

Living Labs and Territorial Innovation

Jesse MARSH

Atelier Studio Associato, Via XX Settembre 70, Palermo, 90141, Italy
Tel: +39 333 4075748, Email: jesse@atelier.it

Abstract: This paper is a policy analysis that explores the role of Living Labs in regional development strategies. It firstly argues for a shift from a “sectoral” policy, in which Living Labs (like science parks or innovation clusters) are financed to directly promote ICT R&D, to a “transversal” policy in which Living Labs add an ICT research component to any initiative, from bio-foods to urban renewal. The policy framework for such an approach is based on the Living Lab’s peculiar emphasis on “co-design” and thus the participation of local citizens and businesses in dynamics of what we call Territorial Innovation. This process brings benefits to regional competitiveness independently of the actual degree of success of the Living Lab research itself. If regions are to attract Living Labs to their area in order to promote Territorial Innovation, a key issue becomes the definition of appropriate governance models for guiding this process. A brief survey of approaches and examples is presented and some conclusions set forth for the future.

Keywords: Living Labs, Governance, Regional Development, Territorial Innovation

1. Introduction and Objectives

The Living Lab model for in situ co-design of innovative ICT applications is proving increasingly popular in the research community, with claims that it promotes the knowledge economy by speeding up the pace and quality of research and technology development. [1] Whether or not Living Labs are actually a better research model than others – there are in fact calls for empirical evidence to support these claims – their potential role as a regional development tool is significant and could even justify the adoption of the Living Lab model from the standpoint of the added value to the areas where they are set up.

This far broader hypothesis calls for an analytical framework in which the role of Living Labs in relation to regional development policies is defined; from there, governance models need to be defined to allow regional policy-makers to clearly set their objectives, manage and promote the desired innovation processes, and evaluate the outcomes.

This paper aims to provide a first step in this direction. As the analysis deals with issues that have only recently emerged in the policy debate, the methodology is primarily based on a general discussion of regional development policy and in particular spatial planning and innovation policy. The aim is to identify along the way key concepts and issues through which to build a working model for the transversal integration of the Living Lab approach into regional policy.

2. Living Labs and Regional Policy

Regional development in the European Union is framed in what is known as “Cohesion policy” [2], “built on the assumption that redistribution between richer and poorer regions in Europe is needed in order to balance out the effects of further economic integration.” [3] Cohesion policy accounts for over 35% of the total EU budget (€308 billion), of which over 80% is earmarked for growth and job creation in the poorer, so-called “Convergence” regions, now mainly from the new member states. The other two objectives are “Competitiveness and employment”, with some 16% dedicated to helping the richer

member states deal with economic and social change, and “Territorial co-operation” to stimulate cross-border co-operation in solving common problems (slightly over 2%).

These funding programmes, whose management is mainly decentralised to the regional level, are framed by EU Strategic Guidelines [4] building on of a set of policy frameworks. Of these, the Lisbon Agenda is the most familiar to the ICT community, as it targets the knowledge economy as a key strategy for growth, employment and competitiveness; 62% of projects funded under Cohesion policy are to be directed at this goal. [5] [6] Shortly following adoption of the Lisbon strategy in 2000, the Gothenburg strategy was introduced in 2001 [7], which shifts the emphasis to sustainable development; it thus adds “a third, environmental dimension to the Lisbon strategy and establishes a new approach to policy making” by promoting participatory and bottom-up approaches. It introduces four new policy priorities: climate change, transport, public health and natural resources.

2.1 A “Sectoral” Policy Analysis

A typical policy analysis would situate Living Labs as a tool for promoting the development of the ICT research sector in a region, attracting investments and talents and thus leading to an increase in growth and employment, according to the Lisbon formula. One would first identify, among the ICT R&D areas that have to date proven most effective with the Living Lab approach – wireless DSL, info-mobility, satellite-based services, etc. – those with the greatest chance of fitting with local resources. One would then look for instance at the ERDF (European Regional Development Fund) Operational Plan (OP) for a given region – this is the actual instrument for the allocation of Cohesion policy funding – to identify the specific measures most appropriate for funding technology research initiatives.

As an example, the Sicilian Region – a sizeable Italian region with a population exceeding 5 million and ERDF funding of over €6.5 billion for the 2007-2013 period – foresees in its ERDF OP [8] an Axis IV “Research, innovation and the Information Society” with a specific Objective 4.1.1 “Scientific Research and Technological Innovation”. The likely funding available for this objective could total €50-70 million, an important avenue for promoting the Living Lab approach considering that we are looking as just one of the hundreds of regions in Europe.

2.2 A “Transversal” Policy Approach

This paper instead adopts the argument that the Living Lab model can be useful not only as a “sectoral” policy according to the above reasoning, but also as a “transversal” instrument that interacts with development objectives in a far broader way. The key to this reasoning lies in the distinguishing feature of the Living Lab approach itself, namely that it takes research out of the laboratory and into an area’s socio-economic fabric, thus entering directly into the territorial dynamics that all regional policy initiatives attempt to act upon.

At the heart of the Living Lab approach is the idea of “co-design”, through which users participate in the R&D process from the outset, making a Living Lab deeply linked to the community (business, social, cultural) where it is set up. The scope of innovation thus includes not only the technological sphere within which new products and services are developed but also the application domains addressed – agriculture, environment, tourism, manufacturing, etc. – and ultimately the structures, organisations and way of life of the community itself.

As an example, if a regional policy aims to create jobs and promote sustainable development through investments in quality bio-agricultural products, it will normally fund projects for networking agro-entrepreneurs in a specific area and defining quality standards,

promoting environmentally friendly practices, enacting common labelling and marketing strategies, and so forth.

If, in parallel to these measures, a Living Lab were to be established to develop new ICT products and services relevant to the bio-agricultural sector, e.g. for supply-chain traceability, precision farming techniques, or other areas currently being developed in some ENoLL (European Network of Living Labs) sites [1], the benefits would multiply. Firstly, the platform set up for the experimentation, such as a wireless broadband network or an interoperability protocol between municipal IT systems and external services, could be transformed into a permanent infrastructure. More broadly, the agricultural entrepreneurs involved would be introducing more efficient practices and adopting more sophisticated ICT solutions while co-designing innovative services specifically meeting their needs, and the community as a whole would make a step forward in “innovation literacy” through the experience of working with the ICT research actors.

In the end, the regional government gains a far greater chance of reaching its objectives of competitiveness for the bio-agricultural sector by introducing the Living Lab model, independently of its effectiveness in terms of R&D results as compared to other ICT research paradigms. In addition, piecemeal investments made as a part of non-ICT projects can be brought under a regional umbrella more coherent with its explicit ICT policy.

2.3 Towards “Demand Pull” Regional Policies

If we return to the Sicilian ERDF Operational Program and imagine identifying between 5 and 20% of the projects in all of the policy Axes as fit for Living Lab experimentation, then the potential pool of resources becomes in excess of €1 billion, more than 20 times the figure identified following the “sectoral” policy analysis. This includes applying ICT R&D to areas such as: logistics for inter-modal transport, integrated coastal zone management, environmental risk management (volcanoes, earthquakes, etc.), prevention of desertification, valorisation of cultural heritage, sustainable tourism, wine and bio-foods, regional supply-chain districts, and sustainable urban development.

Concrete implementation of such a strategy could easily occur by simply earmarking projects having a Living Lab component with priority status. The real question is however another one: who is going to do all that research? The success of a “demand-pull” innovation strategy in fact depends on the ability of a region to “attract” the research actors required, through the presence of service needs with a broader market potential, creative human capital, and the ability to involve citizens and businesses in an active, participatory dialogue with ICT research actors. This hopefully leads to a virtuous circle whereby regional development authorities apply the Living Lab model in an increasing array of fields and the ICT industry increasingly recognises the value proposition of engaging in co-design processes in concrete local and regional development initiatives.

3. Territorial Innovation

The policy framework for regional development has evolved significantly since the Lisbon Agenda was first set forth in 2000. The fact that promoting innovation and the knowledge economy is a far more complex issue than simply financing the technology sector already emerged with clarity by the mid-term review in 2005, [9] [10] in addition to the need to integrate rather than simply juxtapose the objective of competitiveness with that of environmental and social sustainability.

3.1 The Territorial Perspective

The debate on both issues has highlighted the need to reach a better understanding of the spatial or territorial dimension of these socio-economic dynamics, namely in terms of how

they come concretely into play in a specific region and its geographic, cultural, social, and normative context. [11] [12]

The most recent document in this regard is the “Territorial Agenda of the European Union: Towards a More Competitive and Sustainable Europe of Diverse Regions” agreed at a ministerial meeting in Leipzig in May 2007. [13] This document takes a “territorial” perspective on both the Lisbon and Gothenburg Strategies, based on an analysis of the “increasing territorial influence of Community policies” and thus the need for “more regard to local, regional and national potentials and the motives of stakeholders by taking a strategic integrated territorial development approach.”

It thus states the objective of development policy as “Territorial Cohesion”, which aims to “secure better living conditions and quality of life with equal opportunities, oriented towards regional and local potentials, irrespective of where people live.” These regional potentials are generally referred to as “Territorial Capital”, or the set of material and non-material elements – knowledge, endogenous resources, economic activities, infrastructures, networks, etc. – present in a given territory but insufficiently capitalised in order to support the institutional and economic innovation processes required for sustainable development.

In this context, the policy role of Living Labs can be defined within an objective we can call “Territorial Innovation”: an integration between technology innovation and social, economic, cultural and institutional innovation based on the valorisation of Territorial Capital. This is indeed a transversal policy approach covering any specific sphere of intervention, as previously discussed, and also capable of integrating the Lisbon and Gothenburg Strategies.

Table 1. Sectoral vs. Territorial Innovation Policy Approaches

<i>Objective</i>	Sectoral Innovation Policy	Territorial Innovation Policy
Human Capital	Train “users” with standard qualification, e.g. ECDL	Involve all Citizen groups. Develop “innovation literacy”.
Territorial Infrastructures	Build dedicated research centres with specialised infrastructures.	Integrate research with local and regional development actors and initiatives.
Development Strategies	Define innovation strategies with “experts” and industry interests.	Develop participatory scenarios. Apply a “Demand pull” approach to ICT investments.

3.2 An Analytical View

At this point, it is worth taking a brief look at the concept of Territorial Innovation from an analytical perspective to grasp a better understanding of the policy strategies that are implied. The typologies of actors involved remains the same as with traditional concertation and participation processes in spatial and strategic planning [14] [15], and include political decision-makers, technical experts in the various fields concerned (not only ICT) and citizens and businesses that make up the socio-economic fabric of the territory.

If we analyse the interactions between these actors taken as pairs, valorisation of Territorial Capital can be seen to result from the interaction between political deciders and experts, since elements of Territorial Capital need firstly to be identified and secondly assigned a political priority in order to be considered as such.

From the interaction between political deciders and citizens, businesses etc. comes the commitment of actors; Territorial Innovation cannot occur if there is not both active participation on the one hand and political commitment to objectives on the other. Finally, interaction between citizens, businesses etc. and technical experts is a process we can call “articulation of demand”. This is a reciprocal learning process regarding the capacity to

structure the demand for and supply of ICT-based innovation in order to maximise the concrete benefits to specific policies and initiatives.

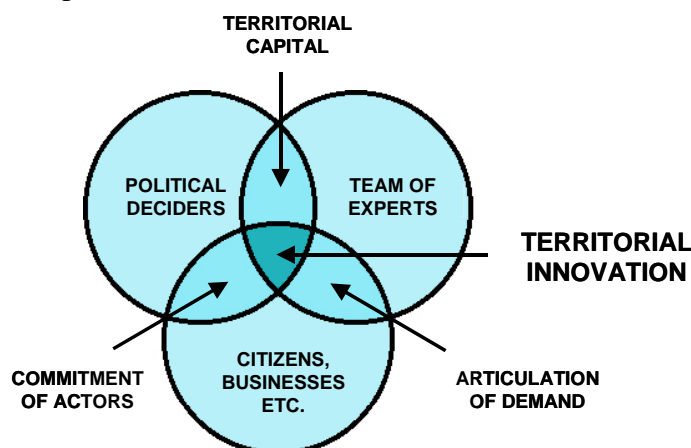


Figure 1. Territorial Innovation

Territorial Innovation can therefore be said to occur in the central space of the Venn diagram above, where the roles of all three actor groups – political deciders, technical experts and citizens and businesses – come together, and also where all three of the interaction processes – the formation of Territorial Capital, the political commitment of actors, and the articulation of the innovation demand – overlap.

4. Governance

In order to enact a policy of Territorial Innovation, a regional authority needs to be capable of ensuring the active involvement of all the necessary stakeholders, accompanying Territorial Innovation processes to ensure attainment of expected benefits. It is also necessary to continuously monitor policy coherence, and thus continued political commitment, with respect to both the R&D and regional development policy goals.

While the word “governance” appears frequently these days, there is little actual literature constituting a theoretical framework for the issue; the result is often a series of different readings of the term (apart from its IT use) and thus misunderstandings in the debate. The White Paper on European Governance [16] defines the word in terms of the “rules, processes and behaviour that affect the way in which powers are exercised... particularly as regards openness, participation, accountability, effectiveness and coherence.” Quite different is the emphasis in the Territorial Agenda, which defines governance as “an intensive and continuous dialogue between all stakeholders”. [13] A similar but more concrete definition comes from the ESPON (European Spatial Planning and Observation Network) project “Governance of Territorial and Urban Policies from EU to Local Level” [17], which describes it as “the capacity of actors, social groups and institutions (public, private and third sector) to build an organisational consensus and to agree on the contribution of each partner, such as a common vision.”

In any event, these definitions tend to define a process rather than propose a way of managing or promoting that process, which is instead our concern. The requirements for good governance of Territorial Innovation go beyond openness or coherence; in theory the idea is to generate innovation that is coherent with the original development objectives of competitiveness and sustainability. To do so, participatory co-design processes need to occur both top-down and bottom-up, involving the different geographical and administrative levels that shape the legal and policy contexts from the local scale of an individual Living Lab to the regional, national, and trans-national levels. This is clearly an arena for further research, but we can identify the main models and some useful examples.

4.1 Governance Models

In the literature, and primarily as a function of different disciplinary standpoints, we can identify three models of governance relevant to Territorial Innovation. The first, a “technical/business” model, attempts to promote innovation in terms of the development of new products and services and sees Territorial Innovation as something to organise efficiently by shaping market conditions, defining common methodologies and building economies of scale. This top-down policy approach is typical of the European Commission’s Framework Programme DGs, from the i2010 initiative to the management of ENoLL itself. [18] [1] It works primarily through interventions in the normative and regulatory spheres and fiscal incentives or direct funding of specific initiatives. In theory, it opens the room for the free, bottom-up behaviour of market actors in the field (i.e. businesses and consumers) and substantially places innovation in their hands.

A second model of governance is the “political/institutional” one, more typical of the Commission’s more political DGs such as Regio, Agriculture and Citizenship, as in the previously cited EU White Paper and ESPON study. [16] [17] The aim is to apply broad policy objectives, e.g. transparency, sustainability or territorial cohesion, by influencing the strategic policy-making and normative framework at different levels of government (EU, national, regional and local). This approach promotes bottom-up processes at all levels, holding that innovation is structurally intrinsic to multi-level participatory processes.

The third model is the “social/spontaneous” philosophy that characterises the Open Source movement and hacker ethic [19] [20], the so-called Web 2.0 [21], as well as recent work such as Youchai Benkler’s economic analyses. [22] The hypothesis here is that of self-organising networks similar in behaviour to natural eco-systems, purportedly a spontaneous phenomenon driven by social networking processes more than policy goals. In this non-market and non-state philosophy, innovation is not so much an objective as an ethical principle, and governance occurs through a scaleable network organisation that naturally adapts itself to different levels of institutional competence as appropriate. Unfortunately, this model is often developed as an ex-post analysis of successful phenomena, so there are still few guidelines as to how to initiate such dynamics within a strategic policy context.

4.2 Examples in Practice

While at the theoretical level each of the three approaches appears to be mutually exclusive, a brief review of case examples reveals a mixture of approaches.

- The European Network of Living Labs (ENoLL) is primarily financed by the European Commission through a series of IST projects (CORELABS, COLLABS, etc.) that manage a “Living Lab Portfolio” with the objective of developing a common methodological framework and achieving economies of scale. ENoLL is thus a pseudo-technical governance approach that is actually more political in nature.
- So-called “Open Innovation” programmes set up by large IT corporations such as IBM, Nokia and Google are also examples of attempts to govern innovation in order to improve the R&D process by opening up corporate research laboratories to external collaboration. The logic is thus a mixture of the technical and social governance models, which is based on the attractiveness of the big players to individual researchers.
- The European Grouping of Territorial Cooperation (EGTC) is a new statutory form established by an EU regulation of 2006 [23] purportedly for the purpose of managing inter-regional co-operation in INTERREG projects. In truth, it is a political governance model with a strong technical and social dimension, as it basically establishes a political entity directly among regions from different nations (resistance from the Member States has in fact led to delays in implementation). Here, it is the innovative institutional form that facilitates technical and operational innovation, as with the e-Region initiative

joining Slovenia, the region of Carinzia in Austria, the region of Friuli-Venezia-Giulia in Italy, and north-western Croatia.

From the above cases, there is a conscious attempt to mix approaches and models of governance to better respond to the challenge of Territorial Innovation and the range of stakeholders and standpoints involved. The INTERREG IVC ProgreSDEC Project [24] proposes such a flexible approach as a mixture of network, regulatory and participatory strategies. A key issue then becomes the definition of the institutional and territorial boundaries in and around innovative governance structures.

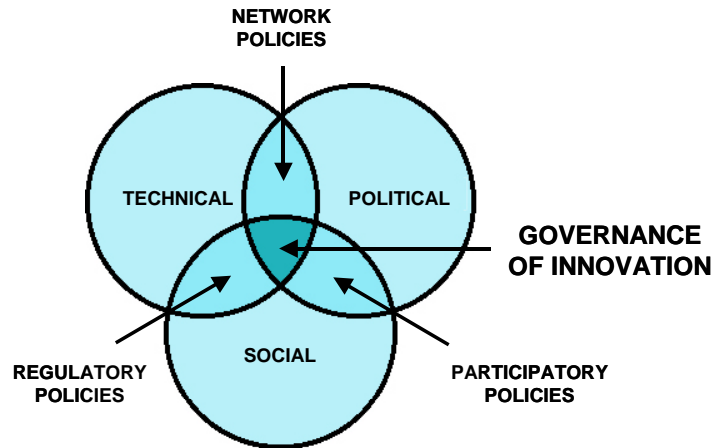


Figure 2. An Integrated Model for Governance of Innovation Processes

The working model that emerges is characterised by “variable geometries”, namely capable of dynamically integrating elements of each of the three approaches and taking on different geographical, operational and institutional configurations at different levels of governance. The determining factors become an emphasis on process rather than products, on roles rather than structures, and on the bi-directional flow of knowledge and decisions in both the vertical and horizontal directions throughout the network.

5. Conclusions

This paper has highlighted the potentially important role for Living Labs in regional development strategies. It firstly argued for a shift from a “sectoral” policy, in which Living Labs are financed to directly promote ICT R&D, to a “transversal” policy, in which Living Labs add an ICT research dimension to any initiative from bio-foods to urban renewal.

The policy discussion that ensues develops a new concept – Territorial Innovation – to describe the policy objective of integrating technological, social and organisational innovation processes to valorise Territorial Capital. If regions are to attract Living Labs to their area in order to promote Territorial Innovation, a key issue becomes the definition of appropriate governance models for guiding this process. Here there is the need for further experimentation of approaches that can successfully integrate the technical, political and social dimensions while adapting to different institutional levels and territorial contexts.

The main conclusion to be drawn from this analysis can be extended beyond Living Labs to the ICT sector in general. Particularly with the growth of mobile technologies, web service-oriented architectures, and pervasive or ambient computing, the ICT research laboratory has an increasing impact on daily life and interacts more deeply with it. Yet R&D policy in ICT continues to enjoy a relatively self-referential environment for setting the research agenda, gaining funding and evaluating the success of outcomes. In parallel, regional development policy continues to treat ICT research as one of many distinct sectors, overlooking the potential benefits of a more transversal approach.

Living Labs may be a first attempt at defining ways to address this issue by proposing a research methodology that reaches out to interact with the outside world. The outside world

must answer the call and reach out to innovation as the norm rather than the exception. The objective of Territorial Innovation, a expression that aims to capture the link between the technical sphere and the social, cultural and economic systems that make up a territory, can only be reached by taking on the task of developing methods for its effective governance.

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