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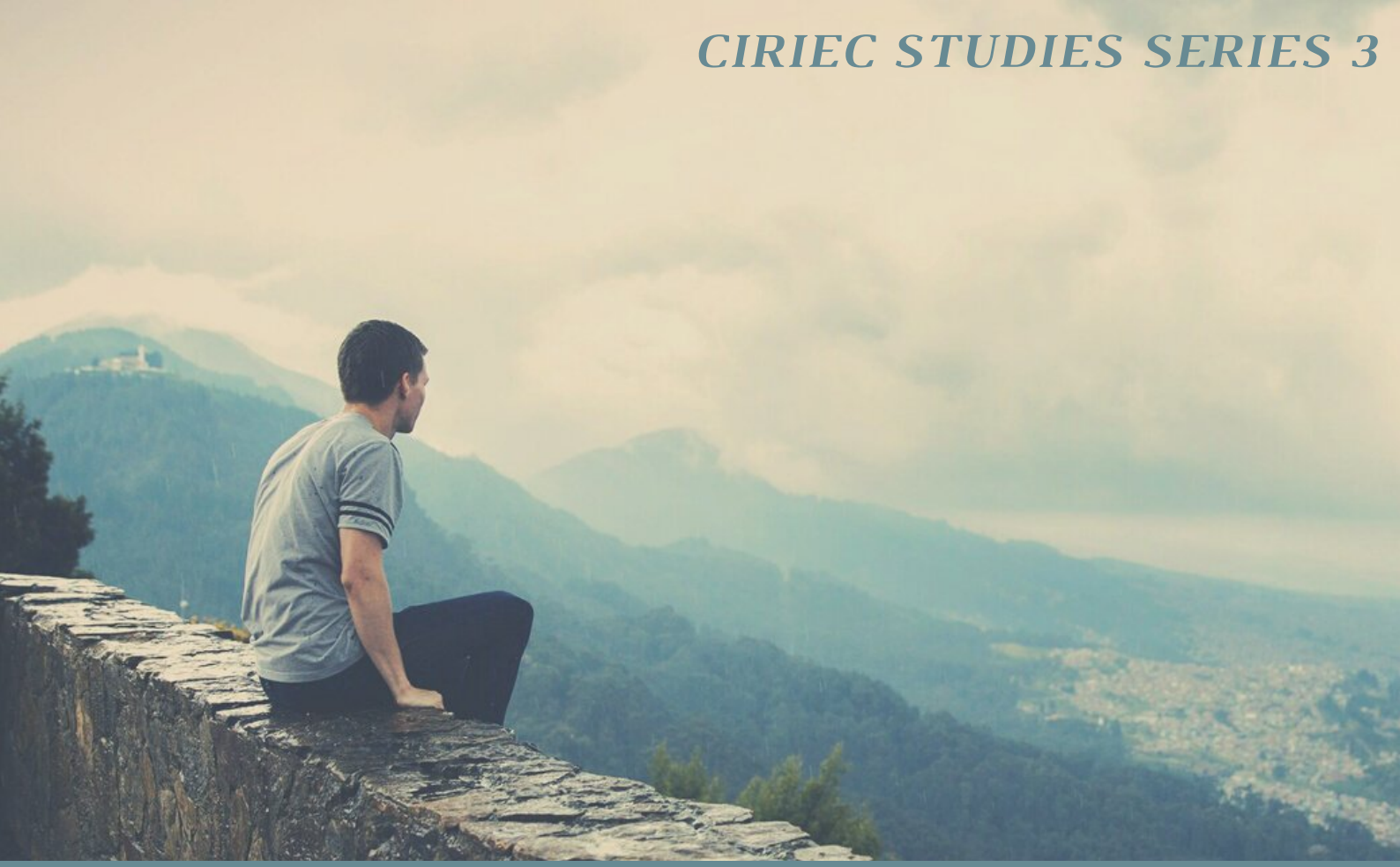

CHAPTER 2

COLLECTIVE INNOVATION AND LIVING LABS OF REAL ESTATE: AN INSTITUTIONALIZATION OF CITIZEN PARTICIPATION?

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Collective innovation and living labs of real estate: an institutionalization of citizen participation? / Chapter 2

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Abstract

This paper studies living labs located in cities in the South of France (Bordeaux, Lyon and Marseille) and specialized in real estate. These living labs are winners of the call for projects of the Industrial Demonstrators of the Sustainable City (DIVD).

We study their governance to highlight the place of the citizen in the co-construction process. We mobilise the theoretical frameworks of the commons and knowledge commons (Zadra-Veil, Fragny, 2018). By using Arnstein's grid (Arnstein, 1969) and the Pisano and Verganti matrix (Pisano and Verganti, 2008), we show the importance of institutional stakeholders and the mitigate citizen participation.

Keywords: Living Lab, Knowledge commons, Real estate, Cities, Citizen participation

JEL-Codes: O35, O36, R00

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This paper studies living labs located in cities in the South of France (Bordeaux, Lyon and Marseille) and specialized in real estate. Living Labs are designed to carry out projects through the collaboration of various stakeholders. These living labs were chosen because the first three we studied were winners of the call for projects of the Industrial Demonstrators of the Sustainable City (DIVD[1]). The three real estate living labs winners of the DIVD were presented during the Forum of June 14, 2017 at the General Stores in Pantin, in the North-East of Paris.

Some of these living labs persist in time, or even become instituted, like the TUBÀ[2] in the city of Lyon (a living lab and a Stakeholder of the DIVD project of Lyon Confluence), and others do not perpetuate themselves, like EMULE Marseille. An interesting element of living labs is that citizens can have a more or less prominent place. However, the extent of the place left to the citizen is diverse. It can range from simple consultation with the crowd to gather information to genuine dialogue, in a spirit of democracy and co-creation, between stakeholders who have become specialists of the subject. But what happens to citizen participation as the living lab is instituted, i.e. becomes permanent, established, recognized as a major player? Are we going towards a decision-making closer to participatory democracy or is there a risk of creating an institution with significant inertia that relegates the role of the citizen to mere consultation, instead of creating real tools of co-creation and co-decision?

From a methodological point of view, given the youth of the living labs studied and the long time taken to complete the projects, this paper is part of an exploratory perspective and continues work begun earlier on the considered living labs (Zadra-Veil, Fragny, 2018). The anchoring of this work is first and foremost an empirical one and focuses on the observation of the emergence of new ways of co-creating and interacting between stakeholders. To do this, we mobilize various materials in order to perform a qualitative study based on primary data (interviews, living labs' productions, websites of private and public organizations involved in projects, legal documents such as statutes, contracts, charters) and secondary one's (press articles).

The analysis is enlightened by the mobilization of various theories related to commons and knowledge commons, creative communities, forms of organization and governance, and citizen participation.

[1] In french: Démonstrateurs Industriels de la Ville Durable.
[2] Le tube à expérimentations urbaines / urban experiment tube.

I. Living labs and knowledge commons

1. The governance of knowledge commons

Elinor Ostrom (1990) defines commons as "resources shared by a group of people", with bundles of rights, property rights, rules, and ownership. The commons is also "a human artefact that can be both tangible and intangible, while generally being a non-rival, non-exhaustible and measurable good" (Hess, 2015, 260). The knowledge commons are not comparable to "global commons", or pools of resources. Knowledge has different attributes from natural resources. However, according to Charlotte Hess, all the commons are knowledge commons (Hess, 2015).

The formation of commons is based on the construction of an institutional system and a governance system (Orsi, 2015). Self-governance and self-organization of collective action underlie the success of the management of commons. Nevertheless, it may fail when the collective benefits obtained are too small from the point of view of the participants (Ostrom, 1990; 2010, 41). Institutional performance of Commons management is determined by the capacity of each participant to be able to modify institutions and rules in place.

Knowledge commons refers to all intelligible ideas, informations, and data in whatever form in which it is expressed or obtained. The principle of subtractability, substitute of the reversibility principle, permits that the use of one person does not prevent the use of the same good by another person. The example of the Free and Open Source Software (FOSS) is the most adapted and illustrated the strength of the open source concept.

2. The nature of the living labs

Living lab is a new, collective, creative methodology mainly based on the openness of the user involvement and the adopted platform technology (Dell'Era, Landoni, 2014). Different forms of living lab exist and are identified (Leminen, Westerlund, 2016; Leminen, Rajahonka, Westerlund, 2017). The oldest form is the user-centred open innovation ecosystem (Chesbrough, 2003, 2006) operated in a real context, often with a territorial dimension (cities, region…), integrating concurrent researches and innovation processes within different stakeholders (Pallot, 2009).

Different approaches are developed and highlight the interest about stakeholders' multiplicity in innovation process: three, four (Carayannis, Campbell, 2012) helices (public, private, universities, people) of the innovation are the basis of the knowledge societies where all of the stakeholders make the dynamic and the sense of the collective action.

In the definition of Steen and Van Bueren (2017, 23) we can identify different heterogeneous stakeholders private, public, civil society, users-citizens, research institute-universities, who can take part in the decision-making process. The living lab is in a real context of use, such as a territory or a defined area with a co-creation activity (Feurstein et al., 2008). All actors are involved in all stages of the project and aims at co-design innovation and formal learning for replicability. The living lab can develop in an iterative process (feedback, evaluation, improvement) a product, such as a good, an innovation process, a test or an experiment of service.

The living lab is an innovation intermediary that orchestrates an ecosystem of actors in a specific physical area. Its goal is to co-design products and services, iteratively, with key stakeholders in a public-private partnership and in a real-life environment (Mastelic, 2019). To achieve its objectives, the living lab mobilizes existing innovation tools or develops new ones. A result of this co-design process is the creation of social value (Mastelic, 2019).

Therefore, iteration is an important feature of the living lab innovation process. Thus, the question of the perenniality of the living lab is paramount. When a living lab is formed for a single, specific project, the iterative process may not occur because the living lab disappear when the project is completed. On the contrary, when a living lab is instituted, dedicated to a type of project, even if there is no iterative process for a particular project, the iterative process can take a global dimension. Thus, the experience of the stakeholders and the living lab itself as well as the tools can be mobilized on other projects because the living lab can capitalize. As a result, the instituted living lab is an effective way to create an adapted ecosystem. Indeed, an ecosystem requires lasting relationships, trust and a shared vision. Then, an established living lab is a way to build citizen-user confidence and to build a lasting relationship with them, that goes beyond simple consultation, in particular by recognizing some form of expertise in the areas that interest them. “The user is not simply a source of information or evaluator of the final product, but an active contributor of design ideas and a decision maker in the process often referred to as "co-creator" or "co-designer"” (Sanders and Stappers, 2008).

II. User and co-creation

1. The position of the user

Leminen, Rajahonka and Westerlund consider that there have been several generations of living lab (Leminen, Rajahonka and Westerlund, 2017). First generation of living lab focused on landscape as real-life environments intertwined with users and stakeholders; Second generation of living lab were oriented on methods and methodologies as a part of innovation activities; Third generation consider different modes of collaborative innovation with crucial roles for users, stakeholders

with platforms. These different generations of Living lab are in concordance with the user new position in the process. In the first generation, the user like the consumer can be associated at the product improvement but not at the design of the product. Then in the second generation, the user is involved in the process more and more upstream, i.e. from the design stage. Methods of multi-stakeholders involvement change and evolve and become more inclusive. However, the degree of the citizen participation and the tools used for the co-construction determine the forms and the intensity of the relationship but they do not define the decision power of citizen in the whole process.

Thus, user is the cornerstone of the co-creation methodology which so rely on the space left to the user. The definition of the users' needs is central in the innovation process because users contribute at different steps, from a user-centred approach to a participatory one.

In their study of urban living labs, Steen and Van Bueren (2017) notice an absence of characteristics related to development and co-creation process. The grid established by Arnstein in 1969 identifies nine levels of citizen participation and non-participation in determining programs and projects. Her analysis is based on three examples of federal programs: urban renewal, anti-poverty and Model Cities.

Table 1: Rungs on a Ladder of Citizen Participation

Associated Activities	Rungs of citizen participation	Ladder of citizen participation
Co-creation Building of community Bottom-up	Citizen control	Effective citizen power
	Delegated Power	
	Partnership	
Information Stakeholders identification listens to stakeholders	Placation	Degrees of tokenism
	Consultation	
	Information	
Top-down	Therapy	Non-participation
	Manipulation	

Source: modified by us according to the figure n°2 in Arnstein, 1969, 217.

The design of the rules is also an important level of citizen participation. Elinor Ostrom considers that there are three levels of implicit or explicit rules that can be identified (Ostrom, 2010, 69-70):

- The operational rules, which govern the rights of access and use relating to resources, directly influence the daily choices.

- The rules of "collective choice", determine the rights to participate in the collective management of the common. Individuals interact to create rules at the operational level.

- The "constitutional" rules of operation of the collective "affect the activities and operational results by their effects on the determination of those who are eligible, and the specific rules used to develop the set of rules of collective choices [...]" (Ostrom, 2010, 70).

The potential for citizen involvement in rule-making differs greatly depending on the level of knowledge available. We consider here that the intersection of the level of interaction and the knowledge level of the citizen can explain the place that can potentially be left to him (Table 2).

Table 2: Level of interaction according to the level of knowledge of citizens

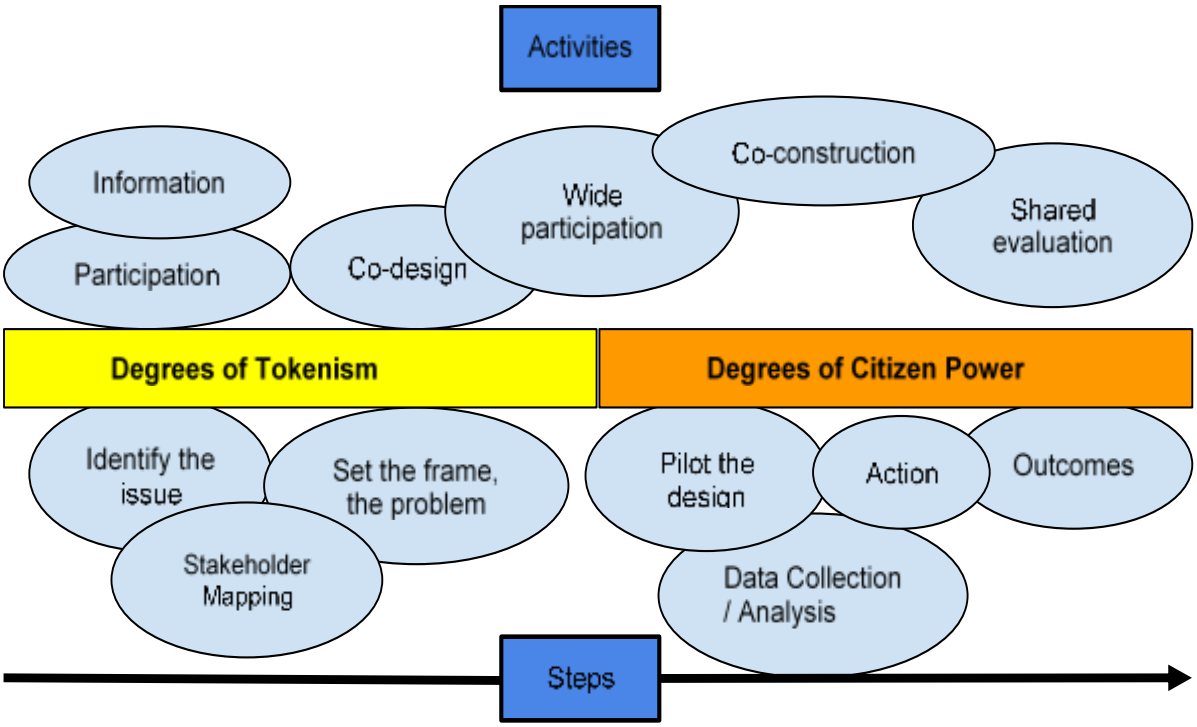
Citizens, function of their knowledge level / Coordination and interaction level	**Crowd**	**Lead users**	**Expert users**
Relations between Stakeholders	Vertical/Top-down.	Vertical/Top-down; Vertical/Bottom-up.	Vertical and horizontal.
Coordination	Market.	Hierarchical.	Democratic coordination (representative or participatory).
Projects	Information and symbolic validation Predetermined space.	Ideas integration according to their coherence with the objective of the project Symbolic cooperation.	Co-conception Co-development Co-construction Co-production.
Activities	Information collective Consultation of crowd.	Workshops, work meetings Collection of information Targeted consultation.	Co-creation Shared and accessible information.
Rules design	Imposed; No interaction possible.	Known and shared rules Adaptation at operational level.	Known and shared rules Adaptation at the operational level and possible reorientations.

2. The reality of co-creation

The idea that the co-created good is a knowledge commons (Hess, Ostrom, 2007) stems from the observation that in the collective process of co-creation, each stakeholder must withdraw from his/ her individual goal to join the collective. The co-created object becomes common because its property rights are minored (Ostrom, 1990). The living lab is a place of open innovation (Leminen, Rajahonka, Westerlund, 2017) where a good can be taken over, improved and spread by all.

To manage the commons or the knowledge commons, each interested stakeholder must have the same decision-making powers as the others. So, it's the same in a Living lab. Each member of the living lab should have the same decision-making power although the role of each member can be distinguished according to the stages of the project. For example, in the implementation phase, private and/or public companies will be much more involved than citizens. It is in the project-design step that co-creation can be significant, as it is undoubtedly at this key *ex ante* stage that the value created collectively is most important. However, for that to be real and complete co-creation, it is necessary that citizens are fully involved in all phases, especially those in which decisions are made and assessments made. Figure 1 schematizes the degree of citizen power, represented by the last two echelons of the Arnstein scale (1969), according to the stages of innovation and co-creation activities of the living lab.

Figure 1: Degree of citizen power according to stages of innovation and co-creation activities



Co-creation needs some elements. First, a space where controversies emerge. It is achieved by a long process of learning with different stakeholders. Some authors describe places in which a co-creative process can be implemented. These are hybrid forums (Callon, Lascoumes, Barthe, 2001), open spaces, like the living lab, where some groups can be mobilised to debate on choices which engage the collective. The dialogical space of hybrid forums leads to the view of controversies as an exploration of actors and ideas and a learning between the knowledge of specialists and laypersons. A common world tends to emerge due to these socio-technical controversies, by trial and error, by progressive reconfigurations of problems (Callon, Lascoumes, Barthe, 2001). Second, it is necessary to consider long-term relationships in order to benefit from learning effects and thus to create fertile ground for innovation. Third, a common purpose and a common interest are necessary. The living lab can be considered as a creative community (Cohendet, Simon, 2006, 1; 2015) with multiple stakeholders with different cultures and sometimes divergent views. The community builds a common purpose which permits to overcome these individual dimensions for the benefit of all. The sharing of knowledge and the belonging to a community, here the living lab, constitute intrinsic motivations (von Krogh, 2003).

In real estate living labs, rules are present at all the aforementioned levels. Thus, operational rules are often explicitly laid down: making available by the members of the living lab of their tools, definition of the roles of each such as the designation of the project manager, the developer, the pilot(s). Constitutional rules, which will define collective choices, can also be established. This is the case of Bordeaux Euratlantique, which oversees its project by the obligation to respect a consultation charter in addition to the general rules of French law. The rules making up the charter are then rules for the collective choice of the project. However, if these rules exist, it is rare for citizens to participate in their definition. They are generally present *ex ante* and there is often one (or more) dominant actor, public or private, at the origin of the project, which drives it and fixes the constitutional framework and the rules of collective choice.

With regard to coordination, several modes can be identified from the analysis of our real estate living labs (Table n° 2). Within the living lab, the relationships between the different stakeholders can be either "top-down" with market coordination (Ménard, 2010). They can also be, "top-down" or "bottom-up", as in the case of crowdsourcing (Howe, 2006; Burger-Helmchen, Pénin, 2011), with hierarchical coordination, when the stakeholders are fewer and the citizens involved as main users (Schuurman, 2015). And they become horizontal when citizens have acquired experience and are considered knowledgeable. It is in this latter case that we can say that the living lab is a hybrid organization, with shared and democratic governance. It is also important to note that citizens can acquire knowledge and become "experts" in the same way as all other stakeholders. Learning and repeating experiences are necessary to arrive at a true co-construction. However, many obstacles exist, cultural or cognitive, and depend on the complexity of the projects and their constraints. In fact, co-design and

co-construction have only been observed in workshops at the TUBÀ with citizens who already have experience in this type of exercise and who are identified as such by the living lab. The Living lab of Bordeaux Euratlantique also seems to have set up co-creation mechanisms but only with a very limited panel of previously trained citizens. Cooperation with citizens thus remains globally at the symbolic stage (Arnstein, 1969) within the living labs, and reaches at best the level of partnership (Table n° 1), the lowest stage at which co-construction is possible. The levels of delegated power and citizen control are not reached, which has the effect of restricting the effective power of citizens.

III. The role of the living lab as an institution

1. Instituted Living Lab as guarantor of rules

Elinor Ostrom's (1990) definition of democratic and shared governance establishes the need for co-decision in the establishment of rules as a basis for the governance of the commons and their long-term preservation. Learning about collective management is a long process in which each stakeholder must be involved and the structure in which this collective expression materializes must be sustainable in order to ensure trust and thus foster co-creation.

The living lab can therefore be analysed as an institution (North, 1990), which becomes an essential actor in democratic coordination. "An institution is defined as a set of rules, stable, abstract and impersonal, inscribed in the long term, embedded in laws, traditions or customs, and associated with mechanisms designed to establish and implement patterns of behaviour governing relations between agents or groups of agents." (Ménard, 2010, 11). The living lab is therefore an institution if it respects a certain number of characteristics: existence of rules, associated governance between agents and a long-term relationship.

The living lab can, as long as its existence is not limited to a particular project, take an instituted form, as in the case of the TUBÀ in Lyon. In the particular case of an instituted living lab, it is the living lab itself, as a particular organization, that defines the rules to which the participants will adhere according to the project's purpose. All interested stakeholders can then participate as long as they adhere to the predefined framework. In practice, the stakeholders therefore have no scope to actually define the rules. Often, only rules at the operational level can be defined collegially in collaboration with the citizen during co-construction, on condition that his or her level of knowledge is considered sufficient by the other stakeholders. Moreover, the TUBÀ tries to formalise in order to guide the processes but, apart from the guiding rules, the rules are not often transcribed in a formal way. They are rather informal, and it is the role of the living lab to maintain the initial orientations, to aim at the

general interest, sometimes by refocusing the major actors such as companies or the metropolis.

Co-creation and innovation between different stakeholders with different modes of operation impose the existence of implicit and explicit contracts, rules and more or less long periods of consultation, and collectively shared knowledge. Depending on the type of participation, open or closed (Schuurman et al., 2016), the formalisation of the use and property rights associated with the co-created good may be different, but it must be clearly defined from the outset. Pisano and Verganti (2008) approach this point by the need to establish processes and rules that will lead teams to work together. In the living lab, trust becomes the central lever for all stages of co-construction. The asymmetry of information must be reduced by sharing, which helps to avoid opportunistic behavior (Williamson, 1985) such as the appropriation of the collectively co-created object. A living lab instituted like the TUBÀ in Lyon has an important role to play here as a particular institution of reference for all stake-holders. Indeed, the expertise it has accumulated over time through its project management allows it to determine the contractual and co-creation tools, as well as the most appropriate processes for each project.

It is at this level that we do not find all the necessary conditions for shared collective management with democratic governance. Indeed, in the case of living labs, the evaluation and even possible sanctions related to free rider behavior are not put in place. For the time being, relations remain short term, except in the case of established living labs. The importance of institutional innovation, rules and sanctions is therefore insufficient. According to Ostrom, "in all known regimes of self-governance of common resources that have survived for several generations, participants have invested resources in monitoring and sanctioning each other's actions in order to reduce the likelihood of free riding" (Ostrom, 1990). The living lab must implement monitoring and evaluation and the burden of monitoring must be borne by the actors themselves. In this way, monitoring activities themselves become a public good. It is the actors themselves who carry out the monitoring, not a third party such as the state. Here again, the instituted living lab can be a solution by ensuring the monitoring of the stakeholders - who constitute its members - and the sustainability of the objective pursued. In this way, the TUBÀ will specify the rules from the outset and will play the role of regulator in the face of actors with significant weight who could try to divert the project to their advantage. In the same way, as we have already mentioned previously, it is the instituted living lab that will decide from the outset on the formal and informal contractual rules according to the actor at the origin of the project and the objective pursued: citizens (through voting), association, private company, public actor, or the living lab itself. The living lab defines from the outset whether the project to be co-constructed is of a private nature or whether it is open source and aimed at the general interest.

2. The instituted living lab guarantees a higher level of co-creation

In terms of activities and participation, Schuurman et al. (2016) show that living lab projects share open and closed characteristics: at some stages of research, an open call is made to users - for example through surveys - while at other stages, specific user profiles are recruited for participation, for example in co-creation sessions. We find these elements in our studied living labs. As a first example, Bordeaux Euratlantique carries out consultations with the population (the crowd), or even permanent consultations, characteristic of an open call, for example to decide on the names of new streets. At the same time, this living lab sets up a panel of about twenty citizens for one year, which it trains in urban planning and mobilises more particularly to co-create. The second example is the TUBÀ, the living lab that we consider to have been instituted, which also makes use of both open and closed calls depending on the project being mobilised. It is the living lab that seeks to mobilise the most relevant profiles according to the projects and types of partners. Some partners do not control anything, others control everything, depending on the culture of the actor in question and the specifications. This living lab also sets up study cycles. The people who come to the place where the living lab is located vote for the themes to be studied, for example "education", "circular economy" or "nature in the city". We see here the example of an open call by which the general public is consulted in order to build the future programming.

Pisano and Verganti (2008) establish a matrix that highlights the situations that emerge from the intersection of closed or open participation on the one hand and hierarchical or flat governance on the other (Figure 2).

Figure 2: Modes of collaboration from Pisano and Verganti (2008)

<table>
<tr><th colspan="2">GOVERNANCE</th><th colspan="2" rowspan="2"></th></tr>
<tr><th>Hierarchical</th><th>Flat</th></tr>
<tr><td>Innovation mall
A place where a company can post a problem, anyone can propose solutions and the company chooses the solutions it like best.</td><td>Innovation community
A network where anybody can propose problems, offer solutions, and decide which solution to use.</td><td>Open</td><td rowspan="2">PARTICIPATION</td></tr>
<tr><td>Elite circle
A select group of participants chosen by a company that also defines the problem and pick solutions.</td><td>Consortium
A private group of participants that jointly select problems, decide how to conduct work, and choose solutions.</td><td>Closed</td></tr>
</table>

Source: Pisano, Verganti, 2008, 6.

The south-western location of the matrix, called "Elite Circle" is the most limited version of a living lab. It corresponds to test labs where participants have to give their opinion or to living labs that only involve knowledgeable people. The hierarchical governance and closed participation of this configuration leaves no room for the citizen as an actor. In spite of attempts at communication, this usually remains to the empty ritual of participation (Arnstein, 1969), with the citizen having no opportunity to evaluate and participate in the choices. Indeed, in the case of hierarchical governance, the pilot(s) control the direction of innovation and aim to capture the value created (Pisano and Verganti, 2008).

Most real estate living labs implement a combination in terms of governance and participation corresponding to the South-East quadrant of the Pisano and Verganti matrix (Figure 2). Whether the living labs, intended for a particular project, in Lyon Confluence, Bordeaux Euratlantique or Marseille, they are all run by a consortium made up of major public and private players. Their actions fall within the legal framework of public policies for regional development and the strengthening of links between public (e.g. Public Planning Establishment of Bordeaux Euratlantique) and private (e.g. major real estate developers) actors to build regional development. Citizen participation here varies according to the living lab. When participation is closed, solutions come from the best experts in the selected field. As Pisano and Verganti show, the challenge then lies in the ability to identify areas of knowledge and mobilize the right teams. A living lab can transform citizens into experts in a specific field, as Bordeaux Euratlantique is trying to do with its panel of experts. However, if citizens participate in the co-construction of solutions, they are not really interested in the decision making itself, nor in the evaluation. Indeed, the actor who chooses one of the solutions simply has to justify his choice. Moreover, in the other living labs mentioned, the citizen is often only consulted, without really co-constructing the solutions.

An instituted living lab as the TUBÀ is rather in the North-West quadrant of the Pisano and Verganti matrix (Figure 2), and to a lesser extent in the North-East one. The fact of being instituted allows the living lab to benefit from the fruits of perennity, particularly in terms of capitalization of tools, sustaining a community and gains in terms of notoriety. Such a living lab can thus behave in different ways, adapting to the situations and people who consult it. For example, the stakeholders who adhere to the living lab can consult it for solutions. In that case the living lab behaves effectively as an innovation mall. A public or private actor comes to propose a problem to be studied, the living lab determines the most suitable tools and builds groups to work on it in workshops. The citizens are mobilized by the living lab according to their interest in the subject under discussion. Some citizens then become specialists, knowing that they have accumulated co-creation experiences within the living lab. In this way, the established Living lab, thanks to its perennial existence that transcends projects, can make it possible to determine the most suitable tools and to identify the best contributors.

At the TUBÀ, ideas for workshops can also be proposed by all the actors often considered as minors, notably associations or citizens. In this case, the established living lab becomes a perennial place, which materializes a creative community and allows it to benefit from its expertise in terms of tools and co-construction methodologies. This constitutes a materialization, in the field of living labs, of the North-East quadrant of the Pisano and Verganti matrix (Figure 2). Flat governance is similar to democratic governance: the partners are equal in the process and share the power to decide on key issues. This configuration, known as community innovation, is the most suitable configuration for new modalities of collective innovation but also the most complex to implement. On the benefits side, the openness of participation ensures that a wide range of interesting ideas is received, and shared governance allows the weight of innovation to be shared. However, openness implies the ability to attract participants and to be able to examine and test their ideas at a low cost. Shared governance, on the other hand, requires stakeholders to converge towards a solution that will achieve the common goal. The innovation community can, if these advantages and constraints are properly taken into account, play the role of middleground, an idea broker between the underground and the upperground (Simon, 2009).

Conclusion

The living lab is a place where people with and without knowledge (public organizations, private companies, non-profit organizations, citizens...) exchange and develop collective solutions for the city and the territory. The rules and modalities of these exchanges and the use of these solutions vary in the living labs studied, ranging from simple consultation to co-construction and co-creation. Some living labs are trained for a dedicated object: the project. Others are called instituted because they are sustainable, allow the accumulation and sharing of common knowledge and become actors recognized by the stakeholders in the construction of the territory.

In living labs, the evaluation stage of the co-creation methodology carried out remains fragmented or even non-existent. However, this pitfall is not specific to real estate living labs. Yet the evaluation is an important step in the iterative process of any living lab. It is absolutely essential to improve citizen participation at all stages of the decision-making process and requires transparency of information and rules, a clear sharing of roles, governance and operating procedures for the co-created object.

The instituted living lab is better able to set up a democratic and shared governance because such a process is built over time. On the contrary, in a living lab based on the management of a single project, learning is absent because exchanges are insufficient and do not allow the emergence of solutions to controversies. Thus, the living lab-project is hardly likely to improve, whereas an established living lab is part of a continuous process. However, the ability of such a living lab to move towards the

constitution of an innovation community strongly depends on its ability to federate, enlist, and on its internal governance.

However, our work is primarily exploratory. Indeed, the living labs studied are young and the projects they are working on are spread over a long period of time. This implies that we will have to continue monitoring them to understand their evolution and to confirm or temper our first results. Secondly, our results need to be reinforced by the analysis of a greater number of living labs and, in particular the analysis of living labs that fall within our definition of an instituted living lab. Finally, the study of instituted living labs and living labs dedicated to a single project in other sectors, such as health[3], would allow to deepen the analysis.

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