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Observing living labs to imagine tomorrow's metropolises

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Abstract

Given the growing number of living-lab type systems, the present paper questions their significance, geographical integration, the register of their actions and their relation to thinking by public bodies on territorial development.

Keywords:

Observation, geography, knowledge system, metropolitan territory, local authorities, public action.

Living labs, revealing thinking on tomorrow's territories

In recent years living labs have become knowledge systems that are regularly brought into play to address issues relating to innovation processes (Besson R., 2012). Since the beginning of the century we have witnessed – in France, Europe and the whole world – an almost steady stream of new living labs. Such growth fits into a larger pattern of expansion in territorial organizations and systems for observing and gathering knowledge on territories (Roux, Feyt, 2011). It also reflects growing demand for open access to information and knowledge. As D. Innerarity has explained, the democracy of knowledge should give all parties a better grasp of reality and in so doing remedy the challenges and problems facing democracies (Innerarity, 2015). The spread of open-innovation spaces such as living labs is undoubtedly significant at a time when central government in France is urging local authorities to deploy innovation in all its diverse forms¹.

We posit that living labs are emblematic of current territorial dynamics and multifaceted ways of conceptualizing territory, in particular the metropolis, of tomorrow.

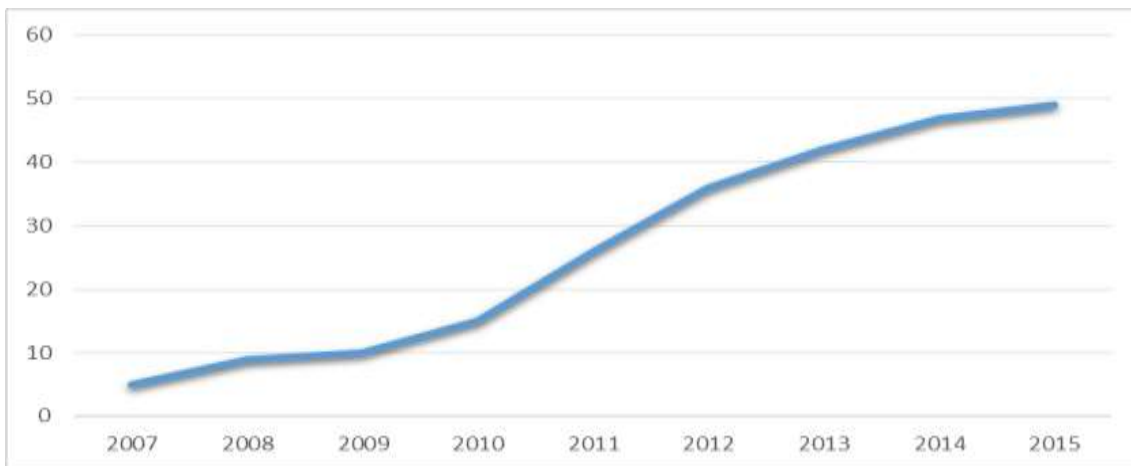
The article propose a research question setting concerning the way authorities seize (or not) of Living Labs to think and to drive their territorial strategies and local public action. Observation of various geographic and thematic materialities, and reports to the authorities may give us some idea of the deployment of living labs in France and what they offer metropolises. Drawing on unpublished surveys carried out in France as part of research programmes (2015-16) focusing on territorial knowledge and innovation in the conduct of public action, the article propose to show in three points that : (1.) living labs reflect the geography of knowledge and as such are eminently metropolitan objects and systems. This analysis is based in particular on developing a typology of Living Labs in Europe and France showing the proportionality of the deployment of Living Labs according to city size. (2.) Yet paradoxically, although living labs bring into play the attributes of the 'augmented metropolis', local authorities make little allowance for them in the conduct of public action and territorial development. Our analysis mobilizes the results of two survey conducted in the framework of two research programs in France. These surveys were conducted to local elected representatives within a French metropolis (Grenoble) on the one hand, and administrative representatives on the other hand, allowing to understand how open innovation systems such as Living Labs are considered to build public action in metropolises. (3.) Finally the thematic observation of Living Labs, or structuring their compositions make it possible to debate their inclusion to thinking and ways of organizing the manufacture of territories of tomorrow.

1. Living labs: open-innovation objects in metropolitan territories

Wherever one looks – the Global Living Labs network, the European Network of Living Labs (ENoLL), a European-Union initiative launched in 2006, the Living Labs Network for Innovation in Latin America and the Caribbean (Leilac), France's Réseau de Living Labs et Espaces d'Innovation (Relai) – there is no denying the growing importance of living labs. All over the world this trend is borne out by a drive to certify their activity, lively debate and an increasing number of projects prompted by these multifaceted open-innovation systems. Their rise is particularly apparent in France (see Figure 1), where it reflects ongoing territorial dynamics. But of what order and type?

¹ Law n° 2014-58, dated 27 January 2014, Modernisation de l'Action Publique Territoriale et d'Affirmation des Métropoles.

Figure 1: Growth of ENoLL-certified living labs in France



Q. Marron, E. Roux; Pacte, 2015. Data source: ENoLL

The present interest in living labs has revealed an international geography closely enmeshed with the networks promoting such open-innovation systems, bringing together public and private-sector actors, companies, non-profit organizations and individuals with the aim of testing, under environmentally friendly, real-life conditions, new services, tools and end-uses recognized as being of market value. Innovation no longer follows a conventional route – laboratory research, R&D, then industrial development – on the contrary it is increasingly based on end-use(s). All this entails cooperation with local government, business, research laboratories and potential end-users. The aim is to encourage an open culture, sharing networks and engaging end-users from the very beginning of the design process (after a definition provided by ENoLL).

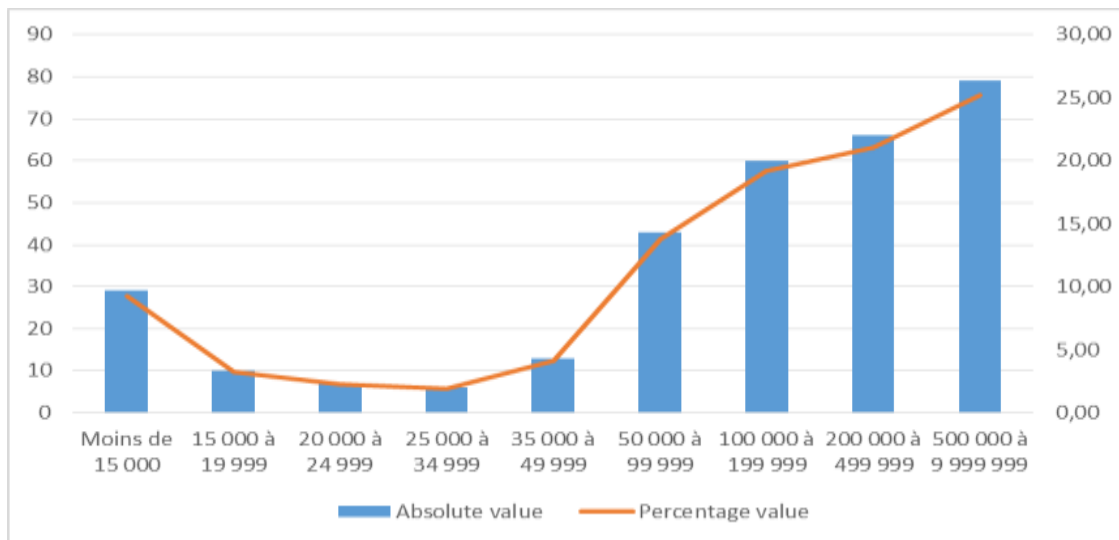
The map of certified living labs produced by ENoLL in 2012 shows that EU countries account for more than 80% of all of these labs, well ahead of Latin America and the Caribbean (10% of those certified) and in a more disparate fashion countries in North America, Asia and Africa. This spatial distribution raises the question of the importance attached to open innovation in the various territories. Should we see Europe as necessarily being more concerned by the need for open innovation, because of its ageing population, its institutions challenged, its economy in crisis ... compared with Africa, where the population is much younger, but also looking for a better future? Comparison and analysis on an international scale is no easy task, nor for is it our purpose, even though this debate deserves to be continued.

A geographical approach seems more interesting providing we adjust our focus and look more closely at the types of space where living labs are concentrated in France and Europe. If we refer to the 300 or more living labs certified by ENoLL², the result is very clear. The distribution by population strata³ of the position of living labs (see Figure 2) is distinctly urban and metropolitan in character. Indeed there is definitely a relatively 'metropolitan effect' in the geographical distribution of living labs, almost one in five being located in the capital of the country under consideration.

² Analysis based on the ENoLL certification may appear partial, but it is nevertheless representative of living labs in France, Europe and the world.

³ This stratification is based on France's national naming system, produced by France's National Institute of Statistics and Economic Studies (Insee).

Figure 2: Distribution by population strata of living labs in Europe



Q. Marron, E. Roux; Pacte, 2015. Data source: ENoLL

The most striking feature is that the higher the population the larger the number of living labs. Moreover, although there is a far from negligible number of living labs in towns with population of under 15,000, most are located in urban areas exceeding 100,000 people⁴. In Europe and France two-thirds of living labs are located in cities with a population of over 100,000 habitants; in Europe as a whole nearly half of them are cities with a population exceeding 200,000, compared with 40% in France (see Figure 3).

Figure 3. Geographical distribution of ENoLL-certified living labs in Europe and France



⁴ This observation should be taken with some caution for Italy, Spain and Portugal, where living labs located in municipalities with less than 15,000 inhabitants are not restricted to the catchment area of a city.



Q. Marron, E. Roux; Pacte, 2015. Data source: ENoLL, 2012

So living labs would seem to be spaces for open innovation, but mainly located – both in France and Europe – in an urban context. By extension, they potentially contribute to the development of these spaces, if we treat them as stakeholders in a knowledge economy or indeed a knowledge society (Innerarity, 2015; Talandier M., 2015).

In France this city-based geography also reveals the places where such systems are less common. Living labs may aim to serve open innovation, but the fact of the matter is that they are not as well represented in peri-urban and rural areas. In other words the uneven distribution of living labs at a macro-scale casts doubt on their ability to disseminate open innovation. It also calls into question their availability in all sorts of territory and suggests that they may give rise to segregation and inequality. Deployment of innovation, throughout France is one of the key issues for recent legislation in France, which requires regional and local authorities to coordinate their strategies for developing the economy and innovation in the various territories.

Looking more closely at urban areas, living labs are not evenly distributed all over France. However, we should stress that only the size of a town seems to be determinant in the presence of living labs. None of the other possible indicators of territorial dynamics and/or attractiveness, such as new business, population trends, jobs, tax revenue, median income or the poverty rate, seem to have any impact on the distribution of living labs. Their situation and the conditions for their emergence are fairly composite, much as the urban geography they map out. We find living labs in attractive cities, such as Paris, Toulouse, Lyon or Rennes, where the 'creative class' (Florida, 2002) is well represented. In this case living labs may be seen as emblematic of their status as attractive locations. But there are also living labs in 'intermediate' cities such as Caen, Reims and Nancy. Lastly we see living labs in less prosperous towns and cities (Bourdin, 2015) such as Toulon, Saint Denis or Saint Etienne. Here living labs are a tangible sign of economic renewal and reconversion or of new dynamics.

The conditions under which living labs are set up may deserve more detailed research, but observation of these systems as they stand shows that they are neither the exclusive preserve of top-notch metropolises, nor yet of underprivileged territories. This is promising for

deploying (economic and social) innovation, instigated by the government throughout the country.

In absolute terms living labs play a part in the construction of a metropolis, or indeed constitute a part of its assets (Halbert, 2010). They are places to meet and exchange, technical, logistic and communication platforms for innovating spirits, places for users to express themselves and act (Kaplan and Marcou, 2009). They are consequently likely to encourage relations rooted in reciprocity and sharing of more or less heterogeneous cognitive resources. These forms of cooperation between organizations and people may nourish the intelligence of metropolitan spaces (Vanier, 2015). Metropolitan territories may reciprocally encourage synergy between a wide range of actors. Metropolises and living labs can thus contribute to collective innovation dynamics creating resources for a given territory (Gumuchian, Pecqueur, 2007). Networking may reveal and identify latent resources which may be mobilized to solve territorial problems. As potential social capital (Putnam, 2000) living labs may be seen as spaces of urban creativity (Cohendet, Grandadam, Simon, 2011). In this respect the geography of urban living labs obviously echoes work on the knowledge economy and its connection to metropolitan dynamics (Campagnac-Ascher E., 2015).

Which in turn raises the question of whether local authorities see living labs as a new way of coordinating territorial action and development.

2. Living labs disregarded by authorities as a means of fashioning tomorrow's territories ...

In a legislative context driving the organization of economic development and innovation, two surveys, carried out in France as part of research programmes⁵ (2015-16) focusing on territorial knowledge and innovation in the conduct of public action, provide interesting material for analysis regarding the way living labs may be perceived with regard to bringing about territorial change and development.

An initial survey conducted among a panel of 180 policy-makers in the Grenoble area of France, would like to understand the practices, expectations of elected in territorial knowledge for their action. The questions relate to the identification and qualification of devices tools information types mobilized by politicians. Questions concerning the use of innovative devices open type Living Labs and their potential mobilization with the aim of thinking their future actions.

A second survey concerned 400 technical managers working in inter-municipal bodies all over France. The survey focuses on the representation and practices of leaders of communities on "strategic analysis". This included understating of their use in the conduct of public action. Questions concerning the improvement of knowledge of devices and renewal of public action (with Living Lab or not).

The results of these surveys are most instructive on the subject of living labs. The people deciding and implementing public action readily acknowledge the need to improve such action the better to respond to societal and territorial problems. But although living labs are now an integral part of the landscape of territorial innovation, neither policy-makers nor technical managers in local government see them as a basis for knowledge and understanding

⁵ Programme entitled « Les diagnostics territoriaux: quelle connaissance pour quelle action? Analyse d'un outil d'action publique locale », UMR PACTE, Université de Grenoble Alpes; Commissariat Général à l'Égalité des Territoires, 2015-16.

Programme entitled « Connaissance territoriale et action publique sur le territoire de Grenoble Alpes Métropole », UMR PACTE, Université de Grenoble Alpes; Grenoble Alpes Métropole, 2016.

to guide their decision-making and action, or as having any potential for the renewal of public action.

The findings of the first survey show that local-government policy-makers base their action primarily: on their relations (through meetings and consultation) with residents, end-users and socio-professional actors in their respective territory (40%); on various forms of observation, study and expert appraisal (25%); press and media (25%); and other instruments such as conferences or training courses (10%). Living labs do not register among the instruments informing action. The result is scarcely more encouraging with respect to using living labs to fashion public action and territorial development. To improve their action policy-makers primarily resort to various instruments for consulting those using territories (42%), secondly to meetings with local NGOs and socio-professional actors (30%), but also occasional training courses (14%) and other means of enhancing their understanding (12%), and finally innovation systems such as living labs (2%). As a whole policy-makers display little interest in living labs, but the key determinant is neither gender, age nor their rank in local government. What matters is how well educated they are.

With regard to technical managers⁶ working in inter-municipal organizations (whose powers have recently been extended in France⁷ to include economic development and innovation, in particular) innovation systems such as living labs are not among the instruments seen as being the most appropriate replacements for conventional means of steering public action. In fact living labs were ranked in fifth place out of seven possible modalities for improving or renewing public action, and contributing to the more effective economic development of a territory. As relevant tools for planning public action, they ranked, in decreasing order of preference: assessment; continuous observation or monitoring; studies; consultation; living-lab-type innovation; expert appraisals by private-sector consultants or university researchers; and other forms of consultancy input.

Living labs may seem to make only limited sense for projecting public action and territorial development, but we should treat this conclusion with caution, depending on the territory concerned. There is in fact more support for open innovation in living labs (ranked in third position) in metropolitan areas than in small towns and rural areas (where it is ranked in sixth position). This suggests that we may be dealing with a polymorphous object, which is certainly used differently depending on the territorial configuration, but is on the whole predominantly urban. In this context it is perceived as being more appropriate in that environment, fitting the 'software' and practice of metropolitan thinking, than in intermediary or territories. Furthermore it may be seen as the expression of a disparity or lack of continuity in how territorial innovation is conceptualized; it might also be seen as a hybrid (Nesti, 2015), emerging form of thinking on metropolitan development, not without its share of paradoxes and potentially negative effects, being over specialized, technology-focused and segregated.

3. Or an original form of development in metropolitan territories

Living labs emblematic of ambivalence to change in public action

The attitude of the authorities in France to living labs is emblematic of their ambivalence regarding changes to the conduct of public action in order to build an 'augmented metropolis' as stipulated by the law on modernization of territorial public action and affirmation of the metropolis⁸. When discussing changes in the conduct of public action, actors, be they elected

⁶ General managers or deputy-managers in inter-municipal bodies.

⁷ Law n° 2015-991 dated 7 August 2015 on the New territorial organization of the Republic

⁸ Law n° 2014-58 dated 27 January 2014, Modernisation de l'Action Publique Territoriale et d'Affirmation des Métropoles.

policy-makers or professional technicians, make full use of the rhetoric of open innovation, such as shared construction, meeting of actors, networking, creativity, decompartmentization, end-users, experimentation, appropriation, immersion, prototyping and feedback. All these terms, notions or prospects are now an integral part of their approach to metropolitan construction. But this notional culture shock does not necessarily mean that they fully accept the concept of living labs and their deployment. Their misgivings are very probably due to various forms of ambivalence in their thinking on change in public action.

The anglicized character of the catchwords used in this context – even in France terms such as new-media living labs, living labs augmented learning, design for people, or design-creative living labs are commonplace – undoubtedly plays a part in the international legibility, determined and encouraged by the authorities. But at the same time local authorities have difficulty grasping the meaning of systems which are not necessarily familiar and have yet to be 'translated' into the everyday language of institutions.

Experimentation and design, with its trial, error and correction mantra, may enable public action to be more agile and adaptable in dealing with the needs and problems of a territory. But at the same time this type of process may seem uncertain to local authorities, its impact on everyday reality not having fully proved its worth in practice. Yet public policy and action have surely always proceeded by trial and error, even if this has been part of the formal mechanism of administration. The comparative youth of living labs, even if they sometimes bring into play or update the old practice of 'doing together', derived in particular from local government or urban management, is no match for the 'traditional engineering' deployed in public action, with its cohorts of diagnosis, studies and expert appraisals. At the same time open innovation contributes to inventing new ways of observing the metropolis (Roux, Escaffre, 2016).

Over and above the issue of the mechanics of public action, open, spontaneous, collective forms of organization call into question the whole conception of policy-making in territorial management. Allowance for end-users should now be mandatory in any debate on the common interest and public action. The reality of opening and doing together requires all parties, even public bodies – in other words policy-makers and technicians – to rethink their attitudes and functions (Eskelinen, Robles García, Lindy, Marsh, Munte-Kunigami, 2015). This is, however, a step that may be difficult for bodies torn between the need to serve the public interest, affording access to the urbs for all comers, and the need to come to terms with the actors in a territory, or indeed to think, make and manage the metropolis.

Towards mixed models for practising territorial innovation

Living labs, through the engineering to which they give rise and the actors they bring into play, are basically the polymorphous expression of a new way of conceptualizing metropolitan development. If we take living labs in France, for instance, we may consider three main configurations for their deployment, all of which play a part in building the metropolitan space and could, potentially, increase its fragility, inequality and segregation.

In a fairly marginal way, 10% of the time, living labs are instigated by public bodies and/or local authorities. We have already cited the difficulties such bodies have renewing themselves. But we should nevertheless note that some local authorities do support creativity, innovating, instigating, organizing and imagining services for and in their interest of tomorrow's end-users (Pays de la Loire regional council, Provence Alpes Côte d'Azur regional council, Champagne Ardenne regional council, Val-d'Oise departmental council, Grand Lyon metropolitan council, or indeed Laboratoire Public de la 27^{ème} région). This can be taken as a means for rethinking their role, missions, operations, contribution to helping the general public access the urbs and innovation, in various registers. Whether it is a matter of becoming involved in education, by thinking about tomorrow's schooling (Ways Of Learning

for the Future living lab); healthcare for all (Tele Health Aging Territory living lab, Besançon); facilitating senior citizens' relation to the urban environment (Gerontechnology living lab, Paris); or innovatory solutions for protecting communities from environmental risks and disasters (QuakeUp, Sophia Antipolis). The purpose of all these initiatives is to contribute to reducing territorial fragility, be it in terms of education, public health or the environment.

A quarter of existing living labs in France are supported exclusively by private organizations. In this case the purpose of innovation and experimentation is to improve people's quality of life, grow the economy (Lorraine Smart Cities living lab, Nancy; ICT Usage Lab, Sophia Antipolis, integrating a healthcare side) and develop cultural and leisure activities (i-matériel lab, Paris; Universcience, Paris).

In the case of the remaining two-thirds, living labs are backed by a range of actors, among others non-profit collectives and private enterprise, but also universities, local authorities or central government. Such hybrid bodies tend to derive their support from the private sector, but with public assistance in the form of partnerships and more than two-thirds of the time through co-funding. This concerns all institutional levels, from the European Union down to inter-municipal authorities, through the state, regions and départements. They may also be part of a cluster or competitiveness hub. Examples include Ouest MediaLab, Nantes, which is part of the eponymous cluster, and Nova Child, Cholet, also part of an eponymous cluster.

In these cases living labs may be seen as standard-bearers or visible, operational extensions of institutional policy targeting the economic development of a territory. They may also have other organizational forms, based on collective partnership, such as non-profit collectives or *établissements publics de coopération culturelle*, such as the Design Creative living lab, Saint Etienne. Again they may be organized as an *établissement public à caractère industriel et commercial*, typically Cesars Telecommunication, Toulouse. In such cases the local authorities create favourable conditions for a lab's operation, supporting and promoting innovation, by helping it to find its place in a given territory and the means to further its purpose. This holds true for the vast majority of projects, which concern public health: improving access to healthcare; preventing cancer; caring for the elderly; reducing patient-dependency; overcoming disabilities, among others. A second group comprises living labs working on entrepreneurship and economic development by nurturing synergy between business actors, in particular, assisting projects to create new business and their roll-out. Lastly, though this is by no means a complete account, living labs are active in sustainable development (Curtis, 2015), education, heritage, food, culture and communication, covering a wide range of registers, with hybrid configurations, all of which contribute to conceptualizing and making the metropolis of tomorrow.

It should be apparent from this account of living-lab configurations in France that the type of actor instigating their inception has no impact on their subsequent specialization, focusing on a particular problem or theme. In other words each one addresses societal and metropolitan issues, typically as social, education, culture, public health, economic development, or sustainable development. Much as living labs, metropolises resolutely bring into play diverse actors, both formal and informal, giving rise to hybridization between multiple value chains, cultures and forms of know-how. As such they must come to terms with both multifaceted governance, thinking and projects, and their translation into operational action. A metropolis is the scene of coalitions and collective construction, but also of competition and possible segregation with regard to access to its spaces and innovation processes. In the same way living labs are also the expression of complex, sometimes two-tiered metropolises.

This complexity is also apparent in the dual purpose enshrined in living labs. There are various configurations for living labs, which seek 'to better meet the needs expressed by society [...] enhance the quality of products, services and technologies [...] win new markets' (Janin, Pecqueur, Besson, 2013). All them aim to contribute to the augmented metropolis, but their

final goal is nevertheless fairly fuzzy. Two dominant trends may nevertheless be observed. The first one is consistent with the original idea proposed by William J. Michell of the Massachusetts Institute of Technology. It sees living labs as resources needed to streamline innovation processes and cut time-to-market, while reducing through experimentation the risks associated with rolling out services, uses and products. ENoLL endorses the central, definitive role of the market, emphasizing that one of the aims of living labs is to test, under real-life, environmentally friendly conditions, new services, tools and end-uses recognized as being of market value. But a second purpose is also possible, maybe supplementing the first one. If we consider 'borrowing' to be a basic feature of living labs, they may also have a more social (Mensink, Birrer, Dutilleul, 2010), cultural (Scott, 2010) and environmental (Liedtke, C., Jolanta Welfens, M., Rohn, H., & Nordmann, J. 2012) value (Veeckman, Schuurm, Leminen, Westerlund, 2013), mobilizing end-users as collective, cognitive resources (Ståhlbröst, Bergvall-Kåreborn 2008). With this in mind we may think of living labs as the purveyors of individual and collective well-being to build the metropolis of tomorrow.

At the (provisional) end of the ideas proposed in this article, we may note that:

- Observing living labs helps to understand them better. Their number is constantly increasing and they are now an integral part of the means available for understanding territory and innovation. The geographical distribution of living labs reveals the resolutely urban nature of these open-innovation systems.
- Living labs are consistent with the spirit of legislation and discourse in France, which foresees an increasingly important role for metropolises, going hand-in-hand with economic growth and innovation. Furthermore – and perhaps paradoxically – we have drawn on the results of surveys to show that local government (policy-makers and technicians) make little use of these systems to conceptualize metropolitan development.
- Living labs may be seen as unusual spaces, serving as interfaces or mediators, and bringing together various actors, some of them from the public sector. Working with hybrid configurations their purpose is to grasp in an innovative way how issues such as social, education, culture, public health, economic development, or sustainable development can be taken into account in building tomorrow's cities.

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