.g. interviews, surveys, observations) for data collection should be used in the evaluation?
- What resources are needed to carry out the evaluation?
- What are the timeframes for the planned evaluation of the urban living lab?
- Are there any ethical issues that need to be handled?



WANT TO LEARN MORE ABOUT URBAN LIVING LABS?

A Massive Open Online Course (MOOC) on sustainable cities developed and organised by Lund University features a range of films and readings on urban living labs. The MOOC is available for free, and runs over 5 weeks involving 10 teachers and 35 films.

**Greening the
Economy:
Sustainable Cities**

[**SIGN UP HERE!**](#)

This course explores sustainable cities as engines for greening the economy. It places cities in the context of sustainable urban transformation and climate change. Sustainable urban transformation refers to structural transformation processes – multi-dimensional and radical change – that can effectively direct urban development towards ambitious sustainability and climate goals.

It connects the key trends of urbanization, decarbonisation and sustainability. It examines visions, experiments and innovations in urban areas. It looks at practices (what is happening in cities at present) and opportunities (what are the possibilities for cities going forwards into the future).

This course brings together a collection of diverse short films and key short readings on sustainable cities as well as interactive forums and a practical assignment to create an online learning community. It provides key examples of activities to promote sustainable cities in Scandinavia, Europe and around the world.

1

Week 1: Sustainable Urban Transformation

Sustainable Urban Transformation
Sustainable Cities
Urban Climate Governance
The Efficient City
WWF Housing
ICLEI Participatory Urban Agriculture in Quito, Ecuador

3

Week 3: Urban Living Labs

Climate Governance & Urban Experiments
Urban Living Labs
Urban Innovation and Living Labs
Governance of Urban Sustainability Transitions
WWF Positive
ICLEI Energy Housekeeping in Seoul, Republic of Korea

5

Week 5: Sustainable Urban Lifestyles

Sustainable Urban Lifestyles
WWF and Sustainable Cities
Cities and the Sharing Economy
The Sustainability Challenge
WWF Consumption
ICLEI Joint Climate Action in Joondalup, Australia

2

Week 2: Infrastructure and Planning

Infrastructure and Planning
Building Standards in the Built Environment
Cities and Climate
Lighting the Future
WWF Transport
ICLEI Building Urban Resilience in Boulder, USA

4

Week 4: Future Urban Visions

Visioning Cities for the Future
Smart Sustainable Cities
Earth Hour City Challenge
Visions and Pathways 2040
WWF Food
ICLEI Carbon Literacy in Manchester, UK

ABOUT GUST

Cities face a pressing challenge – how to provide economic prosperity and social cohesion while achieving environmental sustainability? In response, new collaborations are emerging in the form of urban living labs – sites devised to design, test and learn from social and technical innovation in real time. Funded by JPI

Urban Europe, the aim of the GUST project is to examine, inform and advance the governance of sustainability transitions through urban living labs, which are proliferating across Europe as a means for testing innovations in buildings, transport and energy systems. Despite the experimentation taking place on the ground, there is a lack of systematic learning across urban and national contexts.



GUST APPROACH

- Design: research on the ways in which urban living labs are designed and how urban living labs vary between urban contexts.
- Practices: research on how, by whom and with what impact urban living labs are put into practice.
- Processes: understanding the processes through which urban living labs create an impact.

GUST METHODOLOGY

- In-depth cases of urban living labs from Sweden, the UK, Austria and the Netherlands including the cities of Malmö, Newcastle, Graz and Rotterdam.
- Snap-shot cases of urban living labs from across Europe.

GUST OUTCOMES

- A systematic framework for evaluating the design, practices and processes of urban living labs to enable the comparative analysis of their potential and limitations.
- New insights into the governance of urban sustainability and improving the design and implementation of urban living labs in order to realise their potential.

GUST PARTNERS

The GUST project brings together leading European research partners and practitioners from Sweden, the UK, the Netherlands and Austria to investigate urban living labs.





**Urban living labs are
sites devised to design,
test and learn from
social and technical
innovation in real time.**

www.urbanlivinglabs.net