



LIVING LABS AND OPEN INNOVATION POLICY IN REGIONS FOR THE BENEFIT OF SMEs

Position paper to the Workshop on 27th January 2010, Brussels

Date: 24.01.2010

CO-LLABS Thematic Network www.ami-communities.eu/wiki/CO-LLABS

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1. Introduction

This paper aims to present the main points of discussion at the workshop on “Living Labs Policy in regions for the benefit of SMEs”, 27th January 2010. The aim of this workshop is to discuss the combined role of regional innovation policies and living labs concepts to foster SME innovation in regions. The living labs concept, built upon principles of user driven open innovation, has the potential to enrich the existing set of instruments for regional innovation policy. In order for the living labs concept to become effectively integrated as part of the set of regional innovation instruments, regional policies must adapt and itself innovate, in order to take advantage of its opportunities and guide its adoption.

Regions and cities within regions constitute the key geographical environment for SME innovation as they host the networks of companies, their customers and suppliers, research institutes, government agencies and innovation intermediaries. Many regions, provinces and cities across Europe have implemented policies and instruments to stimulate innovation and socio-economic development, for example through fostering clusters and through intensifying innovation support. It is now widely recognized that it is no longer sufficient to focus on technology innovation as innovation is increasingly shifting towards market and society pull models. Responding to and even giving shape to this transformation, the Living Labs concept aims to balance the forces of technology push and market pull by contributing to the formation of sustainable innovation ecosystems where regional stakeholders, citizens and companies including SMEs are engaged and collaborating in an early stage for user-driven and open innovation. This paper identifies the key issues in making the living labs concept more effective for regional innovation and presents a set of policy recommendations.

2. SMEs and regional innovation

SMEs are by far the most important category of companies; there are 25 million SMEs in the European Community. SME is a highly diverse category and includes advanced innovative companies who often are working internationally, as well as less innovative suppliers and jobbers for whom the region is the market. The role of advanced SMEs in the regional and national innovation system as creators of new products, services and markets and partners for larger companies is crucial and so is the strength of the regional innovation ecosystem that supports them. As globalization of markets and industries continues, these innovation systems must become more and more open and cross-border. Given increasing competition due to the forces of globalization, advanced SMEs need to continuously enhance their capabilities to innovate and to participate in international value and knowledge networks in order to survive. Their networking capabilities and competencies to engage in open innovation therefore must be enhanced. The “regional system of innovation” provides a natural environment for policy initiatives related to that goal [1]. Interestingly, recent initiatives to create national networks of living labs (Sweden, Italy, Spain) and across borders (LILAN, seven countries in the Nordic-Baltic region aiming to develop a research and testing platform open and shared by research organizations and industry) show a development towards establishing interrelations and learning mechanisms beyond the regions [2]. As regards less innovative and follower SMEs,



innovation is increasingly seen as a key requirement also for them. Upgrading strategies and initiatives to create and strengthen regional networks and clusters are of high importance for this category as well. So, for different categories of SMEs the regional or territorial innovation systems, and the regionally based policies for innovation, face different challenges and demands.

One out of four companies within the EU is working in a cluster-like environment, characterized by a close cooperation with other businesses in the region and strong ties with the local business infrastructure [3]. However, current clustering approaches not been able to reduce the innovation capability gap of Europe and major competitors such as the US and South-East Asia. Moreover, the large European SME industrial base, characterized by dynamic players, with low overheads and the ability of forming partnerships on a peer-to-peer basis, could exploit the opportunities of providing new, added value products and services to customers, in particular citizens as end-users. Some of the fundamental factors hindering the realization of this SMEs innovation potential are [4]:

- An insufficient ability of vertical integration of complementary competencies at SMEs level. SMEs must be organized in collaborative networks, which can aggregate pools of complementary resources and competencies.
- A lack of mechanisms and processes for the use validation of business opportunities originated by the industry, especially if the targeted market is characterized by the classical dilemma technology push or market pull.
- Scarce availability and/or difficult access to knowledge resources, necessary to support the innovation process within SMEs.
- An insufficient readiness to collaboration of SME workers, who are in general not used to collaborate with other SMEs.

Other factors hindering SME innovation – of course applying differently across the European regions - include the lack of legal competencies necessary to protect IPR, the short-term profit focus of many SMEs causing a lack of attention to innovation, and the lack of suitable instruments for SME innovation at the regional level. A recent consultation on public support for innovation in the EU [5] concluded that factors hampering innovation include the lack of access to finance, the high costs of innovation and the lack of incentives to facilitating cooperation between actors. The vast majority of enterprises and innovation professionals believe that direct innovation support (such as funding schemes, support to networking and cooperation, awareness raising and technology transfer) is important to overcome barriers to innovation; however the level of satisfaction regarding direct innovation support is quite low. See also [6, 7] concerning the challenges of innovation policy at EU and OECD level.

Responding to these challenges and for the purpose of improving the efficiency and effectiveness of policy instruments to support innovation in SMEs, innovation researchers have proposed a change in the nature of innovation policy towards a stronger orientation to interactive learning within the firms and within the region [8]. Such a view addresses issues such as managerial and organizational capabilities, interaction among actors and creating networks for learning, and openness for external sources of knowledge and for collaboration. Such a view also brings the policy actors more explicitly into the innovation process and innovation ecosystem. This systems and change oriented view on innovation in focusing on joint learning among all stakeholders fits very well the emphasis of open innovation and living labs.

3. The Living Labs concept in regional innovation

Given the bottlenecks hampering SME innovation, there is a need to revise the current approach to regional innovation support going beyond traditional clusters and incubation support approaches. In our view a revised regional innovation model should benefit from the living labs



concept and include the characteristics of user driven open innovation, integrating elements such as the creation of thematic innovation communities, establishment of collaborative networks of SMEs, and building living labs innovation facilities. The living lab concept aims to create innovation ecosystems that bring policy stakeholders and players of the value network including SMEs and end-users (citizens) early into the innovation process to discover new and emerging user patterns and allow for early experimenting and validating new products and services. For SMEs, including micro-entrepreneurs, the benefits of the living lab concept are in developing, validating and integrating new ideas and more easily scaling up local services and products to other markets [9].

These elements should be aligned with the set of regional policies and instruments which could very well be enhanced and enriched by them. To regional policies and instruments, the living lab concept brings the vision and strategy for creating open innovation platforms fostering cooperation and partnership, a focus on specific innovation domains and fostering value networks within these domains, and strategies to bridge the gap between isolated prototypes and scaling up towards user roll-out and eventually business venturing (new business creation).

As the adoption (or integration) of a living labs approach has important implications, for its implementation into existing regional instruments of innovation it should be taken into account the specific situation in particular regions. Implementing the living lab concept into the existing instruments and policies requires the collaboration among key stakeholders at the regional and cities level, such as public administrations, regional and city development agencies, research institutes and companies as well as cities as end-users and also co-creators of innovations. Such collaboration could very well be agreed in a public-private partnership programme for regional innovation. Such a structure would avoid already the fragmentation of projects and difficulties to pass the phases of applications development and prototyping, often found in current innovation programmes. The region-wide collaboration and coordination would at least establish the conditions for systematic networking and exchange, reuse and sharing of knowledge and technologies, and scaling up and roll out.

For practical implementation the living lab will be established as an open innovation project environment based on thematic open innovation communities, and on processes for setting up, operation and management of the living lab facilities infrastructure as an environment for generating innovative projects and of the concrete innovation projects. The facilities infrastructure can be contributed as “commons” by the parties involved, this establishing a distributed, interconnected living lab facility contributed by all. Arrangements for IPR and knowledge sharing, and for facilitating the communication and interaction across constituents e.g. through the use of web 2.0 tools, will be part of the living lab process management. Several current living labs are already advanced in their organization and operations. The CO-LLABS Thematic Network has made an assessment of living labs practices across Europe, and lessons learned and recommendations from that assessment will be made available widely.

4. Living Labs growing towards maturity

We claim that the living lab concept has the potential to be highly beneficial and enriching for regional innovation and development policies. On the other hand the living lab concept must become more mature to realize the promise. A small number of living labs already can be characterized as true user-driven open innovation environments. So far there is limited experience in current living labs providing an open user-driven innovation environment for SMEs. There is a need to establish a wide body of experience and practices, demonstrating the involvement and engagement of SMEs in living lab processes and learning on the capabilities of living labs to support SMEs. The promise of the concept of “open user driven innovation” needs



ongoing work in the living labs community in order to enhance the quality level of living labs as SME-innovation environment towards maturity.

However there are a number of very good showcases and good practices of living lab innovation [10, 11, and 12] and through the European Network of Living Labs it is aimed to enhance the quality of living labs. There are also some good examples of how regional stakeholders and policy makers have already taken up the living lab concept. Some of these examples are the following:

- In Sweden, VINNOVA has initiated a pilot initiative Living Labs, aiming to create a Swedish network of living labs and innovation pilots. The objective is to ensure that Swedish suppliers are able to provide more competitive products and services.
- Innovation agencies from seven Nordic-Baltic countries have established a cross-border program of living labs (LILAN). This program funds research and development based on the living lab concept, aiming to empower organizations to share innovations, develop ideas and engage people [2].
- Sicily regional actors created a regional partnership for living lab innovation. The TLL Sicily living lab builds living lab activities on top of Structural Fund based development activities. It also participates in the MedLab thematic network (Mediterranean Living Lab for Territorial Innovation), bringing together various living labs in South Europe (www.medlivinglab.eu)
- Cudillero living lab in Spain, focusing on innovation in the local fishery industry, has been created in the context of the Collaboration @ Rural Integrated Project (www.c-rural.eu), see [13]. A strong collaboration has emerged with Asturias regional authorities and Local Action Group.
- In the Netherlands, the East region has started a policy initiative to integrate the living labs concept into the regional innovation strategy. Several mid-size cities and two provinces are working together to establish a living lab innovation programme devoted to socio-economic development of the region, capitalizing on existing assets such as advanced fiber networks and experimental facilities, to establish a region wide sustainable cooperation.
- In Region Cataluña in Spain, the i2CAT foundation is a non-profit organization whose aim is to promote research and innovation in advanced Internet technology. The i2CAT model makes Internet research and innovation accessible to the whole of society through collaboration between the public sector, businesses and research groups within universities and the educational world.
- PACA Labs is an innovative regional funding programme taking place in Provence-Alpes-Côte d'Azur (PACA). PACA Labs creates an open culture to facilitate innovation. In order to create more synergies between research organisations, industry, SMEs, user organisations and local authorities, the Regional Authority of PACA has set up a regional funding programme designed to favor research and market access by testing new technologies, services or processes in real-time and real-life situations.
- INNOFIT (Innovation Benefits Europe: <http://www.inno-fit.eu>), funded by the Regions of Knowledge programme, brings together the regions of West Holland, Munich, Rome-Lazio and Prague. It aims to establish a Joint Action Plan for the wide adoption of demand creation approaches in satellite navigation application markets for European regions of knowledge.

At the regional and national level, several public authorities are now backing the development of open innovation environments in order foster regional innovation and development, including the development of living lab initiatives. At the European level, the European Commission has strongly pushed the living lab concept through research and innovation activities in FP7-ICT, through stimulation of living lab pilot initiatives in the CIP ICT-PSP programme, and through policy-oriented activities focusing on regional development. Supported by the European



Commission, the European Network of Living Labs is gaining in importance, with currently 129 living labs involved in domains such as energy, media, mobility, healthcare, e-business and farming.

However, the issue of SMEs role in innovation and how to increase entrepreneurship and new business creation is still on the agenda. Having received less emphasis in projects at European level, it is regions and cities that need to stronger push living lab focus on SMEs innovation. Cities and regions are already continuously working on initiatives and policies for SME innovation and improve frameworks for socio-economic innovation. However EU level and national / regional level need to work together to create synergy. One issue to discuss is how policies at EU level and cities and regional level can be aligned. In or view it makes sense to open a dialogue between the different actors and initiatives involved in SME innovation, policy development, and living labs – at European level as well as at national and regional level - to discuss the potential of regional living lab policies and programmes in the future European innovation policy.

SMEs fulfill an important role in innovation and socio-economic development within their region. Regions in many cases have formulated their regional development ambitions, and ICT-based product and services innovation plays often an important role. Besides at the national level, cities, provinces and regions therefore have established their own programs for innovation support, often linking up with EU initiatives such as INTERREG and EFRD. A major issue in such local and regional programmes is scaling-up and valorization. To overcome the gap between just developing prototypes and full roll-out of innovations to a wider use has become an important policy objective. Besides, emphasis on valorization is growing in terms of creating new business and enhancing entrepreneurship. These elements will be increasingly important also for the living lab movement. On the other hand, the concept of living labs may enrich existing policy initiatives and innovation support programs.

There is a need to introduce new solutions enabling SMEs participation into the innovation process. Such solutions not necessarily replace existing instruments but may enrich and complement them. The Living Labs concept, based on ICT-based services and open innovation, offers the new organizational dimension, processes, services and ICT-infrastructures to improve SME competitiveness and innovation potential and to enable SME to become protagonist on the innovation process, through partnership building among themselves and in collaboration with supporting institutions, such as university research centers and regional development agencies. One of the activities of the CO-LLABS thematic network has been to work, at the regional level, with innovation agencies, existing living labs and research institutes to develop living lab policies for their region.

5. Policy challenges related to living labs adoption

We may distinguish between policies related to living labs innovation at the local and regional level (within countries), and policies at the European level. One of the key issues is to align policies at these levels to create synergies for SDMEs innovation and valorisation.

At the European level, the Living labs concept has received strong policy, business and research interest. The Finnish presidency launched the European network of Living labs (ENoLL) in 2006. ENoLL is now growing into a pan-European community which exchanges and shares knowledge regarding living labs and open innovation, and a breeding ground to develop new ideas and pilots for living labs innovation projects. During the last years, in relation to living labs EU programs have supported research and innovation, pilot development and regional development policies. Policy areas relevant for SME innovation are mainly 1. Regional policies, 2.



Innovation policies, 3. Research, technology development and innovation policies. Policies originate from European level, national level, regional level and local level. Given the importance of living labs for SMEs in local contexts, it is important that policies at different levels are aligned to create synergies as regards SME innovation.

Focus level Policy thrust	European	Regions	National
Research, technology and innovation	FP7 (RTD) i2010	Regions of Knowledge (FP7 Capacities)	National programs for research and innovation
Competitiveness enhancement	CIP (ICT Policy Support)		
Regions and innovation	ENPI, MED, INTERREG IVC	Regions of Knowledge (FP7 Capacities) ENPI, MED, INTERREG IVC, EAFRD	Regional programs for innovation support and regional development

Table 1: Living labs related policy portfolio

One of the issues is if these initiatives have been able to sufficiently attract the interest of SMEs, SME associations, and local and regional innovation and development policies. There are already examples of involvement of regional stakeholders in such programs. However there is still a lot of scope for better alignment of local and regional programs, and EU-initiated initiatives.

To that end, a better understanding of the needs of SMEs regarding innovation is necessary. A crucial development will also be the transformation of the existing set of regional policies and instruments towards more interactivity and openness. SMEs are characterized by a limited resource base, need external orientation to understand and adapt to environments, and engage in innovation in a more informal mode [8]. As the regional dimension of innovation is highly important for small companies, SME innovation needs should be understood and addressed in their local and regional contexts. Important elements of that context are:

- The need for SMEs to become part of regional networks or clusters (larger companies, innovation agencies, customers, authorities) in order to stay competitive.
- The need for SMEs to get easy access to critical competitive information, knowledge and technologies and improve the capability of SMEs to absorb innovations (upgrading, learning).
- SMEs could much benefit from opening up the innovation system towards accessible forms of open innovation.

Nowadays, it seems to be accepted knowledge that policy instruments focusing on SME innovation and changing innovation practices should meet the characteristic of increasing the capabilities of regions and its SMEs to innovate, in order to foster interactive learning within the company and region. This is calling for more interactive and learning based policy. Interactive innovation policies focus on processes of interaction and learning, and changing existing innovation practice through bringing together demand and supply sides i.e. bringing in the users of innovation policies in an early stage. Examples of such interactive policy instruments have been relatively scarce but elements of it are available in some national innovation programs.

Living Labs could constitute such an interactive policy intervention as they constitute an open innovation instrument which brings in the users in an early stage. However to qualify as interactive policy intervention, living labs should constitute a learning environment for both



living labs stakeholders and policy makers. I.e., living labs should provide an environment for policy innovation as well. The C@R project (www.c-rural.eu, see [14]) is exploring such a role of living labs in rural and regional areas, and tries to make policy innovations part of the living lab approach. This assumes the acceptance and adoption of the living labs approach by the rural and regional stakeholders. It also assumes a new form of policy development which is more transparent and more willing to interact with and more grounded in the local community of stakeholder interests.

Policy instruments focusing on SME innovation and changing innovation practices should meet the characteristic of increasing the capabilities of regions and its SMEs to innovate, in order to foster interactive learning within the company and region. This is calling for instruments that foster interactive policy interventions, focusing on processes of interaction and learning, and changing existing innovation practice through bringing together demand and supply sides i.e. bringing in the users of innovation policies in an early stage. Examples of such interactive policy instruments that are clearly recognizable in national and regional innovation programs exist in several European countries.

A stronger interrelation between the different levels (EU, national, regional) must be undertaken to show how the living labs concept could influence and enrich innovation instruments benefiting SME innovation. We need to go back to the source of SME innovation which is the regional level of networks for innovation. We must acquire insight in the current regional level innovation instruments in order to identify the prospects for Living Labs concepts to influence and enrich these instruments. Many regions have already strong experience in initiation and developing broadband and mobile services innovation activities and even large-scale programs.

The adoption of Living Labs approach has also significant implications as far as local, regional and national policy makers are concerned. An additional outcome of the adoption of Living Lab approach would be to provide regional development agencies with concrete ideas for involving their regional clusters in a European wide movement, with a view of maximizing the societal and industrial impact of the specific targeted market, relevant for the regional development policies, and of integrating complementary resources and expertise at local level. A desirable outcome of this initiative would be is the launch of a number of regional projects (supported by Regional Structural Funds), committed to support the up-take of the consolidated collaborative model and to facilitate the development of products and services in the specific targeted market. This would enable the creation of European models for advanced collaboration and innovation support in specific, strategic industrial sectors, for the consolidation of a common business language and taxonomy, for the harmonization of initiatives and approaches and for facilitating the access of SMEs to competences and technology at the overall European level with following objectives [4]:

- To analyze and consolidate on-going initiatives and best practices relevant to the targeted market sectors;
- To facilitate the set-up of collaborative clusters in Europe working in the targeted market sectors, suitable for creating a significant critical mass of SMEs capable of playing leading roles and of integrating complementary technologies and capabilities through the adoption of advanced collaborative mechanisms and for involving the users in the development process;
- To create a European Network of SMEs' clusters and to stimulate the initialization of successful business cases in the targeted market sectors, based on advanced collaboration and on Open innovation techniques (Living Labs);
- To put the basis for the consolidation of a Joint Action Plan, specific to address the targeted market sectors, suitable for being used by the EC, National and Regional stakeholder to identify proper actions and support measures to boost the impact on industry as well as



society and for attracting additional financial resources on the overall roll-out program in the targeted market sectors (through both available Regional Structural funding as well as Private Equity and Venture Capital companies).

6. Recommendations

This paper is concluded with formulating a few statements and recommendations that may be included in follow-up policy initiatives regarding living labs, both at EU and regional level.

- 1) Given the insufficient ability of Europe to transform high level technology into successful business ideas driven by true market needs, regions should act as catalyzer of open innovation mechanisms by enabling greater involvement of users, stimulating demand creation and fostering entrepreneurial SMEs. This requires the set up of innovation ecosystems pivoting on the Living Labs concept.
- 2) It is recommended to develop a joint action plan by the leading group of European regions for reinforcing regional ecosystems of innovation for the benefit of SMEs based on Living Labs and Open Innovation concepts.
- 3) The joint action plan aims to create a European model for living labs and open innovation in regions, based on modernizing the existing frameworks, instruments and policies for regional innovation. Specific actions such as awareness, piloting and support of business creation shall be identified for implementing the European model, through a process of consensus building and consolidation with the identified community of stakeholders.
- 4) National, regional and EU policies, instruments and initiatives regarding innovation and living labs should be aligned and synchronized to enhance synergies, focusing on SMEs innovation in regional innovation ecosystems (including cities and urban areas). This could be done very well around major themes that drive innovation, of importance for a wide range of stakeholders, such as energy efficiency, and health & care services.
- 5) The living lab concept shows great promise to enhance regional innovation instruments and policies. In order to fulfil the promise, living labs should become more mature in relation to their organisation as an open environment for user driven innovation projects. Besides coherent methodology Living Labs should be capable to organize the innovation community and mobilise stakeholders. Thereby, Living labs should focus more systematically on SME innovation.
- 6) The potential of Living labs to not only organize the innovation process and mobilize innovation stakeholders but also enhance entrepreneurship and venturing should be further investigated in pilot projects at the regional level supported by regional policy makers. Living labs may link up with ongoing regional activities related to business incubation and venturing.
- 7) Success of implementing the living lab concept in regional policies assumes the creation of an innovation-ecosystem playing a role not only in innovation but also in entrepreneurship and venturing. The living lab concept should gradually evolve to business creation support.



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