

## D5.2 Report on strategic case studies

WP5: Living labs for co-creation and co-innovation

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### D5.2 Report on Strategic Case Studies

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## Executive Summary

### **Background**

This report is Deliverable 5.2 of the H2020 Co-VAL project 'Understanding value co-creation in public services for transforming European public administrations'. WP5 investigates the concept and method of innovation and living labs, and how living labs and other participatory and experimental methods are used to enable value co-creation based on co-innovation of public services. Deliverable 5.2, entitled 'Report on Strategic Case Studies', is founded on Task 5.2, which is to conduct in-depth case studies of how living lab approaches are used for co-creation and co-innovation.

### **Purpose**

The report is based on the following research question: '**How do living labs evolve as organizational and institutional structures for innovation in real-life settings based on co-creation and co-innovation of public services and what are the future potentials of this specific approach to public sector innovation?**' Thus, the purpose of the report is to present the analysis of the case studies accomplished by all partners of WP5. An answer to the research question is provided in the concluding section of the report.

### **Method**

The findings of the report rely on qualitative data from 21 in-depth case studies across nine EU countries. All researchers have applied document studies and interviews, and most have also engaged in observations and/or field trips. A shared research design and case protocol have ensured consistency in conducting and analysing the cases by each partner. Afterwards, the case studies have been subjected to a cross-case analysis, focusing on how each case adds to and reveals insights regarding the overall unit of analysis: living labs in the context of public sector innovation.

### **Findings**

The overall finding of the cross-case analysis is that living labs have some specific characteristics relative to other experimental and inclusive approaches to public sector innovation. These are: a) space/place matters as both a physical and mental framing of the innovation activities; b) organizational learning for all stakeholders is a key (side-)effect; and c) living labs hold potentials for democratic engagement that reaches beyond developing the mere public service. Therefore, a **living lab logic** for public sector innovation is proposed.

This conclusive finding builds upon the following analytical insights:

#### *Conceptual understandings of living labs*

Most living lab cases legitimize themselves as platforms for multi-stakeholder involvement across sectors that enable open innovation. Firstly, living labs are described as open innovation frameworks. As such, they differ from traditional top-down internally driven innovation processes that are normal in the public sector. Secondly, they work with co-creational methods which often include design thinking approaches mainly as a way of engaging users or user perspectives in co-creation and innovation. Thirdly, they go further than design thinking by involving several types of relevant internal and external stakeholders in co-creational processes. Since the term living lab seems to be timely and

popular, the cases do not show critical reflections concerning the living lab approach vis-à-vis other likely methods/ways of organizing.

#### *Living lab organizing*

Living labs can be organized as a project, a special task, a private or non-profit organization or as a public unit. A living lab can be a *separate* task, function, or innovation process. A living lab can also be *integrated* with the organization's daily operations. The association with the public sector therefore varies. Living labs often have a physical space, in some cases test facilities, even though several cases stress that the living lab is mainly an approach, which is why the physical room also serves a symbolic purpose.

#### *Actor roles*

Citizens/users are perceived as the main actors and they are involved in different ways ranging from highly participatory to that of testers – when not being end users, front-end employees act as facilitators and in relationship-building/networking. Stakeholders, and also citizens, seem to play a minor role in project management and decision-making, despite taking an active part in activities initiated by the living lab.

#### *Methods applied*

It is characteristic for living labs to apply a wide range of different participatory methods stemming from different disciplines such as design, anthropology, IT development and innovation. Thus, living labs are basically flexible methods, since the methods applied are chosen relative to the specific project or initiative – leaving plenty of room for tailor-made solutions.

#### *The notion of co-creation*

Co-creation is perceived as a key aspect of defining and characterizing living labs, yet the way co-creation is outlined, as both mindset and methodology, differs. The cases also reveal that co-creation with users/citizens requires maturity and that the understanding of what co-creation should support, from democratic processes to process tools, influences the way the main actor is discursively constructed as user and/or citizen.

#### *Value perceptions*

The inclusive living lab approach triggers contextual value creation for all actors, be they employees, owners, stakeholders, users, citizens or partners, even if the value gained differs. We have identified six value dimensions in the cases: 1) people-centred value, 2) administrative value, 3) customer value, 4) learning value, 5) democratic value and 6) systemic value creation. In some cases, several or all value dimensions were present. Most cases distinguish between social/collective/individual value creation and financial/structural/organizational value creation. Especially organizational value is related to the learning potential of living labs: that stakeholders, partners, employees and users/citizens all learn by being part of living lab processes.

#### *Innovation in the context of living labs*

Most cases do not work with clear definitions of innovation. Nevertheless, innovation is at the centre and they all tap into different notions of innovation such as: organizational innovation, service innovation, social innovation and a category we call democratic innovation, in which case living labs

are structures for developing democratic value. A key aspect is that innovation processes need to be tailored to the specific issue at hand – based on a vision of the innovation process as an open, outward oriented process that seeks to integrate external stakeholders.

#### *Performance measurement*

Only a few cases work with structured evaluation or impact measurement, but for all of them, it is seen as an important point to prospectively pay attention to and develop. A key challenge in this regard, due to the tailor-made solutions that are inherently part of living lab activities, is to find a balance between generic evaluation tools and contextual assessment.

#### **Recommendations**

The report suggests that the outlined potentials in the living lab logic should be further explored and conceptualized – especially since living labs are currently seen as highly legitimate approaches to innovation based on user and citizen perspectives. Additionally, among practitioners there is an urge to better describe and document both the activities themselves and the impact created. Future research could thus develop conceptual frameworks and practical models to be assessed and evaluated by practitioners and policy-makers.

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# 1 Introduction

This report presents an in-depth analysis of 21 cases of living labs, or likely similar experimental forms of organizing, across nine European countries. The cases are positioned in both the third, the private and (mainly) the public sector – but they all address societal issues and engage in cross-sectorial collaboration. Based on the recommendations from D.5.1, in regard to evaluating the role, position, and contribution of living labs in the wider context of co-creation processes, shared sample criteria and an analytical framework have been developed and applied in the research design of the case studies. All studies are qualitative case studies, mostly relying on in-depth interviews, group interviews, observations and field visits. Moreover, all studies have included thorough document reviews to better understand the contextual and situated knowledge related to each organization. The 21 case reports have subsequently been subjected to cross-case analysis. The case studies complete Task 2 in Work Package 5 on living labs in the Co-VAL project.

## 1.1 Purpose and Scope

This deliverable reports the results of a cross-case analysis of living lab case studies across the public and, to a lesser extent, the private and the third sectors in Europe. The main research question of the study is: ***'How do living labs evolve as organizational and institutional structures for innovation in real-life settings based on co-creation and co-innovation of public services and what are the future potentials of this specific approach to public sector innovation?'***

The urge is to shed light on the different actor roles, organizational forms and practices, framed as living labs, in co-creation for public value. Moreover, the study focuses on how living lab approaches achieve legitimacy in specific public sector services and on outlining how co-innovation is and can be understood in a public context. In this manner, the report is a logical continuation of D.5.1, which provided a conceptual umbrella for living labs. The task contributes to the overall Task 1 in the Co-VAL project to be conducted by WP4, WP5 and WP6, which is to identify special characteristics and commonalities across the existing empirical and theoretical literature on value co-creation cases.

## 1.2 Structure of the deliverable

The report is structured as follows: firstly, the methodology applied will be accounted for, then the analytical findings are presented, followed by a synthesis in the form of a proposal for a living lab logic of public sector innovation. Finally, a short conclusion is given and future avenues outlined.

## 1.3 Note on the living lab concept

WP5 is mainly concerned with the notion of *living lab* and how it can be understood in a public context. However, living lab as concept is often juxtaposed with or related to *innovation lab*. In the literature, both living lab and innovation lab are seen as practice-driven concepts that emerged at the beginning of the millennium as ways of ensuring collaborative innovation in the public sector. However, the main distinctions between the two concepts are their different antecedents and that living labs have a broader application across sectors, whereas innovation labs are often concerned with the public or the third sector. Moreover, Schuurman and Tönurist (2017) argue that innovation labs and living labs operate in different phases of the innovation process: innovation labs are seen as initiators of innovation and living labs as executors of innovation (Schuurman & Tönurist, 2017). However, this is not consistent with all other approaches (cf. Björgvinsson et al., 2010; Nesti, 2017).

The interrelatedness between the two concepts has been taken into account throughout the study, both in joint discussions among partners and in case sampling. Hence, despite the main focus being on living labs, initiatives labelled innovation labs or organizational forms not applying either of the concepts have not been excluded.

## 2 Methods

The research team applied a case study approach in order to achieve an extensive understanding of how living labs emerge as new open institutional structures for co-creation and co-innovation, and how they achieve legitimacy in specific public sector services. In the following chapter, we outline the case study selection, the different data sources that were collected by each partner, and our analytical strategy.

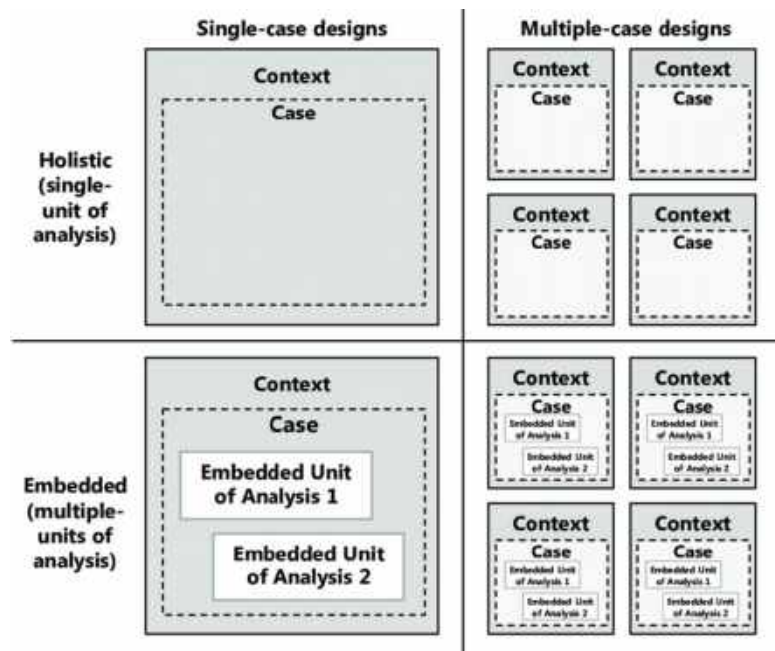
### 2.1 Case studies

The phenomena that concern us, living labs, have not been well studied in the context of public administration literature. The literature review of deliverable 5.1 revealed that there is a gap between the theoretical understanding and definitions of living labs and the way living labs, presented in academic as well as in grey literature, are enacted in practice. Case studies are applied when the research is guided by ‘how’ and ‘why’ questions, and when the aim is to explore and better understand a contemporary phenomenon within its real-world context (Yin, 2014). Therefore, based on the following redefinition of the living lab concept: *‘Living lab is a conceptualization of multi-contextual and cross-sectorial experimental user-centric innovation processes with the aim of developing and/or improving welfare products, democratic engagement, services or processes based on the application of co-creation methodologies depicted by transdisciplinarity’* (Fuglsang & Hansen, 2019, p. 45), it became key to delve further into the emerging phenomenon of living labs.

We conducted a holistic multiple case study, encompassing 21 living labs, in order to empirically explore these main aspects of living labs. The case study is holistic in the sense that there is a single unit of analysis – living labs for public sector innovation – and multiple in the sense that a large number of case organizations have been the subjects for investigation.

The following graphic shows the different types of case study approaches:

Figure 1: Case study designs



(Source: Yin, 2014, p. 50)

### Case selection criteria

Based on WP5's own literature review (Fuglsang & Hansen, 2019) and additional literature on public value, we derived the following four criteria for the selection of cases:

1. Selected by public service characteristics: large-scale services (e.g. digitalization, supporting citizen welfare broadly) or 'small-batch' services (e.g. public administration, elderly care).
2. Selected by sector/actors: public organized (state level/municipal department), civil society (citizens/non-profit organizations) or private (company/entrepreneurs).
3. Selected by form of organization: formalized/less formalized and/or networked/single organization.
4. Selected by temporal aspects: initiatives targeting here-and-now challenges or initiatives targeting long-term challenges. Temporality is in this context related to the notion of public value (Benington, 2015), thus here-and-now refers to current challenges to specific citizen/user groups and long-term refers to challenges encompassing future generations.

Our goal was to include cases that illustrate each end of the above outlined continuum (see Table 1 for final selection). Moreover, we strived for variation across cases regarding geography (urban or rural areas), but this became a challenge since most living lab initiatives seem to be anchored in larger municipalities and/or regions. Finally, the chosen cases can be characterized as strategic cases, which translates into Flyvbjerg's (2006) definition of a critical case: 'If it is valid for this case, it is valid for all (or many) cases.' As such, the case is strategic in the sense that it has strategic importance relative to the studied phenomenon or problem (Flyvbjerg, 2006, p. 14).

## 2.2 Data material

Each WP5 partner has conducted between two and four case studies, presented in the table below. To facilitate the reading of the case analysis, each case has been given an acronym based on the name of the case organization and the country code of the country in which the organization is based.

**Table 1: Overview of cases per country**

Case	Country	Sector/ownership	Public service/temporal aspect	Acronym
IDES Living lab	Spain	NGO	Mental health care/ here-and-now	<b>ILL-E</b>
Guadalinfo	Spain	Public	Public broadband/long-term	<b>GD-E</b>
Library Living Lab	Spain	Partnership model: academia & municipality	Digitalization/long-term	<b>LLL-E</b>
Living Lab of the Ministry of Economy and Finance	Italy	Public - central level	Digitalization/ here-and-now	<b>LME-I</b>
The Rome Heritage Lab	Italy	Public	Cultural heritage/long-term	<b>RHL-I</b>
PWC Experience Centre	Italy	Private	Citizen welfare/ here-and-now	<b>EC-I</b>
Torino City Lab	Italy	Public - regional/state level	Citizen welfare/ here-and-now	<b>TCL-I</b>
GovLab Austria	Austria	Public – federal level	Public administration/long-term	<b>GL-A</b>
GovLab Arnsberg	Germany	Public – regional/state level	Public administration/long-term	<b>GLA-G</b>
Verschwörhaus Ulm	Germany	Public – local government level	Digitalization/ here-and-now	<b>VU-G</b>
Wallonia e-Health Living Lab	Belgium	Public – relying partly on EU funding	Digitalization/ long-term	<b>WLL-B</b>
INSP	Denmark	NGO	Citizen welfare/long-term	<b>I-DK</b>
Public Intelligence	Denmark	Private	Health care/long-term	<b>PI-DK</b>
Aalborg Municipality	Denmark	Public - local government level	Elderly care/ here-and-now	<b>AM-DK</b>
StimuLab	Norway	Public	Citizen welfare/ here-and-now	<b>SL-N</b>
Norwegian Labour and Welfare administration	Norway	Public	Public administration/long-term	<b>NLW-N</b>
L.I.V.E.	France	Public	Public administration/long-term	<b>LIV-F</b>
SIILAB	France	Public	Digitalization/ here-and-now	<b>SII-F</b>

Case	Country	Sector/ownership	Public service/temporal aspect	Acronym
Autonom'Lab	France	Public	Elderly and disabled care/ here-and-now	AU-F
Erasme	France	Public	Digitalization/long-term	ERA-F
Kraków Living Lab	Poland	PPP	Citizen welfare/ here-and- now	KLL-P

Table 2 includes an overview of the empirical data each partner has collected for their case studies. In all cases a comprehensive review of internal and external documents relevant for the analysis has been conducted, which is why the table solely presents the number of interviews, interviewee positions and type of observations. All case studies are based on a shared case protocol (see Appendix 1).

**Table 2: Data material**

Case	Interviews	Observations
IDES Living Lab	1 group interview with managers	One-day field study
Guadalinfo	1 group interview with managers and chat/brief exchange of views with front-end employees	One-day field study
Library Living Lab	1 in-depth interview with manager	One-day field study
Living lab of the Ministry of Economy and Finance	1 in-depth interview with public senior manager 1 in-depth interview with stakeholders	Field visit interviewing Observation
The Rome Heritage Lab	1 in-depth interviews with public manager	Field visit interviewing
PWC Experience Centre	1 interview with senior manager 1 interview with senior manager 1 interview with stakeholder	Field visit interviewing Observation
Torino City Lab	Semi-structured interviews with senior managers, policy makers and front-line staff (11 in total)	Online workshop Field visit
GovLab Austria	3 in-depth interviews with senior managers 1 in-depth interview with external user	None
GovLab Arnsberg	3 in-depth interviews with senior managers 7 in-depth interviews with board members	None
Verschwörhaus Ulm	4 in-depth interviews with public managers 4 in-depth interviews with volunteers	None

Case	Interviews	Observations
Wallonia e-Health Living Lab	1 in-depth interview with the director 2 in-depth interviews with managers of the CETIC research centre 2 in-depth interviews with managers in the Walloon Region administration 1 in-depth interview with a project leader of a project supported by the WeLL 1 in-depth interview with a key stakeholder from a business creation and development consultancy	Field visit
INSP	2 in-depth interviews with senior managers 3 in-depth interviews with employees 1 in-depth interview with external collaborator	Four days of participant observation
Public Intelligence	3 in-depth interviews with managers 1 in-depth interview with strategic partner	Field visit
Aalborg Municipality	3 in-depth interviews with public managers 2 in-depth interviews with external collaborators	Field visit
StimuLab	3 in-depth interviews with public managers 2 in-depth interviews with policy makers	Field visit and observation
Norwegian Labour and Welfare administration	2 in-depth interviews with top-level strategic manager at directorate level 3 in-depth interviews with managers/designers 1 in-depth interview with local manager 4 interviews with frontline employees in a local NAV office	None
L.I.V.E.	4 in-depth interviews with public managers 3 in-depth interviews with external collaborators	Observations of 3 workshops
Autonom'Lab	1 in-depth interview with director/public manager 5 in-depth interviews with employees 1 in-depth interview with the former director manager	1 observation of a workshop with stakeholders
Erasme	2 in-depth interviews with public managers	None
SIILAB	3 in-depth interviews with public managers 1 in-depth interview with external collaborators 5 interviews with employees (student internship, civic service) during a workshop	2 observations (1 workshop with stakeholders, 1 standup with young employees)
Kraków Living Lab	4 in-depth interviews with policy makers 5 in-depth interviews with person responsible for initiatives	Field visit

### 2.3 Analytical strategy

Each WP5 partner analysed their own data set based on a shared analytical framework, which includes the following core constructs: living lab perceptions, institutional boundaries, user/citizen role, co-creation practices, methods, and the raison d'être of living lab, public value creation and notions of democratic engagement.

These core constructs of the analytical framework build upon terms and definitions from the literature review conducted in D.5.1, the key concepts of the Co-VAL project and, in addition, the notion of public value and democratic engagement from public administration literature (Benington, 2015). To abstract from the data material, each partner distilled their findings in a shared table matching the definitions of the conceptual categories (see Appendixes 2 and 3).

The deductive and inductive findings of each case were then written up and presented in a full case report. Subsequently, the final 21 case reports were subjected to a cross-case analysis (Yin, 2014). The cross-case analysis focuses on the phenomenon of which each case is an example, and not on the specific case per se. That is, the comparison of each case vis-à-vis every other case in the data set is of core interest in the analytical process: *'What this means is that, because there are several, each individual case is less important in itself than the comparison each offers with the others'* (Thomas, 2011, p. 141). Nevertheless, the comparative element is not to be understood as representing a sample of the specific phenomenon, but rather as a way to delve deeper by analysing the cases in their entirety based on a shared platform, in this case, prior knowledge of living labs. Hence, the comparative elements of a cross-case analysis are mainly focused on the entire data set and what it says regarding the overall phenomenon under scrutiny. For example: in the present study, as also revealed in the review of both academic and grey literature, national characteristics are not prevalent when looking into living lab forms of organization and understandings. The comparisons made are therefore expressed as typologies and continuums of certain aspects of living labs.

In the following, the findings are presented in the form of 11 analytical themes. The first eight themes, presented in Chapter 3, are derived from the analytical framework alongside the case study protocol. The final three themes, presented in Chapter 4, are part of synthesizing the first part of the analysis, and as such they reach beyond the framework and protocol to outline future potentials for living labs in the context of public sector innovation.

### 3 Analytical findings

In this section, the main findings of the empirical case studies are presented under the following eight themes:

- Conceptual understandings of living labs
- Living lab organizing
- Actor roles
- Methods applied
- The notion of co-creation
- Value dimensions
- Innovation in the context of living labs
- Performance measurement

The themed analysis draws upon main themes extracted from the empirical data as well as theoretical constructs in literature drawn from literature reviews in WP1 and WP5 (Fuglsang & Hansen, 2019; Strokosch, 2019).

#### 3.1 Conceptual understandings of living labs

Across the cases there is no common notion or definition of what living labs are or should be. However, most of the cases apply the term ‘living lab’ as either a specific approach or a distinct label/title. Further, some overall common characteristics can be condensed from the cases. Firstly, living labs are described as open innovation processes. As such, they differ from traditional top-down internally driven innovation processes that are normal in the public sector. Secondly, they work with innovation methods, which often include design thinking approaches mainly as a way to engage users or user perspectives in innovation. Users are employees, service users and citizens. Thirdly, they go further than design thinking by creating a wider space and structure for innovation, i.e. involving several types of internal and external relevant stakeholders in innovation processes. External stakeholders include citizens, civic organizations, private companies and other public organizations. Involving external stakeholders in public innovation activities is described as a crucial point in its own right, since it is by exchanging and creating knowledge across stakeholders as a basis for innovation that innovative new solutions become relevant and durable. This is both due to the cross-over of experiencing new mindsets and perspective, and the value of expanding and establishing new networks. Fourthly, the type of problems that living labs can deal with particularly concern administrative innovation, service innovation and people-centred innovation. Problem areas can be many, but include digitalization of public administration, employment services, services for vulnerable people, school absenteeism or health care. We elaborate on these four characteristics below.

#### ***Open innovation thinking***

Open innovation thinking is expressed in different ways in the cases. Concepts like network and space that connect people are used to characterize living labs. To exemplify, the main distinguishing feature of Guadalinfo (GD-E) is described as its role as resource and people connector. It is described as developing a network structure, but also semi-realistic and real-life environments for innovation – which is also the case of SIILAB (SII-F). Furthermore, the Library Living Lab (LLL-E) and Erasme (ERA-F) are described as user-centric innovation environments in which creators, managers and users can



participate in co-creating innovations enabling social and economic impact. The Library Living Lab (LLL-E) and L.I.V.E (LIV-F) are characterized as open, flexible and interconnected spaces. Thus, the Spanish and French cases emphasize how living labs connect people in open and flexible network spaces.

The living lab of the Ministry of Economy and Finance (LMIE-I) is characterized as a co-creation space facilitating multi-stakeholders' collaboration and knowledge sharing. The Rome Cooperative Heritage Lab (RHL-I) (part of a broader H2020-funded open heritage project) is framed as innovation networks based on the philosophy of open innovation, where users become equivalent to other participants. Citizens' experiences are, in this case, seen as part of co-creation processes aiming at revitalizing the Centocelle/Alessandrino/Torre Spaccata districts in the Roma area. This is thought to increase community engagement and build resiliency. In many of the cases, involving users in innovation activity together with other stakeholders is described as a main purpose. Similarly, PwC Experience Centres' (EC-I) principal objective is described as establishing new business models in bringing together public sector customers and businesses in dynamic spaces to design and implement services that incorporate users' views at all stages. Living labs' role are, in some cases, also described as providing more radical solutions at the system level than could otherwise be done. Public Intelligence (PI-DK) is described as a driver of overall changes of the health care system. It involves an external professional operator describing itself as having special knowledge of how to drive an innovation process. Changing the system is also the goal of Autonom'Lab (AU-F) thanks to the networking between health professionals (hospitals and research centres), enterprises, caregivers, associations and the elderly to improve their autonomy at home in particular. The deal is important for a rural and 'shrinking industrial area' in the framework of French regions more and more centred on some large metropolis. But changing the system is a goal amplified by the networking of all the French living labs in health and autonomy, to share their experiences and to influence the government, considering the crisis in the French health system and the ageing population.

### ***People-centred innovation***

In some cases, a participative approach where technologists engage with people is emphasized, as in the case of the Wallonia e-Health Living Lab (WLL-B) (an entity set up to put innovation and new technologies at the service of the individual's wellbeing). As the director says, *'what defines best the living lab is the participatory dimension and the willingness to add a deep "meaning" to the projects.'* Further, one of the Walloon Region managers claims that *'the living lab is not an innovation-supporting tool like the others: the integration of the users as early as possible in the innovation process is key. If this aspect doesn't exist, the living lab doesn't bring any real added value in comparison to other structures.'* However, user-centricity is not a solution to everything, according to this case. A living lab must create a dialogue between the various actors involved.

Erasmus (ERA-F) belongs to a (future) 'third place' of innovation and co-design in the Lyon Metropole, that is to say, the networking of different Living Labs, research centres and academia that should contribute to rank Lyon among the largest smart cities in Europe. But citizens and other users are always at the heart of the projects, even if companies and other experts are linked to these users during same stages of the process, to create operational solutions. L.I.V.E (LIV-F), in the metropolis of Lille, is a political project of three cities that became a 'real life space of experiment' for the digital transformation of municipal governments. Projects are conceived together with the inhabitants and

digital solutions are designed together with future users to respond to their need for local services. The co-design methodology is used to invent and implement ‘digital solutions that really meet the needs of users,’ that is to say, to conceive innovative, simple and user-friendly digital (public) services. If Erasme (ERA-F) and L.I.V.E. (LIV-F) are living labs initiated by elected people for ICT or digital transformations, citizens or other users were imagined as the cornerstone of real-life experiments to increase their wellbeing. But Erasme is more efficient in producing and implementing new solutions because it was created twenty years ago, when L.I.V.E. (LIV-F) was still in the infancy.

The Verschwörhaus Ulm (VU-G) is also strongly people-oriented, and here citizens are in the lead role. It is described as a location hosted by the city administration of Ulm for volunteers who are interested in technology and information science to meet up and implement projects together. Verschwörhaus is not professionalized or commercialized. Every project and event is organized and hosted by volunteers. These oftentimes ‘digital volunteers’ are seen as a resource for the city and considered an extension of the capacity the city can tap into during situations that are novel, where no predesigned solution exists. The mayor at times gives the same tasks to the traditional public administration and to the digital volunteers at the Verschwörhaus and lets both parties figure out solutions. Staff who work professionally in the Verschwörhaus have a supporting role but do not initiate projects or set goals. Similarly, the IDES Living Lab (ILL-E) is described as a network involving many agents, but still having patients at the forefront – its vision is an inclusive and diverse society, where people participate in innovation based on the motto ‘*Nothing about us without us*’. Even more radical, the main idea of INSP (I-DK) is to offer an open space for creating meaningful communities and a sense of belonging. Most activities are triggered bottom-up, the role of employees becomes that of ‘hosts’ and facilitators. The focus is on being an ‘*inspiratorium*’ and the CEO stresses that INSP is not a lab, but is about real people and their lives. Framing INSP as a living lab relates to the experimental nature, the profound focus on being citizen- and user-driven and the real-life setting.

Employees are also important sources for innovation in the cases, not least for administrative process innovation towards a more outward-going approach to service delivery. As an example, GovLab Arnsberg’s (GLA-G) focus is on being a space for experiments inviting employees to broaden their horizons and to consult with them if they want to implement innovative processes themselves.

In some cases, living labs are integrated into organizational structures. The Norwegian Labour and Welfare administration (NAV) (NLW-N) applies experimental ways of working to innovate and improve its services through interactions and feedback from users and citizens. In this case, the people-oriented living lab approach is described as integrated into the work routines of employees.

### ***Integrating external stakeholders***

In most cases, users or citizens are not the only stakeholders, and in some other cases citizens are secondary actors. Living labs are described as much broader frameworks. In the Torino City Lab (TCL-I), a concept of living lab was adopted according to which the whole city is a test bed and a laboratory for frontier innovation. The concept of living lab is applied to describe a platform for testing technology and also as a methodology according to which external actors can be involved in collaboration with the public sector as well as what is described as the entire ecosystem. Specifically, businesses submit their initiative, and the public administration mostly acts as facilitator of research and innovation processes. Moreover, the public administration also has an important role as decision-

maker regarding the outcome of the innovation processes, as well as in initiating contact among businesses and other actors in the ecosystem.

Some cases are targeted at developing network structures for public innovation. GovLab Austria (GL-A) is not a 'traditional' innovation lab but an organization that aims to collect knowledge and to establish a network of innovators. It is described as not necessarily having the goal to work directly with citizens, focusing instead on setting up innovation structures in government and engaging all potential stakeholders in these initial steps. It is described as a facilitator for innovation or a network. Similarly, SII LAB (SII-F) is a public innovation lab created in the Hauts-de-France region following a call for projects by the French State. Even if SII LAB is located in Lille, it is also organized as a regional network of innovators (public institutions, third sector, research centres, academia), with more and more stakeholders to 'fight for digital inclusion'. Stimulab (SL-N) is described as a broad incentive structure for innovation of public services at the national level. It supports and funds projects, especially during preparation, that use co-creation and service design approaches to solve public problems which require coordination and collaboration across different service organizations and agencies. Stimulab is described as a process where public actors are encouraged to ask for assistance in improving their services, confronting them with the requirements of service design. Thus, the use of service design is mandatory for projects supported by Stimulab. The lab part is, as mentioned above, mainly in the first stage of the innovation project.

### ***Common problems addressed***

The type of problems that living labs aim to deal with particularly concern innovation of administrative routines, service innovation and people-centred/social innovation. Thus, to take just three examples, GovLab Arnsberg (GLA-G) aims to improve administrative services by making them more outward-going and changing the mindset of employees. This living lab mainly involves employees as sources of innovation and targets of innovation. Public Intelligence (PI-DK) aims to develop health care services striving towards radical change of the health care service system, where patients become more in charge of their own health. INSP (I-DK) and Verschwörhaus (VU-G) put citizens at the centre of the innovation process, thus innovations are social or people-centred; however, they are supposed to inspire service innovation and digitalization in the municipality.

There are many related problem areas for the living lab. These include digitalization of public services, employment services, services for vulnerable people, school absenteeism and health care. Other areas are tourism, library services and elderly care. Sometimes, as in the case of Public Intelligence (PI-DK), StimuLab (SL-N) or Aalborg Municipality (AM-DK), a specific problem is defined that the living lab aims to solve. In other cases, innovation activities are more ad hoc and inspirational, since the living lab is a place for experimentation or exploration, such as INSP (I-DK) and Verschwörhaus (VU-G).

### ***Summary of conceptual understandings of living labs***

- Most cases are declared living labs and present/legitimize themselves as a form of platform or ecosystem that enables cross-sectorial collaboration and/or taps into a rhetoric of social/public value.
- A large number of cases show no critical reflection concerning the living lab approach vis-à-vis other likely methods/ways of organizing. Thus, it seems that the label/construct is popular and reflects a certain current terminology of public innovation/cross-sectorial collaboration.

- Living labs are described as open innovation frameworks that involve external stakeholders in public innovation processes, exchanging knowledge and ideas with them in order to increase the capacity for innovation and make innovations more relevant and sustainable.
- Living labs generally try to change the mindset of public service innovation from being inward-oriented and internally driven to become outward-oriented and highlighting the service relationship with service recipients.

### 3.2 Living lab organizing

The living lab cases are generally described as experimental settings that allow public administration actors to collaborate with users and other actors about innovating public services. Yet the living labs are described as set up in slightly different ways. Below we first distinguish three general organizational characteristics that are extracted from the case descriptions: A) living labs as a special task or function in relation to public services, B) living labs as integrated with public sector organizations and their daily activities, and C) living labs as physical locations of various kinds (rooms, offices, buildings, community areas). While this taxonomy is extracted from the case descriptions, it is also congruent with similar distinctions in the innovation literature viewing innovation as either R&D-driven (as a separate task or function in an organization) or as ad hoc activity which is integrated with daily work (cf. Fuglsang, 2010; Toivonen & Tuominen, 2009; Gallouj & Weinstein, 1997). Second, following these three general distinctions, we seek to refine these categories further in order to show how living labs can be organized more or less closely to government.

A) A living lab can be a special task, function, or innovation process that is separate from other tasks in an organization, similar to an R&D-lab. Most of the cases fall into this category. In such cases, the living labs have special locations or project numbers or both. Such living labs can be viewed as a 'safe space' (for experimenting) or a 'third place' (between home and workplace) where exploration of new ideas can take place with exploitation of them in mind. For example, schools in a community can set up a living lab to solve problems with absenteeism (Public Intelligence, PI-DK). A health care organization can set up a living lab to work out service relations that are more user-friendly. In addition, living labs can provide a particular separated space where public agents from different departments can exchange experiences when administration is usually divided into very separated and specialized tasks.

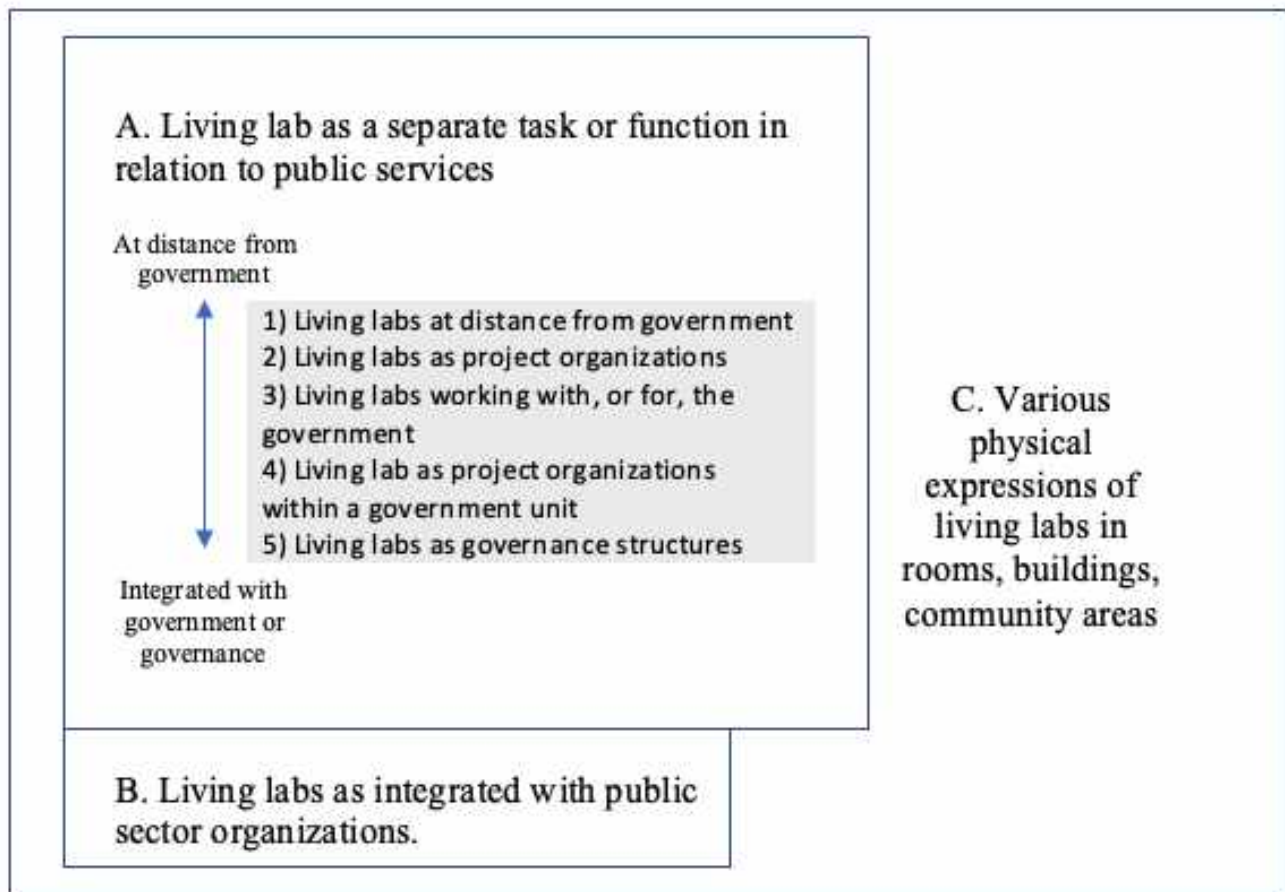
B) A living lab can alternatively be a space for action created within an organization which is integrated with the organization's daily operations. As an example, NAV (NLW-N) appears to be in this category. NAV is responsible for welfare and employment services in Norway. They have a test lab in the form of a physical facility, used particularly to test and develop the technical and digital solutions that are central in these services. They also have an online 'test lab' website used to get feedback from citizens on existing solutions and prototypes. However, designers and other employees in digitalization teams and the service development department also engage in observations, dialogues and interviews with citizens, users and frontline employees to gain insights into their perceptions, situations and inputs. In this case, the living lab thinking can be said to be integrated with the organization's ongoing development and innovation activities.

C) A living lab can contain various laboratory-like test facilities, exhibition rooms or experimental settings, where innovation is created for and with the citizens – either as a primary concern or an

option. Most of the cases have such spaces or places which are more or less integrated with a public service organization or authority. Thus, some public authorities, such as the Ministry of Economy and Finance (LME-I), have test facilities that are entirely controlled by the host organizations. In other cases, a municipality can decide to have a facility where citizens can meet and organize activities on their own, for example in the area of employment or digitalization. This is the case with Verschwörhaus Ulm (VU-G) and INSP (I-DK).

However, the living lab cases in our sample still appear to be organized in many different ways. In the following, five sub-types of living labs as a special task or function are described which we find are present in the case descriptions. This is followed by a brief elaboration of the sixth type of living labs as integrated with work routines and operations. In Figure 2, an overview of these different forms of organization is provided. They are presented below in an order that reflects a continuum from being at a distance from government to being integrated with government or governance.

**Figure 2: Organizational forms of living labs**



**1) Living labs at a distance from government.** Some of the living labs, such as ISNP (I-DK) and Verschwörhaus Ulm (VU-G), are organized as facilities and spaces for citizens or volunteers to carry out experimental activities or solve personal problems. Wallonia e-Health Living Lab (WLL-B), one of the four living labs launched by the Walloon Region (the French-speaking part of Belgium) aims to stimulate open innovation and economic activity on the territory. L.I.V.E. (LIV-F) could also be



classified in this category, even though it was not initiated by a regional government but in the framework of a metropolitan government. Three cities of the Lille metropolitan area decided to test the living lab methodology to engage in digital transformation of their public administration with the help of 'their' citizens. It is thus also a political experiment, considering that local communities are used to protecting their electoral space rather than sharing their administrative teams for collaborative projects and rather than joining the citizens of the three cities, and so the three mayors are present in the same room to discuss matters. Financed by European funds, controlled by the European project department of Lille Metropole, L.I.V.E. (LIV-F) is, as in Belgium (WLL-B), a political and democratic experiment to inspire local and metropolitan governance. These types of living labs are not as closely intertwined with the government and work more independently to inspire the governmental level.

**2) Living labs as project organizations.** Some living labs are project organizations in their own right. An example is IDES (ILL-E), described as an NGO-driven living lab activity in Castile-Leon (E) aiming to restore the life project of people suffering from mental illness and/or cognitive impairment. It conducts a number of projects using a physical space; it is recognized, however, that many types of physical spaces can be applied to living lab activities. One of the projects described is the MinD Inclusion project, aiming at providing solutions to problems of cognitive accessibility to public spaces. Guadalinfo (GD-E) is another example described as a public-owned organization in Andalusia aiming to promote a social innovation methodology. It initiates various projects to provide effective solutions to the wide array of challenges brought about by the digital world and to enhance citizens' quality of life through ICT-mediated projects. It has living lab centres and facilities in different localities throughout Andalusia. Living labs as project organizations are often organized in collaboration between different entities, such as government, research and public service organizations. An example is Library Living Lab (LLL-E) which is an open, participatory, experimentation and co-creation space situated in a public library. It is a joint partnership between the government of Catalonia and the Universitat Autònoma de Barcelona (UAB), aiming to work with computer vision strategy applied to culture. The model is being scaled up to the rest of the libraries of the Library Network of Barcelona Provincial Council. The Rome Cooperative Heritage Lab (RHL-I) is described as a centre for interdisciplinary research and a testing facility for joint governance ventures. Another example is Autonom'Lab (AU-F), which in its origins was an association created by the development agency of the Limousin Region to promote social and digital innovation for the autonomy of elderly and disabled people. It became a public-private consortium to foster the networking of stakeholders, a consortium enlarged in 2015 after the merging of three regions to create the Nouvelle Aquitaine Region ('as large as Austria'). Even if Autonom'Lab was initiated by a Region and needs its political support, the living lab organization is (financially) driven by various projects, in particular by European projects.

**3) Living labs working with, or for, the government.** Some living labs are described as working more independently but still close to government. Examples are GovLab Austria (GL-A) and GovLab Arnsberg (GLA-G). In the case of GovLab Austria, two projects are described that aim to develop new services. The first is called '*Transparenz und Partizipation in der Rechtssetzung*' (Transparency and Participation in Law-Making), the second one is called '*Österreich 2035 – der Staat und ich*' (Austria 2035 – The State and I). GovLab Austria (GL-A) is described as a project organization; however, the organizational structure includes a leading board, a sounding board and a *Geschäftsstelle* (office), which means that the lab is connected to government. This is embodied in the leading board which

consist of six members, deputized from two ministries, the head of the Danube University Krems, and the Heads of the *Geschäftsstelle*. Similarly, the GovLab Arnsberg (GLA-G) is described as tightly connected to the office of the district president, and staff meet often with the president to discuss GovLab Arnsberg's activities. Once a month they evaluate the strategies and goals of GovLab Arnsberg. This is also the case of the Kraków Living Lab (KLL-P), which while being independent from the government, has been developed as a joint venture between the Kraków Technology Park (KTP) and the Office of the Municipality of Kraków. Its ownership is split among the Polish State Treasury (3/4), the Region of Malopolska (1/8) and regional universities and the City of Kraków (1/8). The living lab is primarily dedicated to solving societal issues. Other types of living lab are also closer to working 'for' the government. These are mainly based in the private sector, with the objective of acting on the behalf of the government as if it were a government unit. As such, they are formally not part of a government unit but rather act as another independent external organization that brings in different perspectives and sets different ways of organizing for co-design, based on contractual relationships with the government. Examples are PI-DK and EC-I.

**4) Living labs as project organizations within a government unit.** Living labs can also be more controlled by or working closely with government. The living lab created by the Ministry of Economy and Finance (LME-I) is intended to support the provision of a user-centric shared service platform to supply and manage HR and paycheque services to Italian civil servants. It is an open innovation environment, where other government units participate in the creation of services and products, yet it also hosts formal technological experiments to gauge digital usage by involving end-users. It has two physical rooms located at the Ministry's headquarters. The space is designed to have different types of meeting rooms for different uses, such as large and small meetings rooms, brainstorming areas and prototype/testing rooms. This is also the case of the Torino City Lab (TCL-I), in which the municipality is the initiator of the living lab and also in charge of its management. In this regard, it is safe to say that the living lab acts as a unit inside the local public administration and its remit is to support the creation of public value, in particular through the development of new public services. In France, Public Innovation Labs were promoted by the government to support the digital transformation of the State administration. Thanks to a call for projects in 2016, 12 labs were created in the regions. SII-LAB (SII-F), as a space, is located in Lille and advocates in the Hauts-de-France Region the political will for public innovation with users (citizens, public agents, third sector, academia). This Public Innovation Lab is a project organization within a government unit that represents the 'State in the region', and specifically in that case the directorate for Youth, Sports and Social Centres. To survive as a living lab, SII-LAB has to propose new projects to the government within the framework of recurrent national calls for projects.

**5) Living labs as governance structures.** Some living labs tend to operate more at the governance level as initiators of projects, such as Stimulab (SL-N) in Norway and Aalborg Municipality's (AM-DK) living lab. Stimulab is basically a funding organization. It is described as a broad incentive structure set up at the national level, which is meant to stimulate to the use of co-creation and service design approaches to deal with complex societal problems which require coordination and collaboration across different service organizations and agencies. As such, it fosters and supports various projects based on service design methods. The living lab of Aalborg Municipality (AM-DK) is an internal innovation and quality unit in a mid-sized Danish municipality focusing on public services for the elderly. The unit has two main focal areas: quality assurance and innovation. The innovation part of

the unit, which consists of four consultants, has a long history of working in the municipality. The 'nursing home of the future' initiated in 2014 was framed as a living lab, although today this is only one element in a wider living lab approach adopted in the municipality. Today, the living lab is, among other things, working as a funding organization creating incentives for innovation projects under the broad label of living labs.

**6) Living labs as integrated with work routines and operations.** As mentioned above, one case, NAV (NLW-N), is described as integrated with other activities. The organization seems to combine different strategies for user involvement through online channels, through a physical lab space, face-to-face interviews, and dialogues with and through the local NAV offices. Some of these strategies resonate with the notion of living labs, while others resonate more with the idea of laboratories in the more conventional sense. Another case is the Erasme (ERA-F) experiment. Initiated twenty years ago by a Senator for the Rhône *Département* (an administrative division between the cities and the region) in a rural area, the Living Lab was relocated to Lyon after the merger in 2015 of Lyon Metropole and a part of the *Département*. So Erasme was integrated into the metropolitan administration in order to drive the 'desire for innovation' within the administration, and in particular digital innovation. The Erasme Living Lab is integrated with work routines and operations of the metropolitan administration but with the mission to break these routines and to change the mindset of public agents in favour of a co-design methodology in association with users and other stakeholders.

Funding for living lab activities across the cases is typically temporary government funding or external project funding (such as the EU, for example, funding the Rome Cooperative Heritage Lab (RHL-I) and the Wallonia e-Health Living lab (WLL-B)) or a combination of the two. Thus, living lab activities are seldom described as being part of the regular budget. Many living labs are also described as continuously struggling to survive by reinventing themselves, their location may change, and they have to continuously redefine their role.

### **Summary of Living lab organizing**

- Living labs are described as experimental and user-oriented spaces operating close to real-life situations and close to operations to ensure implementation.
- A living lab is typically designed as a special task, function or project separate from other activities in a public organization and has either an address or a project number or both.
- However, a living lab can also be described as a space for action within an organization which is integrated with the organization's daily operations.
- Living labs can be organized at a distance from government or as integrated with government and governance structures.
- A living lab can contain various laboratory-like test facilities or exhibition rooms where innovation is created for and with citizens –either as a primary or as a secondary activity.

### **3.3 Actor roles**

The key actors in living lab activities are citizens, users, front-end employees and other stakeholders. The following gives an overview of actor roles across living lab cases and a short summary of the findings.



### ***Citizen/user roles***

The role of citizens and users, understood as public service employees, varies according to the institutional boundaries of the living lab and the context in which the living lab navigates. At one end of a continuum of participation, citizens are active co-creators, especially in the cases where the living lab itself is user-driven, that is, is initiated by actors outside the public sector (I-DK, ILL-E, RHL-I, VU-G). At the other end of the continuum, citizens and users are reactive actors insofar as they mainly participate in test scenarios and/or give feedback to already developed concepts/solutions (AM-DK, WLL-B, NLW-N, AU-F). In a few cases, citizens are involved as reactive users while frontline employees are more actively engaged in development activities (SII-F, TCL-I). Some of these cases, where citizens play a less active role, are depicted by living lab activities as targeting vulnerable citizens' groups or citizens with disabilities, emphasizing the role of front-end employees as mediators between the citizens and the 'public sector system'. Nevertheless, in most of the case studies conducted, users and citizens might apply both active and reactive roles, depending on the activities in which they participate (PI-DK, GD-E, LME-I, SL-N, LIV-F, ERA-F, LME-I, EC-I, LLL-E). As such, different actor roles co-exist within the same citizen/user group and the same living lab; nevertheless, in the majority of cases citizens and users are not as actively engaged in decision-making processes as in those living labs that are user-driven.

In two cases the citizens/users do not play a role yet – this might have to do with governmental level, which is federal or state level (GL-A, GLA-G).

### ***Front-end employees/public service staff roles***

In living labs that are driven by a public institution, front-end employees play a crucial role as facilitators of co-creation processes (when they are not engaged as users). Also, they are the ones who ensure relationship building and maintenance, to be able to mobilize a network of actors that can be engaged in the activities initiated or can act as stakeholders concerning the lab itself. Other key competences mentioned are: coordination, design thinking, business understanding, innovation specialization, technological skills and the ability to bridge the strategic/policy level with the operational level. A finding across most cases is that the public sector did not necessarily previously have the qualifications and relevant resources to drive these sorts of living lab activities. This implies that the organizations and engaged employees have been and still are building up their own competences in a sort of learning-by-doing process.

### ***Stakeholder roles***

The least described and/or outspoken role is that of other stakeholders. Even though some of the cases rely on volunteers, they mainly seem engaged on the same terms as citizens/users and only in the cases that are in fact driven by citizens' groups do they have any say in decision-making or problem identification processes. In those cases led by private companies or the public sector, external stakeholders can be from, for example, academia, the third sector or the private sector, and in some cases, they participate in the role of partners. In the PwC Living Lab (EC-I), managers play a brokerage and intermediary role by putting together and integrating different stakeholders' perspectives and their vertical expertise. In the case of the Torino City Lab (TCL-I), there is an entire ecosystem of actors supporting businesses in developing their solutions, such as universities and research institutes, local incubators and accelerators, the regional agency for environmental

protection, regional innovation hubs, and an expert organization in the field of connectivity networks. Hence, they mainly take part at a rather strategic level compared to users and citizens.

### Summary of actor roles

- The empirical context and the institutional boundaries of the living lab influence actor roles in co-creation.
- Citizens/users are perceived as key actors, but their role in co-creation processes ranges from highly participatory to that of test subjects (e.g. in usability set-ups) – nevertheless, they are seldom part of decision-making processes.
- The role of front-end employees is that of facilitators and relationship-building/networking – this appears to have become a finding and hence something the employees have learned/refined along the way. This implies that from the outset there might have been a lack of relevant skills among public sector employees.
- Stakeholders, including volunteers, seem to play a minor role in project management and decision-making, but might take an active part in activities initiated by the living lab. A note in this regard is that in cases initiated by citizens, the boundaries between being a citizen/user, volunteer and employee are blurred.

### 3.4 Methods applied

Across all cases, a number of different methods are applied to support co-creation and living lab activities. The methods range from process tools, methods for user/citizen insights, methods for evaluation, methods for development and communication and references to the application of more general methodological mindsets. The table below provides an overview of these different categories of methods.

**Table 3: Categories of methods applied in living labs**

Process tools	User/citizen insight	Evaluation	Development and communication	Mindset
Agile methods Prototyping Scrum Service design Co-design Makers' space	In-depth interviews Diaries User surveys Meetings Dinners User journeys	Focus groups Think aloud test Technological testing Feedback polls	Ideation Hackathons Community meetings Workshops Business planning Personas Diffusion of innovative strategies	Experimental approach A mindset of 'non-methods' Design thinking Quadruple helix Organizational change

As shown in the table, a wide range of methods are applied, but still there seem to be differing approaches to the way the methods are used and integrated to address the challenges in focus. In the following this will be elaborated upon through two main themes: *Tailor-made solutions as part of described process models* and *the dual role of technology*.

#### **Tailor-made solutions as part of described process models**

Most living labs are project-oriented, and hence focus on the project phases and relevant methods for each. Others are more ongoing, and here the focus is, to a larger degree, either on new ways of

developing meaningful places/spaces for users and citizens or on supporting a cultural change in the wider public administration. Either way, the main finding when analysing the application of methods in the context of living labs is the experimental approach, shown by the high proportion of tailor-made project designs. In many cases, living labs apply specific process models that resemble traditional innovation processes consisting of: a pre-phase/stage focusing on identifying existing knowledge and user/citizen needs, a subsequent phase of ideation followed by some sort of prototyping or development, and finally, there is an implementation or dissemination phase. Some living labs apply known process models, while others have developed their own. But across cases, ranging from the ones with defined processes to the ones with more fluid practices, it is emphasized that a major feature is the ad hoc approach, which ensures room for developing tailor-made solutions relative to the specific project or initiative. In this manner, even though the process is fixed, the methods for each phase are chosen to fit the purpose.

### ***The dual role of technology***

The history of living labs is linked to technological testing, test set-ups and test beds, which is why it seems that even though the notion of living lab currently refers to experimental settings for co-creation, technology still plays a key role in many cases. This ranges from the living lab as a collaborative space to assess the feasibility and opportunity of adopting a technology to enable organizational changes (by eliciting ex ante user needs), to the living lab as a driver for technological adoption and to streamline process and organizational change within a change management strategy. The prototyping application is even more apparent in cases of new technologies that still need to demonstrate their business value, such as blockchain and artificial intelligence. In other living labs the focus is on technology as an enabler of organizational change, by introducing new work processes, new ways of communication or new ways of obtaining user insight. As such, technology can be considered both as outcome, insofar as new technological solutions and applications are developed and applied to organizational processes, and as supporting co-creation and releasing employee resources. Thus, in some living labs the test setup and the lingo of technology testing are still part of the lab, even though this is not necessarily the main methodology applied.

### ***Summary of methods applied***

- Living labs apply a wide range of different participatory methods stemming from different disciplines such as design, anthropology, IT development and innovation.
- Living labs are basically method-flexible since the methods applied are chosen relative to the specific project or initiative – leaving plenty of room for tailor-made solutions.
- Due to living labs operating in the intersection between being innovation ecosystems and test beds, technology seems to play a dual role as both a concrete tool and as an agent of change.

## **3.5 The notion of co-creation**

The term ‘co-creation’ is at the centre of living labs, both theoretically and practically. But the understanding of the concept and the way co-creation is referred to can be positioned along the following two continuums: 1) co-creation as methodologies – co-creation as underlying mindset, and 2) co-creation based on a democratic innovation paradigm – co-creation based on an open innovation paradigm. In what follows, these continuums, which are both derived from the literature review of D.5.1 and supported by the case studies, will be presented and subsequently the conditions for co-creation will be accounted for.

***Co-creation as underlying mindset – co-creation as methodologies***

Despite slightly differing practices, the notion of co-creation is not explicitly defined nor questioned in the cases studied. Inherent in the term is the understanding that more than one actor is involved, but who the actors are and how co-creation becomes beneficial to all actor groups are not necessarily clear or discussed. Nevertheless, the key actor is seen to be the user and/or the citizen, so in that sense at least, the end beneficiary needs to be present at some point in the co-creation process. Thus, at one end of the continuum co-creation is referred to as an underlying mindset of a living lab, since they are based on such integrative innovation processes. Only a very few cases base their day-to-day operations on this ideological stand, seeking to outlive the integrative approach in the organizing of the living lab itself. This is evident in the case of INSP (I-DK), for example: *‘INSP can be understood as a (social) innovation itself while also enabling co-creation and innovative activities in the city of Roskilde. Everyday life at INSP is profoundly based on the enactment of co-creation – not as a structured process targeting a specific aim, but as a way of being together across positions, both professionally and personally.’*

Most cases, on the other hand, mainly apply co-creation as methodology, where ‘co-creation’ seems to be used as an umbrella term for most living lab activities – so all the methods applied are illustrations of enacted co-creation. In this case, co-creation denotes an organized process, and co-creation is, as such, something which can be orchestrated and planned: *‘A team of agents from the three municipalities with different competencies organize workshop in venues that allow work in small groups; the recruitment of designers specialized in animation of design thinking sessions or service design and the use of design methodologies to help real needs to emerge and to imagine usages or test them. The project team tries to promote these new methodologies,’* as is stated in the L.I.V.E. case study.

Relative to participation within the Public Service Logic (PSL) framework (Strokosch, 2019), it becomes clear that living labs are solely concerned with extrinsic processes that require conscious agency by citizens, or stakeholders – that is, co-production and co-design. Co-production is seen in the examples where users and citizens themselves are engaged in the living lab, since the living lab then becomes a sort of public service in itself. Co-design is almost apparent in all cases due to living labs being a form of public sector innovation: the active involvement of the citizen in improving existing services and in innovating new forms of public service delivery is the reason why living labs, as both mindset and organizational form, are applied.

***Co-creation based on a democratic innovation paradigm – co-creation based on an open innovation paradigm***

Another dimension of co-creation is exposed in differing understandings of what co-creation in the context of living labs might support; democratic processes and/or ways to ensure the involvement of multiple stakeholders. This continuum is primarily evident in language usage and terminology. In those cases with the most extreme focus on co-creation as democratizing public sector innovation, the term ‘citizens’ is applied, or at least, that is the intention. As in the IDES living lab (ILL-E): *‘The period 2019–2028 is set to evolve through an encompassing community-based approach, where co-creation is not focused merely on users, but on citizens. As such, according to this scenario, co-creation is far from being a “niche” concept intended to be operated by users to become the centre of many citizenry-based settings. That is, it will imply using co-creation as the raison d’être of providing*

*participatory solutions where the citizen (and not the user) is the ultimate protagonist.* In these cases, the service offering is close to the citizen, whereas in the cases that more directly target work processes in the public administration, the lingo of users is more widespread. Also, the focus in co-creation processes influences the terminology used; in testing and technology development, the term 'users' is applied, whereas it is less emphasized in processes that are developing more overall welfare solutions for the future.

Another point that also refines the understanding of how, what and at which stages co-creation contributes is that the degree of co-creation might differ both across and within projects/initiatives. The case of Guadalinfo (GD-E) exemplifies this: *'At least three degrees of co-creation can be distinguished in correlation with the services provided: 1) Low co-creative content – co-creation in this case is almost negligible, as the activity (and the outcome) is known and pre-defined, even though the users may be remarkably empowered; 2) Medium co-creative content – most training actions provided by Guadalinfo centres may fall under this level, but it will ultimately depend on the specific features of the action; and 3) High co-creative content –in this case, co-creation goes a step further, arising from long-standing projects that were born or "incubated" in the living lab thanks to social innovation and collective intelligence, and as a result of heavy involvement by the local innovation agent and the users.'* These differing degrees of involvement seem to prevail in most cases, where also the stages or phases of the innovation process imply different actor roles.

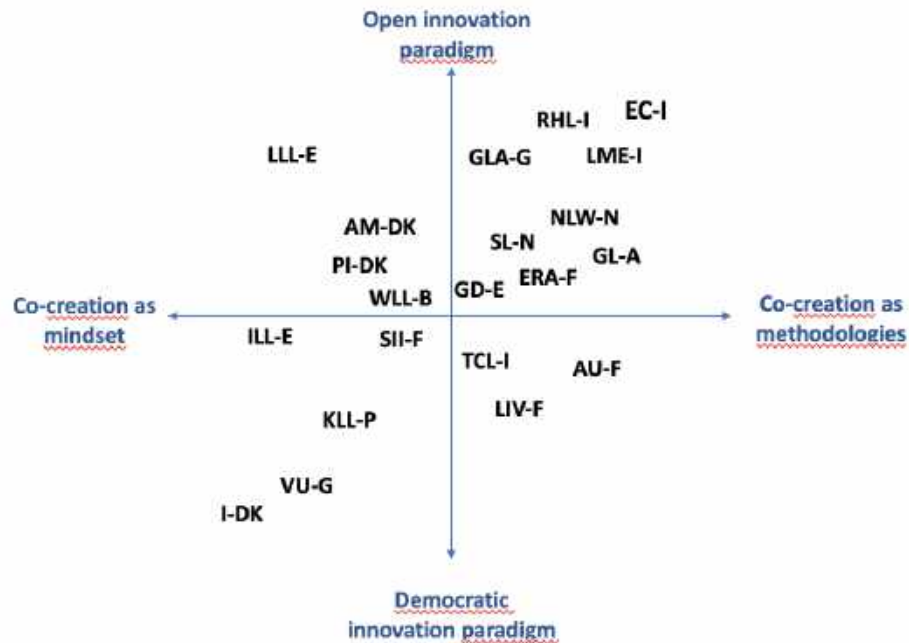
### **Conditioning co-creation**

The case studies reveal insights into what conditions can either support or be a barrier to co-creation in the context of living labs. Firstly, it is stressed that living labs and related activities need managerial back-up and certain skills among front-line employees to be put into play. This also implies that, in some cases, the way of working with co-creation and the involvement of stakeholders is so new that the structural and cultural conditions are not necessarily supportive yet. In line with this, it is evident that living labs are still enacted and interpreted in different ways while the approach is under development – thus the cases show variations both in the overall scope of living labs and also regarding their degree of maturity. Moreover, across cases there seems to have been a process of 'convincing' or 'selling' the approach and mindset either within the organization or to stakeholders. So, despite living labs being initiated bottom-up from a grass-roots level or being initiated top-down by politicians, they are dependent on engaged individuals that would like to push forward an agenda of co-creation.

### **Positioning the living lab cases along different dimensions of co-creation**

In Figure 3 the mentioned continuums of co-creation are presented as a graph to illustrate how the case studies are positioned relative to each other.

**Figure 3: Positioning of living lab cases according to dimensions of co-creation and innovation**



### Summary of the notion of co-creation

- All cases are based on an ideology of co-creation, since this is a key aspect of defining and characterizing living labs. But they differ in the way co-creation is outlined, as both mindset and methodology, by whom and to what degree.
- Co-creation with users/citizens needs maturity (most cases highlight that the co-creation aspect was not part of the initial phases – but they have worked towards more open processes and quite a few emphasize that they still need to further integrate citizens in the innovation processes).
- The understanding of what co-creation should support, from democratic processes to process tools, influences the way the main actor is discursively constructed as user and/or citizen.

### 3.6 Value dimensions

The value of a product or service has many interrelated dimensions (Beckert, 2010; Aspers & Beckert, 2011) and it can be perceived in many different ways, depending on individual and collective sense-making processes (Helkkula et al., 2012). This section draws broadly on the concept of value as understood in the living lab and service literature. In the service literature, value is understood as created during the use of a product or service and the perceived value is based on both individual and collective processes of sense-making over time within a historical and social context. Furthermore, in the more recent public value literature, value has a different, more normative meaning as societal value determined through political practices, such as democratic practices where discourses of value struggle to gain hegemony (Hartley et al., 2019).

In the cases, value often concerns value for citizens in their capacity as service users, as described in the service literature. Citizens create value when they use a service, and living labs can gain insight



into this 'value creation process' and use this knowledge to develop better services for citizens as service users. However, value, as described in the cases, can also mean value for the community and even society in the broadest sense; this also includes the value of changing administrative routines. There can be a tension between different dimensions that are present at the same time, such as individual and collective value. Living labs may even seek to cope with the presence of different dimensions or solve tensions between them.

Across cases, at least six value dimensions can be condensed, ranging from value for actors to value for society. These are: 1) people-centred value (value for individual citizens and the community), 2) administrative value, 3) customer value, 4) learning value, 5) democratic value and 6) systemic value creation. Some cases work with several of these value dimensions, as well as tensions between them, while others work with a more limited scope. The dimensions are not mutually exclusive, that is, a living lab may be focused on people-centred value and also, indirectly, on more aspirational/democratic/systemic values. For example, by reinforcing patients' confidence or trust (the case of IDES, ILL-E), a more inclusive society may be achieved, thus systemic values are also addressed.

1) People-centred value. This is the most common value creation dimension across cases. Most of the living labs are described as creating value for people either as individual citizens or for the community and resolving tensions between the two. Insights into individual citizens' value creation can be a source for innovation and further value creation at community level. Insights into individual value creation through living labs can lead to changes in service relationships more generally, such as the patient's/citizen's relationship with a hospital. For example, in IDES living lab (ILL-E), the value which is created is described as higher levels of trust, self-empowerment and self-autonomy achieved by individuals suffering from mental illness and cognitive impairment. This is seen as connected to community building. Similarly, value created by Guadalinfo (GD-E) is described as private value (understood as both the individual and the community), building on a principle of solidarity and equal opportunities, because this initiative is settled in rural areas and disadvantaged urban neighbourhoods. Value created in the Kraków living lab (KLL-P) is described as revolving around education, local community support and democracy. The Rome Cooperative Heritage Lab (RHL-I) measures value by how well it meets citizens' inherent and changing needs in a community context. In Verschwörhaus Ulm (G), created value relates to civil society as a whole as well as the value for individual volunteers. The main goal stated for Stimulab (SL-N) is 'to stimulate public innovation from the citizens' perspective'. The overall aim of NAV (NLW-N) is to provide services that support people in gaining or maintaining employment, hence this combines individual and societal value. In L.I.V.E. (LIV-F) the value produced concerns the links created between people, i.e. between the public (users, companies) and the public administration, beyond political and territorial divisions and local interests. The co-creation of prototypes becomes linked to the needs of the users, yet also to the possibility of creating savings for local community budgets. ERASME (ERA-F) is creating new (digital) services for citizens and innovations of public interest by fostering a community among citizens, companies, academia, administration and creative people. In Aalborg Municipality (AM-DK), the activities carried out within the living lab context mainly address public value, that is, what the public (here, the elderly) values.

2) Administrative value creation. This means that living labs focus on changing administrative processes and practices, i.e. the practices of managers and employees. In particular, living labs are described as changing the mindset of employees. For example, in the case of GovLab Austria (GL-A), the created value is mostly interpreted as a value internal to public administration – and especially the federal government. The immediate effect of GovLab Austria is not what it creates in the end, but rather how the processes and working procedures affect the mindset and everyday life of GovLab’s participants. The goal is to create a more outward-oriented public sector with a stronger focus on service relations. Three values are identified: access to people, access to information and enhancing intrinsic motivation. GovLab Arnsberg (GLA-G) has created some values on the organizational and individual level. On the organizational level, a change in the organizational culture is visible. This change in organizational culture is closely related to the values created on the individual level: a change in mindset and the creation of networks to draw in external actors in public value creation. For the Torino living lab (TCL-I), the added value is to revisiting the internal processes carried out by the administration. Also, in SII LAB (SII-F), the aim is to change the mindset in public administration by creating an ecosystem encompassing the third sector and academia with the ultimate goal of working towards the digital inclusion of all citizens in their requests to administrations.

3) Customer value. Some cases based in the private sector highlight living labs as a business model because they rely on the service-client relationship. The living lab application is thus seen as a way of bringing about the need to build a proper structure to involve and manage customers. The growing demand for rapid responses to client requests and the need to be more flexible in the ideation and testing of customer experiences, in particular, support the co-creation activities of living labs as a valuable approach. To exemplify, the PwC Experience Centre (EC-I) covers all the phases of developing a new customer experience, from invention to implementation, based on the understanding that customer value is approached through project management methodologies – such as Scrum or Agile – that have been quantitatively proven as positively related to new product quality, on-time and on-budget completion. Such understanding of customer value, framed within the living lab terminology, is relevant for private companies such as advisory services to the public but also for organizations that have a service-client relationship where value can be understood as economic value and/or as customer satisfaction relationship, as in the case of the Ministry of Economy and Finance Living Lab (LME-I).

4) Learning value. In several of the cases, living lab activities are described as creating a learning effect in the sense that living labs can change the mindset of employees, make them learn about innovation activities and using insights from citizens’ value creation for creation of innovation. Furthermore, some of the cases also speak of social learning effects, hence the diffusion of methods and approaches within the public sector. Thus, the Wallonia e-Health Living Lab (WLL-B) describes the learning process, i.e. encouraging the learning, openness and exchange of knowledge. This is true for users, but also for managers of the WLL-B itself, who constantly learn from their projects, as well as for managers in the administration. This is also connected to the durability of the solutions and of the structure itself, as the projects show that they successfully used the initial public money, made available during the pilot phase, to become a legitimate player in the Walloon e-health ecosystem. In the case of the Living Lab of the Ministry of Economy and Finance (LME-I), value is described as stemming from cross-interactions and knowledge exchange. The Rome Cooperative Heritage Lab (RHL-I) is described as adding public value by operating as a platform for exchange of knowledge,



tools and ideas for innovative solutions. The PWC Experience Centre (EC-I) is described as adding value by acting as a platform for idea exchange among all actors, inciting and analysing customer feedback, and promoting multi-perspective discourse.

5) Democratic value. While democratic value is described as an anticipated contribution in the literature (cf. D.5.1, Fuglsang & Hansen, 2019), this value is more rarely described by the cases. Democratic value could involve citizens in setting priorities or in bottom-up types of democracy where citizens have direct impact on developing public services by interacting with public sector employees. In the case of INSP (I-DK), the aim is described as striving to create value in the public sphere. The value is jointly created among and for citizens, for example the value of taking care of vulnerable people, or of inspiring each other about how to get a job (unemployed with drive). At a societal level INSP adds to social cohesion in the local community of Roskilde. There is also a long-term perspective of creating democratic value by engaging citizens in participatory democracy. In the case of Public Intelligence (PI-DK), democratic value is described in the way citizens have been involved in structured processes for setting priorities in municipal health care through street laboratories. The same democratic perspective at a local level is the priority of L.I.V.E. (LIV-F), except that citizens are not involved in the origin of the living lab but are mobilized by politicians who 'use' the co-creation methodology to show their greater interest in taking into account citizens' opinions in a bottom-up logic. In another way, SIIILAB (SII-F) also puts democratic value at the heart of its project because the aim is to avoid more and more citizens being excluded from social rights and democracy because of the digital transition of the French State.

6) Systemic value creation. In some cases, living labs are described as supporting systemic or radical change, creating public or societal value from such changes. For example, in the case of Public Intelligence (PI-DK) and Autonom'Lab (AU-F), the value centres on how the health care system is transformed in an effective way, entailing the creation of new hospital practices and user practices and matching them up. In the IDES case (ILL-E), living lab activities are described as having systemic and social implications. Also, the main contribution of the Library Living Lab (LLL-E) is described as pushing towards systemic changes and, as such, the living lab is described as a pioneering initiative.

### ***Summary of value perceptions***

- The inclusive approach that characterizes living labs seems to be part of what is perceived as valuable – and as the basis for creating value across actors, be they employees, owners, stakeholders, users, citizens or partners. The living lab approach thus triggers contextual value creation for all partners – even if the value gained differs.
- We have identified six value dimensions among the cases: 1) people-centred value, 2) administrative value, 3) customer value, 4) learning value, 5) democratic value and 6) systemic value creation.
- Most cases distinguish between social/collective/individual value creation and financial/structural/organizational value creation.
- Some cases highlight the learning potential as a key aspect of living labs: stakeholders, partners, employees and users/citizens all learn by being part of the process. Somehow, a sort of parallel learning process is going on.

### 3.7 Innovation in the context of living labs

Innovation is described as a core activity for all the living lab cases. The cases can be said to describe different more-or-less distinct processes and types of innovation.

As a process, living lab innovation is framed as user-centric or human-centric in contrast to provider-centric. Living labs are generally described as promoting open innovation processes in contrast to the usual top-down, internally driven innovation processes in the public sector. However, only a few of the cases, such as Public Intelligence (PI-DK) and Erasme (ERA-F), appear to work with clear definitions of what innovation is and a clear method of innovation. Most of the cases capture that innovation is both about getting new ideas and putting these ideas into practice; however, some cases emphasize idea generation while others emphasize the later stages of innovation, including adaptation of innovation to users' needs. For some of the cases, the clearest example being Public Intelligence (PI-DK), innovation can mean more systemic, paradigmatic or radical changes, for example paradigmatic changes in health care towards greater involvement of patients in taking care of their own health.

While innovation in the public sector is traditionally driven by top-down internal processes, the rationale of all the living lab cases is to change this process logic by making the innovation process more open, network-based and outward-oriented. Living labs attempt to involve external stakeholders in public innovation. Further, they try to gain knowledge on users' value creation as a source of innovation. In addition, almost all cases emphasize that innovation processes need to be adapted to the specific problems and issues at hand, making it hard to develop or apply generic methods. This is, on the one hand, perceived as a strength of living labs (the ability to make tailor-made solutions and processes), but on the other hand it becomes a challenge when it comes to explaining what living labs are, when measuring the impacts of living labs and when seeking to scale up diffuse innovation – which is crucial in public sector innovation.

The cases underline the different types of innovation, such as administrative innovation, service innovation and social innovation. Thus, some cases are described as entities improving administrative routines, especially by changing the mindset of employees. This is the case, for example, with the living lab of the Ministry of Economy and Finance (LME-I). The aim is described as improving internal administrative processes. Similarly, the main goal of GovLab Austria (GL-A) is explained as facilitating innovation within administration. Furthermore, in the case of GovLab Arnsberg (GLA-G), public servants are described as empowered to use innovation methods: the emphasis of GovLabs projects and workshops is to teach public servants how to use these methods and to enable them to use innovative thinking in their own agencies. This is achieved, for example, by supporting department heads in the development of their own innovation projects. Also, SII LAB (SII-F) mirrors GovLab because the 'Public Innovation Lab' in a French context has the mission to disseminate among regional public servants a set of innovation methods elaborated by the Inter-ministerial Directorate for Public Transformation (DITP) in Paris to improve internal administrative processes.

Others focus more on citizens as service users or community: the L.I.V.E. project (LIV-F) is described as enabling networking among different actors that are not used to speaking or working together. The managers of L.I.V.E consider that the purpose of the living lab is not to invent a truly operational application but to prove the usefulness of a co-design and service approach with users as citizens. Erasme (ERA-F) is a method for creating digital innovations together with public employees,

volunteers and end-users. In some cases, it is explained how it sometimes can be challenging to work with end-users. IDES Living Lab (ILL-E), working with people suffering from mental illness and cognitive impairment, aims to include citizens in a participatory model. It wants to deepen social participation and build on the concept of community rather than group. In the case of Guadalinfo (GD-E), the emphasis is on fostering social innovation by promoting citizen participation and benefitting from collaborative/participatory (community-based) mechanisms granted by ICTs. Guadalinfo consists of a large number of living lab centres in local communities in Andalusia.

In many of the cases, the users' role is to provide insights into user value rather than participating actively in innovation throughout the whole process. The Rome Cooperative Heritage Lab (RHL-I) is designed to be human-centric and to keep citizens' needs at the core of the co-governance mode. In the case of Public Intelligence (PI-DK), the innovation process (in the area of health care) is described as strategy-driven and purpose-oriented and involves innovation methods aimed at developing and closely integrating innovations with everyday operations to create impact. Users are involved in generating ideas and testing ideas, but the innovation process is driven by the host organizations as well as an external consultancy firm. Public Intelligence is described as working with specific innovation methods that situate the user mostly in a secondary position, as users will not provide the required radical ideas. However, users provide insights into how innovations will work in practice. NAV (NLW-N) is working with co-creation, experimentation and testing of solutions based on agility principles and service design methods. These approaches are fostering service innovation, yet also administrative innovation.

In some cases, innovation is driven from the bottom up, starting more from the citizens' or volunteers' perspectives, so to some extent this is people-centred innovation with a commitment to creating democratic value. Two cases can be highlighted. In the case of Verschwörhaus (VU-G), which is described as a home for digital volunteers, a space for experimentation and an opportunity for digital empowerment and education, it is not possible for administrators to impose goals on the Verschwörhaus, for example by redesigning a certain service, because the volunteers cannot be forced to comply. Rather, the approach is bottom-up: public servants take the output of the Verschwörhaus and adapt it to the administration's needs afterwards. INSP (I-DK) is described as an innovation intermediary and enabler of networks. Here citizens themselves take initiatives to develop new activities, thereby adding value to the municipality, inspiring the municipality to adopt new approaches to services, such as employment services or services for vulnerable people.

### ***Summary of innovation in the context of living labs***

- Only very few cases work with a clear definition of innovation, despite innovation being at the core of the objectives and legitimacy of living labs.
- Almost all cases emphasize that innovation processes need to be tailored to the specific problem/issue at hand – making it hard to develop or apply generic methods. This is, on the one hand, perceived as the strength of living labs (the ability to make tailor-made solutions), but on the other hand it becomes a challenge when they are to measure impact/do evaluations.
- All cases formulate a vision of the innovation process as an open, outward-oriented process and seek to integrate external stakeholders into the innovation process.

- The cases focus on a variety of innovation types, including organizational innovation, service innovation, social innovation and democratic innovation.
- Some cases are engaged in the development and reinforcement of an entire ecosystem for innovation at local level.

### 3.8 Performance measurement

As all living labs have an experimental aspect, and since living labs as a form of organization for co-creation and innovation are still new in a public context, the case studies have looked into performance measurement. In the following, the notion of performance measurement encompasses the impact/success criteria of the living lab, the current evaluation practices and considerations about future measurement practices.

#### ***Impact/success criteria***

The impact and success criteria of the living labs studies vary according to the overall objective and practical focus of the lab. Hence they can be everything from creating new work routines, to enhancing citizens' quality of life or to reducing air pollution. Nevertheless, it is a common denominator across cases that activities and projects should somehow address a dual or triple bottom line; it appears that all initiatives should seek to ensure social and economic value creation, while some labs also integrate organizational learning and/or better work practices among front-line employees as a key element. This broad focus on impact is exemplified in the Torino City Lab (TCL-I) case: *'The success criteria for the public administration, as reported by an informant, are basically the increase in welfare and service quality for citizens, who gain from a better life experience due to innovative solutions developed in the living lab, as well as the boost of innovative mentality within the public administration itself, which changes its way of working and becomes keener to cooperate with other public administrations and with academia, as well as to gain knowledge from the private companies operating in the living lab.'*

#### ***Evaluation practices***

In many of the cases, some sort of evaluation is going on, but across all cases evaluation is understood to be complex and not easily applicable due to the experimental nature of living labs. Hence, most evaluation is related to concrete sessions/projects focusing on, for example, satisfaction and usefulness; in this regard, the case studies reveal that even though there is a need for qualitative parameters, and in some cases they do add these, it is hard to move beyond a quantitative measurement paradigm. So living labs seek to balance the need for systematic evaluation based on both qualitative and quantitative parameters, as mentioned in the Wallonia e-Health Living Lab case (WLL-B): *'All interviewees agree that it's difficult to measure the impact of the "living lab dimension" of the WeLL's activities and projects, especially if one looks at the objectives such as knowledge creation and sharing.'*

#### ***Future measurement practices***

Time is a factor; most living labs do not have a long history and, since structured evaluation has not been integrated as a practice in the establishment of the labs, instead we see that evaluation has merely been enacted through discussing impact assessment among and with the main stakeholders. It has, in some cases, been a deliberate choice not to work with pre-described evaluation criteria in the early stages of the living lab. To exemplify (GLA-G): *'GovLab was founded in May 2018 and is seen to*

*be too young for evaluation of its activities. It is still at a stage where it tries out many new approaches and concepts and the evaluation of the ideas and projects would be too early and might interrupt the creative stage. The head of GovLab and the Regierungspräsident meet once a month to informally evaluate the strategic direction and how the project contributes to achieving its goals. The mindset of the Regierungspräsident is not to put pressure on the employees of GovLab to evaluate the projects, but to assure certain levels of independence.'*

In the case of Autonom'Lab (AU-F), created in 2010, the director considers that evaluation criteria, in particular quantitative parameters, are increasingly necessary to meet the expectations of funders, in particular within the framework of European projects. Autonom'Lab is currently working on a grid for the assessment of its projects. This attempt by funders to establish evaluation criteria applies also to Erasme (ERA-F), a living lab created in 1999, but the managers consider that value creation for citizens and even the impact of co-creation methods on public innovation cannot be measured: *'Innovation in public services, it's a fighting sport!'* Therefore, the case shows that it is a challenge to quantify the impact of institutional changes in administrations, to measure cost savings in public services or the value created by companies with an open-source deliverable as in living labs. Some parameters are often listed on Erasme's webpages as impact or success criteria, such as the number of prototypes, users, events, etc., but this is applied more as a communication strategy than as an assessment of the projects. Nevertheless, Erasme is building a 'service offer', set out in a 'service catalogue', so the experience and skills accumulated by the Erasme team for the last twenty years serve as a 'trusted third party' to launch new projects with stakeholders of the innovation ecosystem.

The studies therefore also reveal that there is currently an increased focus on developing more systematic evaluation practices – and in some cases a process has started towards the development of assessment methodologies that can be applied more broadly and across projects and initiatives.

### **Summary of performance measurement**

- Most cases do not work with structured evaluation or impact measurement, but it is seen as an important aspect and something that will receive greater attention in the future.
- The focus is mainly on evaluating the activities and/or project as part of the living lab, but not the living lab as a specific way to address co-innovation itself.
- One challenge regarding performance measurement seems to be finding a balance between generic evaluation tools and contextual assessment.

## **3.9 Final summary**

Table 4 gives a complete overview of the analytical findings across the eight themes.

**Table 4: Overview of analytical findings**

<p><b>Conceptual understandings of living labs</b></p>	<ul style="list-style-type: none"> <li>• Most cases are declared living labs and present/legitimize themselves as a form of platform or ecosystem that enables cross-sectorial collaboration and/or taps into a rhetoric of social/public value.</li> <li>• A large number of cases show no critical reflection concerning the living lab approach vis-à-vis other likely methods/ways of organizing. Thus, it seems that the label/construct is popular and reflects a certain current terminology of public innovation/cross-sectorial collaboration.</li> <li>• Living labs are described as open innovation frameworks that involve external stakeholders</li> </ul>
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	<p>in public innovation processes, exchanging knowledge and ideas with them in order to increase the capacity for innovation and make innovations more relevant and sustainable.</p>
<b>Living lab organizing</b>	<ul style="list-style-type: none"> <li>• Living labs are described as experimental and user-oriented spaces operating close to real-life situations and close to operations to ensure implementation.</li> <li>• A living lab is typically designed as a special task, function or project separate from other activities in a public organization and has either an address or a project number, or both.</li> <li>• However, a living lab can also be described as a space for action within an organization which is integrated with the organization's daily operations.</li> <li>• Living labs can be organized at a distance from government or as integrated with government and governance structures.</li> <li>• A living lab can contain various laboratory-like test facilities or exhibition rooms where innovation is created for and with citizens – either as a primary or as a secondary activity.</li> </ul>
<b>Actor roles</b>	<ul style="list-style-type: none"> <li>• The empirical context and the institutional boundaries of the living lab influence actor roles in co-creation.</li> <li>• Citizens/users are perceived as key actors, but their role in co-creation processes ranges from highly participatory to that of test subjects (e.g. in usability set-ups) – nevertheless, they are seldom part of decision-making processes.</li> <li>• The role of front-end employees is that of facilitators and relationship-building/networking – this appears to have become a finding and hence something the employees have learned/refined along the way. This implies that from the outset there might have been a lack of relevant skills among public sector employees.</li> <li>• Stakeholders, including volunteers, seem to play a minor role in project management and decision-making, but might take an active part in activities initiated by the living lab. A note in this regard is that in cases initiated by citizens, the boundaries between being a citizen/user, volunteer and employee are blurred.</li> </ul>
<b>Methods applied</b>	<ul style="list-style-type: none"> <li>• Living labs apply a wide range of different participatory methods stemming from different disciplines such as design, anthropology, IT development and innovation.</li> <li>• Living labs are basically method-flexible since the methods applied are chosen relative to the specific project or initiative – leaving plenty of room for tailor-made solutions.</li> <li>• Due to living labs operating in the intersection between being innovation ecosystems and test beds, technology seems to play a dual role as both a concrete tool and as an agent of change.</li> </ul>
<b>The notion of co-creation</b>	<ul style="list-style-type: none"> <li>• All cases are based on an ideology of co-creation, since this is a key aspect of defining and characterizing living labs. But they differ in the way co-creation is outlined, as both mindset and methodology, by whom and to what degree.</li> <li>• Co-creation with users/citizens requires maturity (most cases stress that the co-creation aspect was not part of the initial phases – but they have worked towards more open processes and quite a few emphasize that they still need to further integrate citizens in the innovation processes).</li> <li>• The understanding of what co-creation should support, from democratic processes to process tools, influences the way the main actor is discursively constructed as user and/or citizen.</li> </ul>
<b>Value dimensions</b>	<ul style="list-style-type: none"> <li>• The inclusive approach that characterizes living labs seems to be part of what is perceived as valuable – and as the basis for creating value across actors, be they employees, owners, stakeholders, users, citizens or partners. The living lab approach thus triggers contextual value creation for all partners – even if the value gained differs.</li> <li>• We have identified six value dimensions in the cases: 1) people-centred value, 2) administrative value, 3) customer value, 4) learning value, 5) democratic value and 6) systemic value creation.</li> </ul>



	<ul style="list-style-type: none"> <li>• Most cases distinguish between social/collective/individual value creation and financial/structural/organizational value creation.</li> <li>• Some cases highlight the learning potential as a key aspect of living labs: stakeholders, partners, employees and users/citizens all learn by being part of the process. Somehow, a sort of parallel learning process is going on.</li> </ul>
<b>Innovation in the context of living labs</b>	<ul style="list-style-type: none"> <li>• Only very few cases work with a clear definition of innovation, despite innovation being at the core of the objectives and legitimacy of living labs.</li> <li>• Almost all cases emphasize that innovation processes need to be tailored to the specific problem/issue at hand – making it hard to develop or apply generic methods. This is, on the one hand, perceived as the strength of living labs (the ability to make tailor-made solutions), but on the other hand it becomes a challenge when they are to measure impact/do evaluations.</li> <li>• All cases formulate a vision of the innovation process as an open, outward-oriented process and seek to integrate external stakeholders into the innovation process.</li> <li>• The cases focus on a variety of innovation types, including organizational innovation, service innovation, social innovation and democratic innovation.</li> <li>• Some cases are engaged in the development and reinforcement of an entire ecosystem for innovation at local level.</li> </ul>
<b>Performance measurement</b>	<ul style="list-style-type: none"> <li>• Most cases do not work with structured evaluation or impact measurement, but it is seen as an important aspect and something that will receive greater attention in the future.</li> <li>• The focus is mainly on evaluating the activities and/or project as part of the living lab, but not the living lab as a specific way to address co-innovation itself.</li> <li>• One challenge regarding performance measurement seems to be finding a balance between generic evaluation tools and contextual assessment.</li> </ul>

## 4 Synthesis: the contours of a living lab logic for public innovation

Based on the analytical findings, it is clearer how living labs can be understood as something different from other innovation methods based on multi-stakeholder engagement, and what the potentials for living labs seem to be. This is pushed forward by a more in-depth analysis of the following three key aspects: the importance of both space and place, processual learning and democratic/citizen engagement. Consequently, a living lab logic of doing innovation in and for public innovation is proposed.

### 4.1 Space/place matters

In most of the living labs in the case sample, space or place matters, since the living lab activities presume that people meet physically to exchange knowledge and develop and test ideas. The word 'lab' in 'living lab' bears the connotation of a physical space or place where stakeholders meet to experiment with user-centric innovation. However, the space/place of living labs is characterized in different ways in the cases, depending on context and needs, along a continuum from local place in a community to metaphorical/abstract space. Nevertheless, the use of space/place is an important feature of the living labs as an innovation method.

Thus, in some of the cases the space/place needed is a local place in a community such as a church where living lab activities are arranged for a specific local audience; several or varied localities can sometimes be used for this, if the living lab activities are distributed in a larger community. In other



cases, the space/place used is described as a specific room where the living lab provider hosts either an exhibition room or a room for workshops with stakeholders.

The living lab space/place often also carries the more symbolic meaning of being a 'third place' (between home and work) or 'safe space' (for experimentation with innovation). Having a specific room or building for living lab activities is in some cases described as crucial, since it gives the living lab activities visibility and legitimacy and makes it possible for people to meet informally.

In some of the cases, the space needed is described as being close to government, due to frequent interaction with policy-makers. In other cases, it can be a building or apartment more distant from government, where people meet more informally to exchange and test ideas. In some of the cases, the living lab takes a more abstract and metaphorical meaning in terms of an environment, network or milieu for innovation activities and interactions among stakeholders, where meetings and activities can be organized at many different localities, depending on specific needs and problem contexts. Space can also mean a geographical space such as a city or region where living lab activities are more distributed, for example a tourist destination. It may in principle also mean a virtual space; however, this is not very apparent in the cases.

Below are a few examples of living labs as a place (locality) or space (in the more abstract or metaphorical sense) for innovation, taken from the cases:

#### ***Living lab as a place***

INSP (I-DK) is described as a specific place in a separate building in the city of Roskilde which is open to all kinds of visitors. The rooms come with different notions; some rooms are seen as common rooms where shared/joint activities take place, others are functional rooms where specific activities can be undertaken, such as a music studio or crafts, and lastly there are rooms with no specific purpose, to ensure that the users themselves are able to fill in the blanks with whatever makes sense to them at a particular time. The building housing the INSP is characterized by being intricate with a many small rooms, corners and hideouts.

The Verschwörhaus Ulm (VU-G) is also described as a physical place offered by the local administration and located in Ulm where people meet informally to discuss ideas and to work together to solve individual problems. The physical space is described as the first and most important condition for co-creation and innovation, as it is an environment for different people to come together, develop new ideas and test them right away.

In the case of L.I.V.E (LIV-F), having a unique place is described as a totem or a symbol of the political will to endorse the living lab activities and further as a tool to convince potential (private) investors. However, in this case workshops also take place in other public facilities in one municipality or another, depending on the availability of public places according to the agenda of meetings.

Similarly, GovLab Arnsberg's (GLA-G) focus is on being a space for experiments developing prototypes, applying and testing new technologies, inviting employees to broaden their horizons and to consult with the living lab if they want to implement innovative processes themselves. Several respondents mention that GovLab Arnsberg is a safe space for trying out new things, creating new services and re-

thinking processes. Besides serving as a venue for workshops and meetings, the room also functions on an informal level. By having a room that is primarily reserved for GovLab's activities, the role of the GovLab and its importance within the administration grows. This is also reflected in the physical location of the GovLab within the agency: it is located on the same floor as the *Regierungspräsidenten's* office. This symbolizes the importance of GovLab within the organization and that GovLab Arnsberg is still a part of the Bezirksregierung, despite its special position within the hierarchy.

In the case of the Erasme (ERA-F), the place is described as having an important role in the functioning of the living lab, but this role has changed over the history of the lab. From a place in the countryside, the living lab became a metropolitan place from 2015. 'Place' in this case can be a living place (like a church) or a laboratory place.

In the NAV living lab (NLW-N), the term 'lab' has mostly been used in reference to the physical test lab in NAV which is used for various forms of user testing, especially in relation to digital solutions. However, the living lab activities extended beyond the test lab.

### **Living lab as a space**

GovLab Austria (GL-A) is said to provide a space for creative thinking and deliberation in order to enable co-creation; however, the term 'space' appears to be used metaphorically. This is true also for Aalborg Municipality (AM-DK). One of the managers describes the living lab in the following way. *'Living lab is not a locality, it is not a specific place, it is not a laboratory – it is a way of doing things, it is a method. And as a methodological approach you can attain a certain form of width and depth because you get a larger degree of flexibility to bring in many different project partners.'* Another informant from Aalborg stresses that living lab refers to a contextual and context-near approach to both the challenges and the user groups involved.

In the case of Public Intelligence (PI-DK), 'space' can mean several things. Initially a living lab was conceived as exhibition rooms for welfare technology. Public Intelligence consequently ran a living lab apartment (a semi-realistic home to test health technology) for the municipality from 2009. However, living labs took a new meaning as it also became more discussed in a Danish context, and is now seen as a problem-driven method of innovation directed towards problem contexts, particularly in health care. Public Intelligence has available an office building in Odense (DK) which includes a large open space for various types of seminars and workshops. This is also an impressive place where visitors can have a glimpse of what living lab activities are about. However, Public Intelligence also makes use of other spaces to host meetings. It can also be a host organization, such as health care organizations or schools for which the living lab is organized, that are seen as places/spaces for innovation in the sense of a problem context and environment for innovation.

### **Summary of space/place**

- Living labs bear the connotation of being a physical space or place; this is a unique characteristic of living labs as an innovation tool. However, there is no consensus across the cases about what that means.
- Space can be a venue in a local community where people meet in an informal way to develop and test ideas.

- Space can also be a laboratory-like environment for hosting idea generation sessions and future workshops with relevant stakeholders invited in for this. These are not necessary the same rooms every time.
- Space can also refer to exhibition rooms demonstrating new technology.
- Often space is referred to as a 'third place' or 'safe space', an experimental setting where there is freedom and 'room' to think out of the box.
- Such spaces also create visibility for living labs and become symbols of the strength and legitimacy of living labs, making them objects for investment of social, cultural and financial capital.

## 4.2 Processual learning

Living labs are not described only as tools for innovation. They are also seen as contexts for processual learning. Living labs potentially change the mindset of employees to become more outward reaching, they make people learn about innovation techniques and how to approach users' value creation. Furthermore, living labs create social learning effects by making stakeholders exchange knowledge, approaches and methods across organizational boundaries within and beyond the public sector, and promoting a multi-perspective discourse on innovation.

Thus, a major feature of the living labs phenomenon is its ability to create processual learning effects for the public sector. This can be not just an important side effect but even a main reason for creating living labs as part of the strategies to change public sector services. Participating actors learn about innovation as a particular way to address public services, they develop a language of innovation that can have long-term effects on public sector service development, and they become trained in involving external stakeholders in public value creation.

Some examples of these learning effects which are described in the cases are given below.

GovLab Austria (GL-A) is described as creating a learning effect in public administration, enabling free thinking and creativity by providing possibilities of experimenting and prototyping and of changing the mindset and organizational culture. GovLab Arnsberg (GLA-G) is similarly described as changing the organizational culture and mindset of employees.

In the case of the Verschwörhaus Ulm (VU-G), the public administration benefits from an enhanced visibility of technology, and they learn how to adopt technologies in public administration. Civil society is empowered and learns how digital technologies work and what they are used for. Volunteers profit from the generation and exchange of special knowledge and the creation of networks beyond the boundaries of the city of Ulm. Children and teenagers are taught coding and the use of technologies, for example the programming of robots. To this end, they invite schools or universities to visit them.

The impact of Stimulab (SL-N) is seen in a wider learning context, since the establishment of Stimulab itself can be seen as reminder of the need for innovation, using service design to create user-friendly services. Positive feedback from those who have participated can encourage other public service organizations both to apply for support and to start innovation programmes themselves. Stimulab can be seen as a symbol for user-oriented innovations in public services. In the other Norwegian case,

NAV (N), the living lab activities also create learning effects, as learning to use the design approach is a main concern.

L.I.V.E (LIV-F) is also described in terms of its learning effects. It is a case of an emergent living lab, a political initiative supported by ERDF funds in order to improve public digital services with the help of the inhabitants. It is an experiment by three local municipalities which is supposed to create an understanding among public servants and users about the usefulness of the design and user-oriented approach.

Finally, the case of INSP (I-DK) provides a good example of how the municipality can learn from living lab activities from the bottom up. The municipality learns how to use an inclusive place like INSP. It also learns of alternative ways to deal with vulnerable people and employability. Also, in the case of the Verschwörhaus Ulm (VU-G), the municipality is said to learn from the initiatives of the volunteers and citizens in the living lab.

### **Summary of processual learning**

- Several of the living lab cases describe how living lab activities potentially change the mindset of employees and increase the capability of public sector innovation.
- Living labs also imply that public sector organizations learn about design approaches and other innovation methodologies.
- They learn to work with multiple perspectives in innovation activities, exchanging ideas and knowledge with external stakeholders.
- Some cases describe how public sector organizations learn about new effective solutions to public problems from citizens or volunteers participating in living lab activities.

### **4.3 Democratic engagement**

The cases describe how service users and citizens become involved in the innovation process and thus potentially point to possibilities for democratic engagement in service innovation. Yet, this civic participation and engagement in public service development is more or less strongly underlined in the cases. A useful distinction to characterize the cases with respect to democratic participation is between ‘thin’ and ‘thick’ participation, as proposed by Nabatchi and Leighninger (2015). *Thin engagement* is a weak form of individual engagement such as voting or giving brief feedback through e-petition (such as the ‘like’ option). In the context of living labs, this translates into citizens being individually exposed to new innovations, individually participating in surveys about them or being observed when using/testing new service innovations.

*Thick participation*, by contrast, is when civic actors participate collectively in more substantial deliberations about public planning which subsequently lead to concrete actions. For example, thick participation could be parents and children participating in deliberations about how and which food to serve to children in school for lunch, or discussion with residents and relatives in residential homes for the elderly about how to organize everyday life.

In scholarly literature on living labs democracy, ‘thick’ practices of democracy and deliberation in particular are described by some authors as a major rationale and value of living labs (Björgvinsson et al., 2012; Fuglsang & Hansen, 2019). Some papers further underline an ‘agonistic’ contesting practice

of democracy (rather than a consensus-oriented approach) inspired by Chantal Mouffe's theory of democracy (Björgevinnsson et al., 2012; Mouffe, 2000). Thus, living labs here become tools for collective citizen participation and democratization of innovation and technology. However, in most of the living lab literature, civic engagement apparently takes the form of thin participation and civic actors are seldom described as collectively participating in the planning of new services (Fuglsang & Hansen, 2019).

Following the above distinctions between thin and thick citizen participation, the cases can tentatively be divided into three categories: cases with thin individual engagement of citizens in innovation activities, cases of thick collective engagement, and cases where thin/thick engagement is more open. Thin engagement means that users are approached as individual clients of public services and their role is mainly to test innovations in the final stages of an innovation process. Thick engagement implies that users are seen as citizens who collectively become involved in discussing priorities, shaping innovations and impacting policy planning. The open approach implies that the living labs are described in a more open way and could go in either direction, depending on context.

**Thin engagement of citizens.** Most of the cases describe some form of engagement of individual users in innovation. However, in some cases, the users are employees in public administration, whereas the involvement of service users is weaker or almost absent. For example, GovLab Austria (GL-A) focuses on setting up innovation structures in government rather than working directly with citizens. GovLab Arnsberg (GLA-G) wants to enable the participation of the various stakeholder groups in their projects, but so far (2019) this participation has not been realized. The Danish case of Public Intelligence (PI-DK) involves users in different ways, depending on type of project. However, the dominant approach is users providing ideas and feedback based on their individual experiences of services. Service users are seldom involved more collectively as citizens in taking decisions or influencing public planning through deliberation. Some exceptions are mentioned below.

**Thick engagement of citizens.** In the case of Verschwörhaus Ulm (CU-G), the goals of the Verschwörhaus are two-fold: firstly, the Verschwörhaus aims to provide a space for people with technical skills to work together; and secondly, it wants to make new digital technology accessible and, in turn, empower civil society to make use of digital technologies itself. Thus, in this case, citizens are involved more collectively in developing and testing ideas. Public Intelligence (PI-DK) has made exceptions to the above thin participation in one case by organizing 'street labs', thereby facilitating more collective citizen participation. Citizens are involved in a structured process of setting priorities for the local health care system. However, here too citizens are mostly addressed individually. In INSP (I-DK), citizens meet informally to exchange ideas. The inclusive approach ensures a mix of citizens, so that INSP does not become a place only for the marginalized, but also for the resourceful. There is a long-term perspective, which is about establishing legitimate platforms for discussing and discovering new ways of organizing future society. Hence, INSP can be seen as an enabler of participatory democracy, that is, giving citizens equal opportunities to engage in democratic debate within a municipal context.

**Open to different types of engagement.** In several of the cases, it appears that both thin and thick engagement may potentially be organized. For example, in Stimulab (SL-N), an organization stimulating innovation projects in the public sector, projects may be approved that focus on thick

engagement. Also, in NAV (NLW-N), where the main concern is to introduce a design approach into employment services, citizens may be engaged in several ways; however, the starting point here is employees learning to use the design approach. In Aalborg (AM-DK), projects may be initiated that focus more on the active participation of citizens in priority-setting, planning and carrying out new services. This is also true for the Spanish, French and Italian cases that all appear to involve some type of collective workshop where people exchange, develop and test ideas.

Thus, in reviewing the cases, we find that living labs have a strong potential to be an arena for thick democratic participation. Several cases involve workshops where people develop, exchange and test ideas together. However, the cases also describe more limited, thin or weak approaches to democratic participation, in which service users give individual feedback.

### Summary of democratic engagement

- The cases describe different ways of involving end users (citizens) in public innovation activities, yet there is no systematic approach to democracy among the cases studied.
- We find examples of both thick and thin citizen participation among the cases. Citizens are involved in workshops where they exchange, develop and test ideas.
- However, they are also approached individually, being asked to give feedback on ready-made innovation in the final stages of an innovation process.
- Clearly there is a great potential for living labs, as described in the cases, to become frameworks for democratic participation.

## 4.4 A proposed living lab logic

Based on the cross-case analysis, it can be argued that living labs open up new ways of thinking about and practising innovation in the context of the public sector, since the potentials of *living labs as a logic for creating a joint sphere of innovation among many stakeholders* has come to the fore. By 'logic' we mean a set of priorities, interactional goals and ambitions for co-creation. In Table 5 we draw on a typology of living labs developed in Fuglsang and Hansen (2019), that is, D.5.1, to describe and summarize the various dimensions of living labs as described across cases.

**Table 5: Tasks and types of living labs across cases**

	Semi-realistic environment	Real-life environment	Network/community
Exposing and appropriating	Space as test room or meeting room.	Space as a safe space or third space within a public organization or in the community.	Space as a building/place where people can meet formally and informally.
Co-creating	Feedback from employees and service users. Thin participation.	Deliberation with employees and users. Thick participation.	Involvement of community actors in participatory processes. Thin/thick participation.
Co-researching	Collecting data about users.	Collecting data with users.	Collecting data by citizens.
Democratizing	Living labs as project organizations. Consultation with citizens.	Living labs as project organizations with and for government. Living labs as governance structures.	At a distance from government. Potential contesting practices of democracy.



	Semi-realistic environment	Real-life environment	Network/community
		Living labs as integrated with routines and operations. Deliberation across stakeholders and with government.	

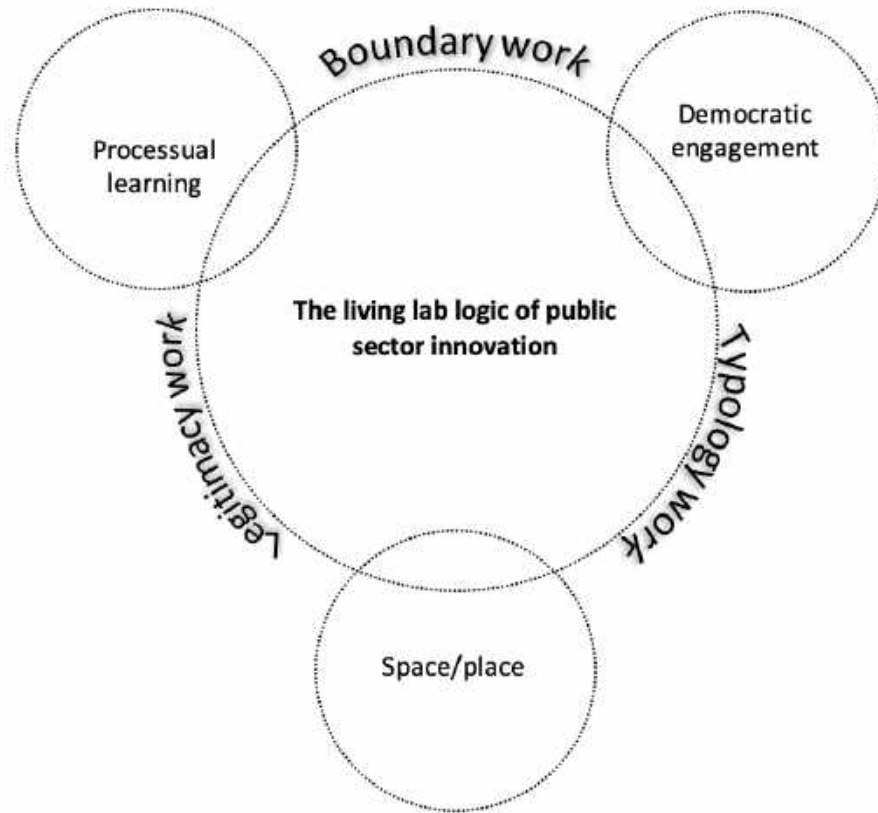
The cases show that living lab activities take place in different types of environments and through different co-creational approaches and methods. These constitute different logics with priorities, interactional goals and ambitions for co-creation. Thus, firstly, living labs can be test facilities for achieving feedback from users, collecting data *about* users, and providing policy-makers with a tool for consulting with users. Secondly, they can be a safe space or third space that encourages deliberations with employees and users, collecting data *with* users and facilitating deliberation across stakeholder groups. And, thirdly, they can be places where people can meet formally and informally, involving community actors in participatory processes, where data is collected *by* citizens or volunteers, and which potentially enable participation in contesting democratic practices.

Overall, living lab activities convene actors and facilitate co-creation processes which are focused on and committed to listening to users and citizens in the innovation process. Furthermore, living labs often aim to create value for service users as well as for society. Even though living lab activities often have a strong co-creation component, service users – or citizens – are mostly involved in giving feedback, in testing, and in facilitated dialogues about the subject matter, rather than in problem identification and decision-making processes. Nevertheless, this is in most cases seen as a future perspective and something to strive for, which is why the public value dimension of living labs is still to be fully developed.

The logic of living labs is thus two-fold: 1) their potential for public service providers to obtain insights into users' and citizens' value creation as well as other stakeholders' value dimensions, and 2) doing this through innovation and design processes that make room for democratic public value creation. Living labs can therefore be seen as a logic of public innovation that creates 'joint spheres', drawing on heterogeneous repertoires of resources and tools. This logic reaches beyond the more instrumental understanding of living labs as either a methodology or as an ecosystem by providing tools for thinking about living labs with prescriptive implications.



Figure 4: Proposed model for understanding the logic of living labs



By living lab logic, we mean that living labs have certain overall features that make them different from other innovation activities. These features are here understood as ideal types and do not exist in pure form in real life. As we have seen, these features concern varied types of environment and varied types of appropriating, co-creating, co-researching and democratizing innovation (Table 5). Living labs address these logics, claiming to be something special, through boundary work (defining what they are), legitimacy work (remaining acceptable for citizens and policy-makers in terms of value co-created) and typology work (distinguishing different types, organizational forms and methods of living lab). Furthermore, the living lab logic is embedded in societal forms of processual learning, democratic engagement and space/place, hence they describe themselves as mobilising, transforming and applying these societal elements at least to some extent. Figure 4 describes an overall living lab logic stressing future potentials of this specific approach to public sector innovation in terms of their ability to mobilise, transform and apply these societal elements of learning, democratic engagement and space/place.

## 5. Conclusions

As set out in deliverable D.5.1 (Fuglsang & Hansen, 2019), in the literature on living labs there are two main approaches: living labs understood as methodology, depicted by service design methods and user testing, and living labs understood as an ecosystem for innovation. Moreover, there is in the literature an articulated need for conceptual clarification and for a better understanding of how and with what resources users and citizens are in fact engaged in living lab activities for public sector innovation (Schuurman & Tönurist, 2017).

The reports on 21 case studies across nine European countries in this deliverable is one such attempt to refine and better understand what living labs contribute in the context of public sector innovation. The main research question of the study was: ***'How do living labs evolve as organizational and institutional structures for innovation in real-life settings based on co-creation and co-innovation of public services and what are the future potentials of this specific approach to public sector innovation?'***

Based on a cross-case analysis, the first part of the question has been answered and illustrated in Table 5. Figure 4 is a tentative answer to the second part of the question: a suggestion for a specific living lab logic.

The case studies and the above synthesis will act as a point of departure for the forthcoming scenarios and models of innovation and living labs to be fully developed and presented in D.5.3.

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## 6 Appendixes

### 6.1 Appendix 1: Case protocol

#### Case Guidelines

(template/draft – due time for specific guidelines is October 2018)

#### Co-VAL WP5: Living Labs

##### Introduction

These guidelines provide templates for case-studies, i.e. questions to deal with/ talk around during interviewing, and templates for possible observations and document studies. The guidelines also include a format for reporting the cases.

Concerning criteria for selection of cases, we refer to the case selection criteria document. All partners have provided a list of living labs. The selection of living labs for intensive case studies is based on the case selection criteria and process described in that document.

##### Case study objectives

According to the General Agreement, case-studies will be provided that can generate knowledge about how innovation and living labs are used to bring actors together and carry out citizen-based innovation in real-life settings while also contributing to public value generation in terms of overall service quality and efficiency, public trust and social inclusion.

##### Methods applied

The case studies are to be conducted as qualitative research and hence the methods mainly applied will be those of: semi-structured interviews, (participant) observations, document studies and focus groups. If partners want to supplement their studies with e.g. experimentation, action research, or service design methods and quantitative studies please notify the WP leader for developing a reporting format that is applicable for comparative studies.

The protocol consists of templates for data collection (that can be adapted and customized to the specific case study) and the final report.

##### Templates

Below we provide templates for interviewing, observation and document studies. We leave it to the partners to decide on the number of interviews, observations, and documents, but we provide these rather instrumental templates to ensure that we have a common focus which is in accordance with the General Agreement. It is also, to some degree, consistent with conceptual work package (WP1). The templates are adapted from the templates for WP1. Templates for the following investigations are provided below: Template for interviews with managers and front-line employees, template interviews at the strategic level, template for focus groups, template for observations and document studies.

*Please provide introductory information to all research participants about the study (e.g. Innovation labs are increasingly used in public sector innovation, and we want to know more about their organization, their main focus areas, the objectives and key actors).*

### 1. Interview guide: managers and front-line employees

Please conduct an appropriate number of interviews with managers and front-line staff.

Objective:

- To obtain knowledge on LLs as an environment
- To obtain knowledge of LLs as an approach
- To understand how value is created through living labs
- To understand how the impact of LLs can be measured
- To understand how the actors, perceive public value and citizen-orientation

For internal use only, please give information about interviewer and interviewees. Information about interviewees is only for internal use during the project period.

Name and role of interviewee	
Name of organization/department	
Name of interviewer and date	

Questions for interviews:

1. Please briefly describe your role
2. Please briefly describe the living lab and its history and focus (to expose the life cycle/maturity of the LL)
3. Please tell a bit about barriers/drivers for establishing a living lab in the public sector?
4. What value are you trying to create through the living lab?
5. Who is creating this value?
  - a. The role of managers, front-line staff, public, private and civic organizations?
  - b. What do you perceive motivation/incentives and/or barriers for internal employees to engage with the living lab?
6. Whom is part of your network (external stakeholders/partners)?
7. What role does public service users play in creating this value?
  - a. Do they participate as individuals, group or collective?
  - b. Do they participate in setting priorities, co-design, co-implementation, co-assessment?
  - c. When and how are they involved?
  - d. With what impact?
8. Describe how value is created in different stages of the living lab or through different types of living labs.
  - a. Design stage
  - b. Implementation stage

## c. Other

9. What is the role of citizens and communities in creating value through the living lab?
10. What is the role of the physical environment of the LL for creating value?
  - a. An office, a neighborhood, a city?
  - b. Real-time and every life environment or laboratory environment?
11. How is the LL as an approach important for creating value?
  - a. Methods from participatory research?
  - b. Methods from service design?
  - c. Methods from innovation guidelines?
  - d. Technology testbeds?
12. How could the impact of the LL be measured?

## 2. Interview guide: strategic level (policy makers/politicians/top-management)

Please conduct an appropriate number of **interviews** with policy makers/politicians/top management.

### Objective:

- To obtain knowledge on LLs as an environment
- To obtain knowledge of LLs as an approach
- To understand how value is created through living labs
- To understand how the impact of LLs can be measured
- To understand how the actors, perceive public value and citizen-orientation

For internal use only, please give information about interviewer and interviewees. Information about interviewees is only for internal use during the project period.

Name and role of interviewee	
Name of organization/department	
Name of interviewer and date	

### Questions for interviews:

1. Please briefly describe your role
2. Please briefly describe the role of living lab in public sector (herein understandings of LLs life cycles and maturity)
3. Please tell a bit about barriers/drivers for establishing a living lab in the public sector?
4. What value are you trying to create through the living lab?
5. Who is creating this value?
  - a. The role of managers, front-line staff, public, private and civic organizations?
  - b. What do you perceive motivation/incentives and/or barriers for internal employees to engage with the living lab?
6. Whom is part of your network (external stakeholders/partners)?



7. What role does public service users play in creating this value?
  - a. Do they participate as individuals, group or collective?
  - b. Do they participate in setting priorities, co-design, co-implementation, co-assessment?
  - c. When and how are they involved?
  - d. With what impact?
8. Describe how value is created in different stages of the living lab or through different types of living labs.
  - a. Design stage
  - b. Implementation stage
  - c. Other
9. Please tell a bit about barriers/drivers for establishing a living lab in the public sector?
10. What is the role of citizens and communities in creating value through the living lab?
11. What is the role of the physical environment of the LL for creating value?
  - a. An office, a neighborhood, a city?
  - b. Real-time and every life environment or laboratory environment?
12. How is the LL as an approach important for creating value?
  - a. Methods from participatory research?
  - b. Methods from service design?
  - c. Methods from innovation guidelines?
  - d. Technology testbeds?
13. How could the impact of the LL be measured?
14. How is the position of living labs in the public sector changing?
  - a. Why is it changing and how is it changing.

### 3. Focus groups

When feasible please conduct **focus groups with users** with 6-8 participants in each.

Objective:

- To obtain knowledge on LLs as an environment
- To obtain knowledge of LLs as an approach
- To understand how value is created through living labs
- To understand how the impact of LLs can be measured
- To understand how the actors, perceive public value and citizen-orientation

For internal use only, please give information about interviewer and interviewees. Information about interviewees is only for internal use during the project period.

Role of interviewees	
Name of organization/department	
Name of interviewer (and note-taker) and date	

The discussion will be structured around the following themes (and herein questions):

#### Value outcomes and processes

1. What value do you expect will emerge from the living lab?
2. Who is creating this value?
  - a. The role of managers, front-line staff, public, private and civic organizations?
  - b. How about your network (external stakeholders/partners)?

#### Actors in value creation

3. How do you as public service users contribute to value creation?
  - a. When and how are you involved?
    - i. As individuals, group or collective?
    - ii. In setting priorities, co-design, co-implementation, co-assessment?
  - b. With what impact?
4. How do you contribute as citizens and communities in creating value through the living lab?
5. What aspects of the living lab experience influence your view of value?
6. What is the role of the physical environment of the LL for your contribution to creating value?
  - a. An office, a neighborhood, a city?
  - b. Is it your everyday context in real time or if not, what kind of environment?

#### Living Lab perceptions

7. How is the LL as an approach important for your contribution to creating value?
  - a. Do you experience the LL as a specific method?
  - b. Is it driven by scientific language or everyday language?
  - c. What is the impact of your contribution?

#### 4. Participant Observation

**If possible, we ask you to conduct** observations within each case study. The observations should be of the service relationship or instances of service user/citizen participation and should examine the following (at present the same as WP1 – will be revised):

- How are service users/citizens participating?
- When are they participating?
- What is the role of service users/citizens in creating value?
- What role are front-line staff/ public managers playing in facilitating service user/citizen participation?
- What role are front-line staff/ public managers playing in creating value?
- Are there any examples of value destruction and if so, how are these played out?
- What are the success criteria of the activities observed?

The observations will be conducted as either participant or non-participant observations and an open approach will be employed, using an unstructured observation sheet, given the different contexts being studied.

The observation sheets make a distinction between descriptive and reflective notes: the descriptive notes should be factual description of activities; the reflective notes should provide details about the observer's reflections on the interactions, specifically around how value is being created, who it is being created by and how it is being created.

A pro forma observation sheet is provided below:

Organisation/Location: Date: Start time: End time:
People present (number and description of roles):
Activity/activities observing:
Context:

Description of activities and individual actions (chronological order)	Direct quotes	Reflections

## 5. Document studies

Relevant policy, project and organizational documents related to the case under study will be analyzed using thematic analysis. This will be conducted as a complementary element of the research design, adding both to the contextual understanding of the case studies and permitting the exploration of organizational discourses on citizens, public value and co-creation.

It is envisaged that **3-5 documents** will be analyzed for each case study. The documents will be gathered from respondents, from organizational websites or from applicable government policies (where available). The types of documentation are likely to include organizational information from websites, minutes of meetings, annual reports and/ or likely documentation.

In the final report please use the following table for reporting:

Type of document	Key terms applied	Definition/ understanding of Living Lab/Living lab activities	Definition/ understanding of co-creation	Main actors referred to	Perception of value/objective/main aim	Measurement criteria/success factor for LLs

## 6. Final report

All fieldwork should be conducted and reported to RUC by **xxx 2018/2019**.

We expect this to take the format of a short report, which should be written in English and is approximately **4,000 – 7,000** words in length. *Please note that all original data should be retained to support future paper writing.*

For comparison purposes, the report should take the format detailed below and should include evidence in the form of quotes, tables and data from the direct observations. Please reference this data to allow us to decipher where it came from (e.g. 'front-line staff interview').

Please also include the document analysis tables as an annex to the report.

The reports should be structured into sections, as follows:

1. **Case study description:** brief description and background information about the case study, herein LL maturity/life cycle and how the case is characterized as a LL. Moreover, include a table detailing the fieldwork undertaken, the types of respondents interviewed, observations conducted and documents analyzed.
2. **How the objective and notion of Living labs are understood**
3. **How public value is understood**
4. **How co-creation is both understood and outlined**
5. **The role of front-end employees/public service staff in co-creation**
6. **The role of users/citizens in co-creation**
7. **The service experience/relationship**

8. **The role of other stakeholders (private actors, communities) in co-creation**
9. **The role of Living labs as innovation method**
10. **The role of Living labs as innovation intermediary/network enabler**
11. **Performance measurement (output, outcome, impact):** this section should include data around which forms of success criteria are measured and how they might be improved to measure other dimensions of public value.

## 6.2 Appendix 2: Analytical table – definitions

### Analytical table of WP5: definitions

The concepts of the analytical table build upon terms and definitions from the literature review conducted, key concepts of the Co-VAL project and in addition the notion of public value and democratic engagement from public administration literature. The categories concerning public value and democratic forms are added as analytical meta-reflections of the partners, that is, we reckon this is not necessarily explicated by the informants/organizations.

To ensure that each partner fill in the table as consistent as possible we hereby provide the definitions of the conceptual categories:

#### *Living lab perceptions*

Living lab perceptions refer to the informants/organizations view on how the term living lab are to be understood. In literature we see differing understanding, e.g. living labs as eco-system/intermediary for public sector innovation, as a specific innovation method (either process or outcome oriented) and as platforms for democratic engagement - but if the case studies reveal new/supplementing understandings this can be added to the category.

#### *Institutional boundaries*

Institutional boundaries of living labs refer to the distinction made by Leminen et al. (2005): utiliser-driven (e.g. led by companies), enabler-driven (e.g. led by municipalities), provider-driven (e.g. led by universities) and user-driven (e.g. led by citizens).

#### *User/citizen role*

User/citizen role refer to the two overall foundations for user/citizen involvement as either based on an expert mindset or a participatory mindset (Dell'Era and Landoni, 2014). In the former users are seen as subjects, that is, *reactive* informants, whereas in the latter users are seen as partners, that is, *active* co-creators (Dell'Era & Landoni, 2014, p. 148). This distinction is based on the continuum in literature where there at the one is a collective view emphasising democratic ideals of creating rooms for discussion and debates among various groups of people (Björgvinsson et al. 2012; Cardullo et al. 2018), while at the other end a more individualistic view is exposed emphasising the subjective needs of the actors involved (Äyvaäri & Jyrämä, 2017; Edwards-Schachter et al. 2012).

#### *Co-creation practices*

Co-creation practices refer to the way co-creation processes are initiated, carried out and by whom. This category is open for the specific practices of each case study.

#### *Methods/methodology*

Methods/methodology refer to either the concrete methods applied in co-creation processes or to the underlying rationale for the way the processes are carried out.

*The raison d'être of Living lab*

The raison d'être of Living lab refers to way informants/organisations understand their main aim and/or how the term living lab legitimizes certain ways of innovation practices.

*Public value creation*

We apply the double-sided understanding of public value introduced by Benington: public value is that which the public values and that which adds value to the public sphere (Benington 2015). In this manner there is a distinction between individual interests (what people value here and now) and the wider public interests (what is of interest to the public in a long-term perspective).

*Notions of democratic engagement*

Notions of democratic engagement refers to which forms of democratic processes are enabled by the living lab activities; mainly representative/indirect or deliberative/direct democratic forms.



### 6.3 Appendix 3: Analytical table – extracted from excel sheet

Case organisation	Living lab perceptions	Institutional Boundaries	User/citizen roles	Co-creation practices	Methods/ methodology	Raison d'être of Living labs	Public value creation	Democratic engagement
Aalborg Municipality - DK	The term living lab is negotiated/contested: in between an innovation method/approach and a test environment	Enabler-driven (a municipality)	Reactive informants (expert mindset)	All initiatives are framed as projects based on inclusive processes with different stakeholders, but regarding outcomes the municipality is sole decision-maker.	Traditional user studies (user/citizens interviews in their homes + public servant interviews and feedback), test set-ups in homes and care centers.	As matchmaker between and translator of public and private sector logics.	Mainly addressing public value, that is, what the public (here the elderly) values.	Based on ideas of representative/consultancy democracy
INSP - DK	Living lab is understood as an unintentional space where the user/citizens themselves create the content	User-driven (citizens)	Active co-creator (participatory mindset)	Most activities are initiated and facilitated by the users/citizens – the role of the employees is thus as hosts/space makers that support 'things to happen'.	No methods applied, based on a rationale of "organized randomness" - the decentralized practice support that people meet and create relationships across differences.	As a room for people to be together in meaningful ways.	Meant to add value to the public sphere, that's is, to public values (long-term perspective on which kind of society is it we want to have in the future and how we as citizens feel we contribute to	Based on ideas of deliberative/agonistic democracy (all should have equal rights to engage in dialogue and activities)
Public Intelligence	Core lab and trusted user lab convening stakeholders and users through living lab leadership of an external actor.	Utiliser-driven (a company)	Both reactive and active co-creators	Co-creation activities are initiated and led by the consortium partners.	Meetings, dinner, interviews, surveys, potentially debates, direct feed-back on innovations.	As transformer of health care to be sustainable in the future by creating community care.	Addresses that which add value to the public sphere – i.e. a long-term perspective on public values through involving processes.	Based on ideas of representative/consultation democracy
IDES Living lab - E	Living lab as a setting for open innovation. Living lab at the centre of a vast ecosystem bridging healthcare service providers, research and technological centres,	User-driven (people suffering from impairment)	Active co-creators (participatory mindset), even though levels are rather different according to the degree of impairment.	Co-creation involves both co-design and co-production. Co-design starts when a new problem is identified, and solutions are to be provided involving users. Co-production	A wide array of methodologies is used. Methodologies are ad hoc selected according to the specific features of the project/problem. A meaningful selection of methodologies is	The living lab a natural step in IDES activity. Living lab at the crossroads of participation and innovation to help people suffering from mental illness or cognitive impairment to help	Co-creation allows the achievement of higher levels of trust, self-empowerment, self-autonomy or perception of identity on the user side. Furthermore, public value is also	Based on ideas of representative/consultation democracy
Guadalinfo - E	Living lab as a setting for citizen empowerment, enabling them to lead the way. Living lab perception as a network/intermediary institution is outstanding. According to Mr.	Enabler-driven (resources are given)	Different roles co-exist, as activities and services provided are of different nature. As Guadalinfo has evolved, an increasing number of activities implies active co-creation.	Three levels of co-creation content: - Low co-creative content, related to merely completion of eAdministration procedures. - Medium co-creative content,	Very informal methodologies strongly relied on front-end employees (local innovation actors) skills and capabilities. Nevertheless, local innovation agents were trained in some	The main driving force of Guadalinfo is the principle of solidarity and equal opportunities by benefitting the social, economic and geographic communities most at risk of	Citizens' empowerment is the major value created, which is of private nature. Nevertheless, this will definitely push up public value creation in areas such as: community building,	Based on ideas of representative/consultation democracy
Library Living Lab - E	Living labs are user centric innovation environments in which creators, managers, and users can participate in co-creating innovations that enable social and economic impact. The	User-driven. The lab is driven by citizens, even though the different stakeholders making up the quadruple helix play a role.	User co-creation is crucial. Users are fully involved in co-producing and co-innovation and decisions are taken along with the project director. Notwithstanding this, co-	Co-creation practices were rolled out from the beginning. Indeed, the very L3 is the outcome of a whole co-created process where stakeholders of rather different nature were involved. Hence, the	Ad hoc methodology based on the features of the different projects undertaken. Furthermore, different methodologies are implemented for different levels of	Democratising the access to knowledge and innovation (participation+innovation). All actions and initiatives undertaken are built upon this statement. The L3 channels a	Along with democratizing access to knowledge and innovation, inclusion is a major issue (i.e., the new range of experiences offered opens the Library up to other types of the library users,	Based on deliberative/direct democratic ideas
GovLab Austria - A	Project Experiment Network	Federal government	No real role	No physical space During events and meetings (exchange, non hierarchical way of working)	Experiment, Prototyping Discussion Dialog	Innovation of administration and reform (top-down)	Appreciation of this cooperation Access to information Access to this community personal exchange Working among like-minded people	No focus on citizens, but integrate all parts of public administration (inclusiveness, participation of internal users)
GovLab Arnsberg - G	Development of services Reshaping bureaucracy	State government	Not yet specified role	Own physical space Events workshops	Starting small Try it Prototyping Gathering and discussing ideas Design thinking	Innovation of administration and reform (bottom-up)	citizen-friendly  Political support  to get out of the usual working environment in order to create	Service-oriented toward improvement of government Indirect involvement of stakeholders
Verschöörhaus Ulm - G	Fablab in close collaboration with civil society	Local government	Close collaboration with civil society groups	Own physical space Project-based usually initiated by civil society representatives	Hackathons Maker Monday events Regular community meetings Experimentation Co-working prototyping	Innovation in collaboration with civil society and as a by-product innovation for public administration	Integration of civil society into innovative practices and new technologies  Educational expertise and competences brought into	All parts of civil society with volunteers from PA in their free time Empowerment of citizens Participation of otherwise disconnected groups with highly
Wallonia e-health Living Lab - B	An innovative method to come up with new health-related solutions	Mainly utiliser driven (by the companies or healthcare professionals) but also one of the first projects was provider-driven (by a university, in the framework of a PhD thesis). The	Reactive informants (expert mindset)	The users / professionals come to the LL with their projects and the LL managers animate / carry the co-creation process in the sense that they bring the expertise related to the	Individual interviews with the users, focus groups, workshops, the business plan analysis (to finance and build the prototypes)	For the public authorities: improving the state of the economy in the Walloon Region (creating jobs, growth). For the LL managers: proposing new health related solutions to the	The users and professionals value the healthcare solutions developed in the LL (as a way to improve their own lives) and the developed prototypes - as well as the co-creation process -	Direct democratic form (users are involved in the discussions and decisions/outcomes)

Case or organisation	Living lab perceptions	Institutional Boundaries	User/citizen roles	Co-creation practices	Methods/ methodology	Raison d'être of Living labs	Public value creation	Democratic engagement
StimuLab - N	The leader's understanding is that they have been a stimulating lab for public innovation, and they get support for their conclusion in final reports from finished	A directorate, controlled by The Municipal and Modernization ministry	The main users are PSOs (who apply for assistance), but since the service design is mandatory in all the projects, front line employees and public service receivers are also involved in the	Two main levels for co-creation: then through Stimulab and the applicants where they try to find an acceptable design for an application, then a co-creation process between the project-	Pitching with the applicants, then through service design processes based on the triple diamond process model.	Learning PSOs how they can use service design to innovate their services in co-creation with the users.	PV creation shall be realized through services better adapted to the users' needs, and developed together with the users. This will be a quality improvement, and can also	User involvement in the (re-)designing of the services
Norwegian Labour and Welfare administration - N	The respondents were not familiar with the notion of 'living labs' but referred to the use of 'lab' to a physical testlab used for various forms of user testing. 'Lab' was also used in	Enabler-driven (a public service organization, directorate)	The users / citizens are involved as test persons or to give feedback on solutions developed by the public service agency.. So the involvement are controlled by the PSO, and the	Takes place through different means and on different levels, personal user interviews, online communication, interaction in a testlab environment. There are ongoing experimentation with	Service design methods, user surveys, online feedback channels, Hotjar (tool to analyse visits on websites, user surveys, feedback polls, recruitment of test persons). User interviews	Finding ways to ensure that the services are better suited to serve user needs	By developing structures and methods of working that take more actively into account the feedback and perceptions of users and citizens, the services are expected to provide more	Consultation democracy
L.I.V.E. ( Lab to Imagine the city together)-Lille Metropole- Fr	The living lab is an innovation method/approach and a test environment for IT solutions and smart city approach	Enabler-driven (3 municipalities)	Both reactive and active co-creators	All initiatives are framed as projects based on inclusive processes with different stakeholders, but regarding outcomes the municipality is sole decision-maker.	Traditional user studies (user/citizens interviews in the streets + public servant interviews and feedback), prototyping and test set-ups in workshops	As matchmaker between public agents of three municipalities, professionals of urban services and the needs of citizens	Mainly addressing public value, but the question is: who decides ! A mix between what the citizens or inhabitants value and what the public servants or elected value in a final step.	Based on ideas of deliberative/agonistic democracy during the workshops but as consultation democracy for the phase of decision
ERASME - Lyon - Fr	A methodology in 2 steps (Mix then Lab) in collaboration with citizens and different ecosystems about themes of general interest (culture, education, elderly, poor people,	Enabler-driven (a Department then Lyon Metropole)	Both reactive and active co-creators	Co-creation activities are led by the Living Lab Team (experts of the methodology) but co-creation with stakeholders concerned by the theme. Tests of prototypes to choose the	Step 1 = Mix: 2 or 3 days of ideation (produce new ideas on a theme) Step 2 = Lab : 2 or more weeks for teams work. Realize prototypes then test with population concerned	More than a Living Lab but a Do Tank to change citizens life with digital technologies in culture, education, social problems, smart city	Value to improve the life of citizens and public agents (no waste of time, better relations, consultation on public projects). Value for public action and services.	Based on ideas of representative/ consultation democracy (but not sure it is always a question of democracy, or to improve the city governance). User involvement
SIILAB - Lille - Fr	Creation of a "Lab for public innovation" to improve State administration in regions (following a Call for project of the government). Mainly the creation of a place to allow	Enabler-driven (led by the State through a decentralized service and 15 other partners in the framework of PIA call for project for digital transformation of the State). Localized in the	One aim is digital inclusion of citizens but at this stage of the project, new services are imagined by experts of administrative processes and associations that represent	A dedicated room is equipped with mobile tables, IT tools, large screens and some software sometimes forbidden in french administration. A place designed to allow "freedom, right to fail"	No real methodology except inspired by desing thinking or service design. Inspired by the tools offered and powered by the DITP (governmental service for modernization of	A Lab for public innovation launched thanks to a call for project of the government to support the digital transformation and the modernization of	Public value to co-create between different administrative services and with their stakeholders. To modernize administration for citizens and also for cost-killing. The main	Introducing the LL methodologies in a bureaucratic administration. Engagement of public agents at the local levels
AUTONOM'LAB - Limoges - Fr	Living lab as an innovation method/approach creating the ecosystem to design solutions to health problems of elderly and disabled people. Co-creation of solutions with	Enabler-driven (led by the Region and Departments of the region). Created for the Limousin Region at the origin, Autonom'Lab survived to the enlargement of the "regions"	End-users are elderly or disabled people. Their role is to test (IT) solutions for a better life in rural areas. The main users are intermediate-users (public agents, caregivers, hospitals...)	Co-creation activities are initiated and led by the public/private consortium partners (the GIP Autonom'Lab). Autonom'Lab helps the partners and their stakeholders (enlarged	Traditional user studies (user/citizens interviews in their homes + public servant interviews and feedback), test set-ups in homes and care centers. Participatory	The main question is how to create good services for elderly and disabled people in rural areas, little cities far away from hospitals, in a region (Limousin then Nouvelle Aquitaine) with	The Living Lab approach and methodologies are used to create networks and ecosystems of stakeholders to create new services or products and to test that they answer to real needs of	End-user involvement to test products or services. Intermediate-users (caregivers) involved to desing new services. But final decision by the GIP . Following the change of
Kraków Living Lab - P	A multi-stakeholder space to design solutions to health and environmental problems, against the backdrop of a technology park that supports local businesses	The Kraków Living Lab is at the same time enabler-driven (It is supported by the City of Kraków and Malopolska Region), utiliser-driven (the Kraków Technology Park is a key stakeholder) and, to	Reactive informants (they initiated the work on air pollution fighting, as they defined it as a key priority; but they also are experts testing the products proposed by the	The KLL hosted and facilitated participatory workshops, where representatives of the City of Kraków, the Malopolska Region, NGOs active in air pollution fighting, the Public Transport	Participatory workshops and smogation.	For the Kraków Technology Park, the demand of the companies it supports to get an environment where they can develop and co-design new solutions to better	The value created is both due to the creation of new solutions, especially for air quality, and also to the involvement of citizens and companies in the co-creation activity. Through the	Introducing the LL methodologies in an administration which is traditionally seen as bureaucratic and intimidating helps to change the
Living lab of the ministry of economy and finance - I	Living lab is understood as an innovation method/approach through stakeholders brokerage and as a test environment for IT solutions	Enabler-driven (led by he ministry)	Both reactive and active co-creators	All initiatives are framed as projects based on inclusive processes with different stakeholders, but regarding outcomes the municipality is sole decision-maker.	Meetings, co-creation sessions, agile methods for innovation, test set-ups in semi-realistic environments.	Innovate the public sector through a common decision-making process that collect feedback from its main beneficiaries	Means to add value to the public sector service delivery	N/a
The Rome Heritage Lab - I	Living lab means social innovation and community building in a living environment	User-driven (led by the community)	Active co-creator (participatory mindset)	Co-creation activities are initiated and led by the consortium partners.	Quadruple helix co-creation,	Strengthen community link and social innovation in promoting "the commons"	Mainly addressing public value, that is, what the public (here the community) values.	Based on ideas of direct democratic forms
PWC Experience Center - I	Living lab notion partly overlap with the concept of "experience centre" it is understood as an eco-system and intermediary service for public sector innovation but also a space for	User-driven (led by the client, or the client of its clients: the citizens)	Both reactive and active co-creators	Most activities are initiated and facilitated by the users/citizens – the role of the employees is thus as hosts/space makers that support 'things to happen'.	Business, Technology eXperience (BXT), service design for Growth, testbed environment for digitalised services	Design services for its public sector clients that reduce the expectation gap and satisfy its needs by taking into account its needs.	Meant to add value to the public sector service delivery efficiency/effectiveness and overall purpose.	N/a
Torino City Lab - I	City-wide experimentation of smart cities solutions	Projects are utiliser driven by the companies that are carrying out the testing, even though the city of Turin assigns slots in the LL according to open competitions, so it is the enabler of the LL and	Some are involved in the testing, other provide needs through the politicians	Companies go to the LL with their projects, and the public administration helps with specific expertise.	Design sessions in which prototypes are created. Focus groups, interviews and data analysis to test the solutions created.	For the public authorities: increase innovation, jobs and growth, and develop new solutions for citizens. For companies: public support in testing, and a city-wide testbed.	Citizens will be better off from the solutions created in the LL as they will be the users of the services created and they will enjoy from the value created.	Citizens are involved through their representative in the municipality, and by providing their ideas. Users (companies) totally co-create the services with the public administration.