

Living Labs in Open Innovation Functional Regions.

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This paper presents the conceptual framework of a new emerging mechanism to support the innovation and product development processes for the European Industry: the "Living Lab". Living Labs are open innovation environments in real-life settings, in which user-driven innovation is fully integrated within the co-creation process of new services, products and societal infrastructures in a regional harmonized context (the "Open Innovation Functional Region") catalyzing the synergy of SMEs Collaborative Networks and Virtual Professional Communities in a Public, Private, People Partnership. In recent years, Living Labs have become a powerful instrument for effectively involving the user at all stages of the research, development and innovation process, thereby contributing to European competitiveness and growth. This paper aims at identifying the conceptual framework for Living Labs implementation within Open Innovation Functional Regions, highlighting the various different phases of the implementation cycle as well as the expected benefits and impact for Industry and Society.

1. INTRODUCTION AND MOTIVATION

In the recent history of the European Industry, a strong focus has been set on technological excellence of the developed products and services and on their usability and relevant demand. Even though Europe is continuously producing the highest number of patents world-wide, which it is indeed a clear indication about knowledge and technology excellence of European industry, especially in the most advanced industrial sectors and in the Information Technology one in particular, an insufficient capability of translating such an excellence into successful business cases with significant commercial and societal impacts has been observed.

Moreover, the large European SMEs 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 product and services to Customers, End-users and, especially, Citizens. However, this huge potential is not fully expressed for the following reasons:

- Insufficient ability of vertical integration of complementary competencies at SMEs level. SMEs must be organised in collaborative networks, which can aggregate pools of complementary resources and competences relevant to the identified market.
- Lack of mechanisms and processes for the use validation of business opportunities originated by the industry, especially if the targeted market is characterised by the classical dilemma: technology push or market pull?
- Insufficient capability of accessing new, complementary competences, especially at international level, suitable for providing the needed partner to ideally complement a project team;
- Lack of legal competencies necessary to manage IPR created during the project and to leverage the background;
- Scarce availability and/or difficult access to knowledge resources, necessary to support the innovation processes within SMEs.
- Insufficient readiness to collaboration of SMEs personnel, which in general is not used to collaborate in an effective and optimized way with people belonging to other SMEs;
- Lack of consolidated processes for allowing the involvement of Customers, End-users and Citizens in the development process of new products and services. Such processes can help the European Industry (and SMEs, in particular) to manage and minimise the risks associated to the development of new products and services them. This kind of risks could easily deter SMEs from taking initiatives in any sector.

In this scenario, there is the need to adopt a new model for regional development, the "Open Innovation Functional Region", which goes beyond traditional Clusters and Incubation approaches and is suitable for supporting the innovation process in Industry, and particularly in SMEs, by overcoming the above mentioned gaps. This can be done through the integration of the revolutionary potential of individuals,

powered by the Internet. in peer to peer KBS professional communities and in user driven innovation communities. As a matter of fact, we believe that a successful development of the European Industry (and SMEs, in particular) depends upon the ability of amalgamating all the different stakeholders in the development processes of new products and services, from SMEs to Customers, from Regional Development Agencies to Citizens in the new model of the “Open Innovation Functional Region”, as user-driven innovation can play an important role in speeding up actual value creation from the innovation process through addressing the actual user needs.

The objective of this paper is to illustrate the Open Functional Region Model, with specific focus on the Living Lab set-up and operation process and the relevant integration philosophy with the other elements in the Functional Region (forming the Concurrent Innovation structure, see ref (1)). It will be also explained how the “Functional Region” model will also play a role in bridging the gap between Industry and users, which suffer an insufficient awareness of the use potential scenarios permitted by new, added-value products, services and technologies. In other words, potential customers do not know what the European Industry (and SMEs, in particular) can do for them.

In this context, a paramount role will be played by the European Network of Living Lab, a European User Driven Movement with exceptional momentum which was launched in November 2006 by the EU Finnish Presidency and supported by the subsequent ones, is an association aimed at supporting the wide adoption of the Living Lab paradigms, to address the above mentioned objectives. 129 Living Lab sites, grouped under the European Network of Living Labs (see fig. 1.1), are already operational in different domains, spanning from eHealth to Energy Optimisation and Efficiency, from Intelligent Mobility to Inclusion of the elderly and disadvantaged people and Rural Development.

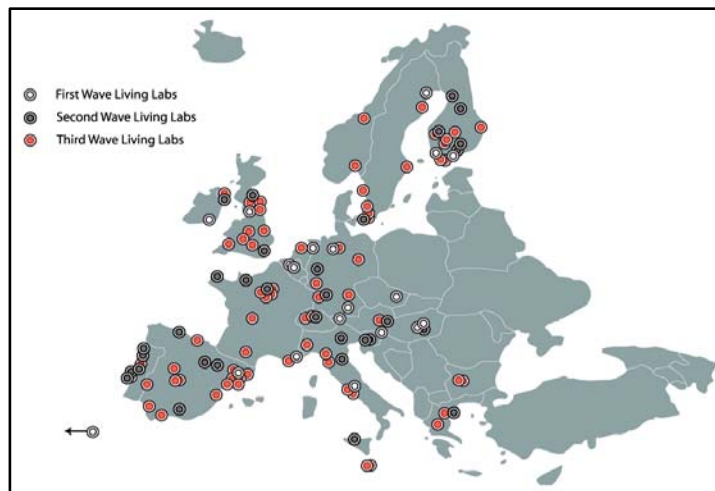


Figure 1.1 The European Network of Living Labs

The European Network of Living Labs is addressing the collaboration across the Living Labs network to share common and complementary resources, and connect local user communities and companies, in order to create a wider market and provide services that are viable. ENoLL is providing ENoLL networked services provide exceptionally improved capabilities for SMEs, including micro-entrepreneurs, to develop, validate and integrate new ideas and rapidly scale-up their services and products from their local region to other regions with different characteristics. The 129 Living Labs network represent an impressive partnership of:

- **Hundreds of public bodies**, including Municipalities, Innovation and Development Agencies, and Universities and Research institute
- **Thousands of companies**, especially SMEs often organized in industrial clusters
- **Hundreds of thousands of final users** organized in user communities.

2. IMPLEMENTATION APPROACH: THE OPEN INNOVATION FUNCTIONAL REGION MODEL

The motivation for establishing Living Labs as a support tool to the innovation process of the European Industry is to overcome the barriers and challenges previously described by leveraging the potential of SMEs' clusters acting in user-driven contexts.

The Concurrent Innovation / Living Lab paradigm can be implemented at local level by exploiting the synergies existing between Public Administrations, Regional Development Agencies, Industry and Citizens, which have complementary objectives that can be fulfilled by such an initiative. This will allow for bringing together all the necessary ingredients (financial resources, technology providers, societal stakeholders, customers) along the value chain of the identified product / service, needed for the successful establishment and sustainable operations of full Living Labs settings in the so called Functional Region environment. This can be implemented through the following integrated steps:

- To organize the regional/local economic context in **thematic collaborative cluster** for delivering products and services in specific sectors. This would give SMEs the opportunity of integrating complementary technologies and competencies in an operative way, following pre-defined processes and templates. These consist of the following elements:
 - a cooperative model for the commercial and operational governance of the cluster, including roles, responsibilities and operational scenarios;
 - an organisational model designed ad-hoc, including collaboration and operational processes among the cluster members;
 - an ICT infrastructure, providing a share space for data repository and allowing for operating and tracking the status of the main processes, and;
 - a legal framework to regulate collaborative contracts and deals.

This would provide for a mean to overcome the lack of technical and financial resources SMEs usually suffer, by giving them the opportunity to complement their own resources with external ones, on a peer-to-peer basis, to be in the position of delivering new, innovative, added-value services and products.

- To establish **professional communities** on specific areas and themes, suitable for providing the collaborative cluster with additional competencies and skills which are required for setting up collaborative projects. The Professional Community is a human-centric business entity, which has been designed to maximize the impact of knowledge workers and to best support innovation cycles within the related socio-economic environment. It is an association of individuals characterized by a specific knowledge scope with an explicit business orientation, aimed at generating value through members' interaction, information sharing and collaboration. This interaction among the members is optimized by the synergic use of ICT-mediated and face-to-face mechanisms. The generated value consists of:
 - Advanced Knowledge (i.e. the creation of new knowledge relevant to the community knowledge scope);
 - Professional services (i.e. the collaborative business activities performed by the members exploiting the community knowledge);
 - Social cohesion (i.e. the social relationships among the members that enable their collaboration readiness and foster knowledge sharing and co-creation).

Business activities of a Professional Community are performed by Virtual Teams (temporary aggregation of Community members for addressing specific business opportunities). Those activities consists of professional knowledge services (consultancies,

studies, etc.) typically exploiting the “frontier” knowledge developed by the community (original applications of state-of-the-art knowledge, first implementations of emerging innovative methodologies, etc.). This would provide the collaborative cluster with expert communities, suitable for managing the risks associated to collaborative projects as well as an effective tools for transferring and increasing the knowledge level within the clusters and for effectively including Universities and R&D centres in the business arena.

- To set up a **Living Lab**, supporting a specific collaborative cluster, with the aim of providing an innovation platform (the Living Lab itself) that brings together and involves all stakeholders, such as end-users, researchers, industrialists, policy makers, etc., at the earlier stage of the innovation process. A Living Lab is a user-driven open innovation ecosystem based on a business – citizens – government partnership which enables users to take an active part in the research, development and innovation process by:
 - bringing the users early into the creative process in order to better discover new and emerging behaviours and user patterns;
 - bridging the innovation gap between technology development and the uptake of new products and services involving all relevant players of the value network via partnerships between business, citizens, and government;
 - allowing for early assessment of the socio-economic implications of new technological solutions by demonstrating the validity of innovative services and business models.

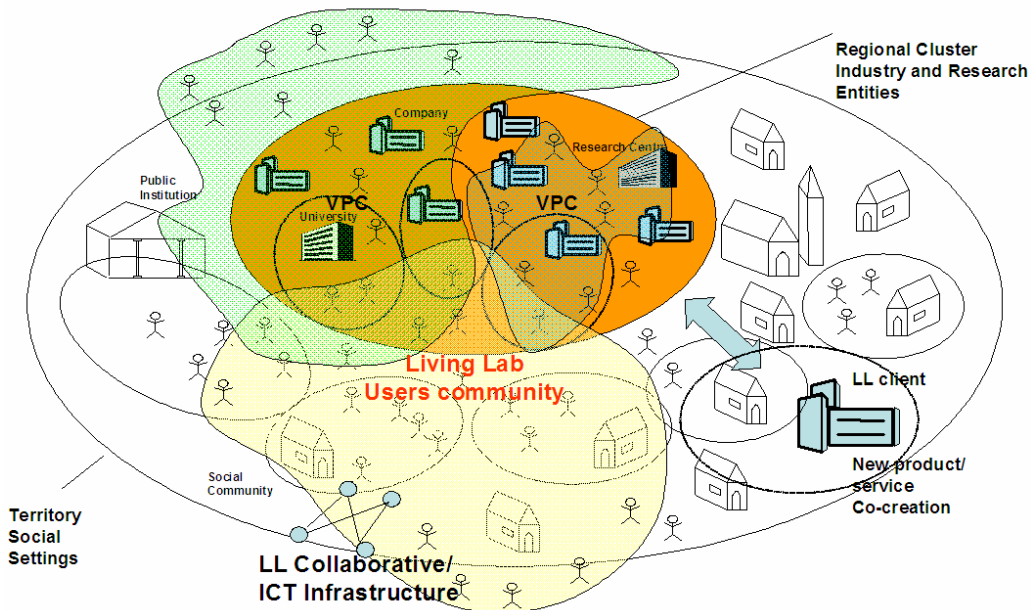


Fig. 2.1: The conceptual framework of Open Innovation Functional Regions

In the following table (tab. 2.2), a mapping between the gaps experienced by the European Industry (SMEs, primarily) and the elements included in the model of the functional region is reported, with the objective of highlighting how the various elements of the Functional Region can contribute in overcoming the collected main gaps.

Gaps	Functional Region Element	Remarks
Insufficient ability of vertical integration of complementary competencies at SMEs level. Lack of legal competencies necessary to manage IPR and to leverage background information;	Collaborative Networks of SMEs	SMEs must be organised in collaborative networks, which can aggregate pools of complementary resources and competencies relevant to the identified market. The legal framework of the collaborative network of SMEs protects IPR and addresses the allocation of the generated ones
Insufficient capability of accessing new partnerships, complementary competencies and technologies, especially at international level.	Collaborative Networks of SMEs	The availability of a structured collaboration platform can increase the credibility of the member of the network and facilitate the collaboration (availability of references and templates)
Scarce availability and/or difficult access to knowledge resources, necessary to support the innovation processes within SMEs.	Virtual Professional Communities	The availability of structured communities of professionals allows SMEs to access complementary expertise in an optimized and financially viable manner (on demand).
Insufficient readiness to collaboration of SMEs personnel, which in general is not used to collaborate in an effective and optimized way with people belonging to other SMEs and the research organizations.	Virtual Professional Communities	The attitude to collaboration needs to be trained and developed on a sustained basis, to prepare the ground for successful collaboration between the people in different organization when a business opportunity arises.
Lack of mechanisms and processes for the validation of business opportunities originated by the industry.	Living Labs	The Living Labs can effectively stimulate a User Driven Market demand creation for new product and services in the early stages of the product development,
Lack of consolidated processes for allowing the involvement of Customers, End-users and Citizens in the development process of new products and services.	Living Labs	The Living Labs provide effective mechanisms for the involvement of Customers, End-users and Citizens, thus providing operative feedback on the prototypes under development, at an early stage of the project

Tab. 2.2: Mapping between the “innovation” gaps and the elements of the Functional Region

3. LIVING LABS PROCESSES

A number of reference and consolidated material is already available on the issues relevant to the set-up and operation of Collaborative Clusters and Professional Communities; a selection is reported in the attached Reference paragraph. In this section, the focus is put on the implementation activities of Living Labs. The input to this section is derived by the work done by a number of 6th FP RTD projects in the ICT domain as well as from the experience collected from the various Living Labs, currently running throughout Europe. The result is a implementation reference process for Living Labs, which can be assumed as a baseline for facilitating the replication of Living Labs experiences in other contexts. The overall and general concepts and processes reported need therefore to be instantiated in the specific context.

The establishment and operation of a Living Lab depends upon a series of factors, including the specific sector which the Living Lab is serving, the local and regional context in which the Living Lab will operate and the nature of the economic texture involved, just to mention a few.

However, every Living Lab follows the following main steps which are hereafter listed, which are grouped according to two main phases:

- Living Lab set-up;
- Living Lab operations.

3.1 LIVING LAB SET-UP

The set-up of a Living Lab in a regional context implies the capability of establishing the main mission objectives of the Public, Private Partnerships, the identification of the main stakeholders, active in the regions, in the specific domain and sectors) and the overall collaborative scenario for linking the various groups in an effective and optimized way. The following process is at the base of the set-up of a Living Lab:

- **Establishment of the community of service/technology developers**, in charge of designing and make available innovative products and services to be tested within the Living Lab environment. They are providing usable prototypes to be given to a specific user group within the Living Lab or setting up services which can be utilized in real life contexts. Service/technology developers include both the initial developers of the prototyped product or service under trial in the Living Lab and additional companies and organizations, suitable for further developing them with a view of the final product/service launch. Some of the service/technology developers can be even be outside the regional context of the Living Lab (i.e. providing products and services from a different region), but should be however able to connect and interact with the Living Lab trial environment;
- **Establishment of the community of public / social stakeholders**, which are the originators of the Living Lab in that region, with a view of generating economic value from the service/product ideas under trial, of providing better/added value services to their constituency (citizens, local social communities, groups and associations) and of showing returns for the invested money;
- **Establishment of a community of professionals** (from academia, public administration, industry and consultants), willing to provide advice and support to the definition and experimentation of the proposed service/products when available);
- **Establishment of a community of users**, willing to experiment and utilize the provided product and services, possibly grouped according to the specific interests and use intentions:
 - the **final users** of the proposed product and service (for instances, citizens, impaired people, associations, enterprises groups);
 - the organizations which will make them available to the public (service providers, public administration, municipality, utilities, Civil protection, Fire brigades).

- **Definition of the legal entity representing** all the **Living Labs categories of actors** previously mentioned and suitable for implementing, updating and maintaining the Living Lab mission, thus providing a suitable ground for discussion and collections of their various instances and needs;
- **Set-up of a supporting IT Collaborative platform**, suitable for:
 - **Facilitating the communication** among the various components of the Living Labs, with Web2.0 tools (blogs, wikis, polls, working spaces (both public and restricted), collaborative and communication tools, social networking);
 - **Collecting and framing the trial outcomes** in an objective and usable way (track of product/service usage, support for market product surveys and requirements, collection of suggestions for enhancing the prototyped service/product performances and usability by the intended users);
 - **Supporting the co-creation processes** among the various Living Lab groups, by adopting for instance **serious gaming** approach and tools;
 - **Providing virtual reality simulation tools** to support the experiencing and sensing of innovative projects (when applicable).

The specific configuration of the IT supporting platform depends upon the domain of applications and services which the Living Lab is targeting as well as the typologies of constituency and expected use scenarios. In many application domains, **IT service platforms** are available, providing access to technical data needed to support the development of the identified product / service identified. In such case, a basic integration between the **IT Collaboration Platform** and the **IT Service Platform** can be required.

- **Identification of a Living Lab performance model**, suitable for collecting, assessing and evaluating the performance of the public money invested in the Living Labs in terms of social outcomes, such as number of jobs created/safeguarded, additional contribution to GDP created, number of talents attracted, development of new typologies of jobs and so on.

All the different elements previously mentioned are supported by the availability of an integrated set of tools and methodologies, which have been addressed during a number of projects and initiatives recently conducted. In the following table, the set of activities relevant to the Living Lab set-up phase are mapped against the available tools, deemed to facilitate the execution of that particular process.

Activities	Available Llab tools
Set-up of the community of service / technology developers	<ul style="list-style-type: none"> – Operational and business models for Industrial clusters – Legal and governance framework for Industrial Clusters – Collaborative and management processes for collaboration; – IT platform for collaborative clusters
Set-up of the community of public / social stakeholders	<ul style="list-style-type: none"> – VPC governance models and legal tools – IT platform for VPC
Set-up of a community of professionals	<ul style="list-style-type: none"> – VPC governance models and legal tools – IT platform for VPC
Set-up of a community of users	<ul style="list-style-type: none"> – VPC governance models and legal tools – IT platform for VPC
Definition of Llab legal entity	<ul style="list-style-type: none"> – Template for Association (i.e.) EEIG
Set-up of the Llab IT Collaborative Platform	<ul style="list-style-type: none"> – Integration strategy (ECOSPACE) – Collaboration 2.0 (ECOSPACE) – Living Lab Interoperability Platform (COIN) – Creativity and serious gaming tools (LABORANOVA)
Llab IT performance model	<ul style="list-style-type: none"> – In progress (COLLABS)

Table 3.1.1 Living Lab Set-up phase: Activities and supporting tools

3.2 LIVING LABS OPERATION

It is within the Living Lab Operation Phase that an idea is evolved to a usable solution through the interaction between the different Stakeholders of the Living Lab. In this phase, the Living Lab processes allow the Market Demand evolving from latent user needs to validated experience of solution use in real life environment, for large scale customers.

The objective is to establish a so called “Innovation Vortex”, through which the product and/or service is finalized as a concept, developed in the Living Lab context, deployed for a reality check trial and evolved on the basis of the use feedback collected from the various Living Labs stakeholders. The Llab Innovation Vortex accelerate concurrent development of qualified business ideas into applications and services, through the:

- User Driven service/product development, bringing in the requirements originated in real life settings. This allows for a dramatic reduction of the iteration cycles during the service / product development and for a significant reduction of the investment costs associated, thus optimising the use of the resources available;
- User Driven Market demand creation, through the structured request to potential users categories for additional services and/or products which have a huge commercial potential since the outset;
- User Driven Collaborative enterprise start-up, suitable to support the single entrepreneur in identifying complementary resources and competencies, needed to refine the business ideas and make it compliant to the users expressed needs and requirements.

The product/service life cycle described is completely supported within the Living Lab / Functional model region shown in the next figure, which includes the main actors and their roles previously described in the open innovation process.

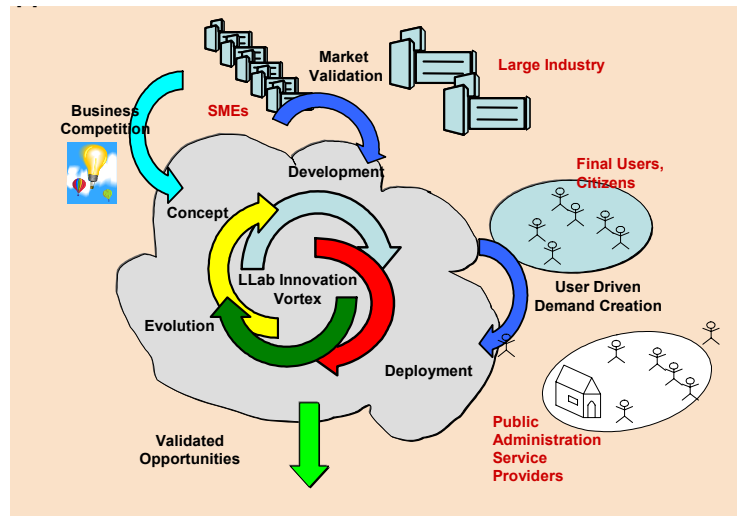


Fig 3.2.1 Living Lab Operation phase: Actors and roles around the innovation vortex

The following process is at the base of the operation of a Living Lab:

- **Identification of idea development and/or demand creation mechanisms**, suitable for providing new ideas to be tested within the Living Labs. Basically the following mechanisms (which need to be structured according to the specific domain of the Living Lab) can be present in the Living Lab:
 - spontaneous proposal from the community of service/technology developers, which can propose a business idea autonomously developed;

- request from the user community (both from public administration and service providers, which may follow public procurement initiatives, especially in the Lead Markets and final users), which can express a need not yet fulfilled, perceived as bringing benefits in everyday life;
- Business / Idea competition and awards, in which the regional development agency (generally the main stakeholder of the Living Lab) organizes a competition relevant to innovative business ideas in order to generate new companies and new jobs.
- **Identification of a specific group of service/technology developers (Virtual Enterprise)**, willing to subject a specific product/service to a Living Lab trial, for either market validation or co-creation / open innovation design purpose, with a view of optimizing in both cases the development costs and increase the usability in a real life context. This is a spontaneous step from the community of service/technology developers, which can propose a business idea autonomously developed or can react to a stimulus received through the Living Labs from potential users, expressing a need not yet fulfilled;
- **Identification of the Living Lab trial tutor**, in charge of coordinating and facilitating the implementation of the trial inside the Living Lab. This role will be presumably covered by the Business Integrator of the Virtual Enterprise, in order to harmonise both the outcomes in terms of requirements on the VE product/service and the finalization of Virtual Enterprise team;
- **Identification of the Living Lab trial requirements** by the trial tutor / Business Integrator, by analyzing the product / service features and interpreting users expressed needs;
- **Identification of a specific user group** by the trial tutor / Business Integrator, extracted by the overall user constituency, willing to conduct the experiment activities and to provides feedback on the relevant outcomes;
- **Identification of a Virtual Team of experts** by the trial tutor / Business Integrator, representative of the disciplines and competencies needed to support the conduction of the trial, in charge of providing suggestions on how to operate the service and/or to adapt it to the practical/real life situations encountered;
- **Establishment of the Living Lab trial plan**, including the preparation of it, the activities to be performed by the various actors and the operational metrics (different from the impact metrics), to be collected to achieve the market validation of the proposed product and services (both qualitative and quantitative);
- **Set-up of the Living Lab trial IT environment**, specific to support the operation of that specific trial, including a specific set of tools provided from the IT Collaboration Platform to support the interaction among the various players, integrated with available IT tools from the IT Service Platform (i.e. providing access to specific trial technology such as for instance LBS or satellite data, information on energy consumption etc. etc.). The Living Lab trial IT environment provides support for collecting use scenario metrics;
- **Conduction of the Living Lab trial**, under the supervision and coordination of the Living Lab trial tutor / Business Integrator;
- **Results analysis of the Living Lab trial**, by the Living Lab trial tutor / Business Integrator. This can be an iterative process, depending upon the strategy of the specific Living Lab trial and the level of accuracy of market behavior prediction required by the service/product developers.

Activities	Available Llab tools
Identification of idea development and/or demand creation mechanisms	<ul style="list-style-type: none"> – Business plan Competition (INNOFIT); – Public Procurement / Lead Markets Initiatives (CIP, Europe Innova); – Collaborative creation of new entrepreneurial idea (LAZIO Connect)
Identification of a specific group of service / technology developers (Virtual Enterprise)	<ul style="list-style-type: none"> – Collaborative Models and tools for Virtual Enterprises (ECOLEAD, LAZIO Connect)
Identification of the Llab trial tutor	<ul style="list-style-type: none"> – Collaborative Models and tools for Virtual Enterprises (ECOLEAD, LAZIO Connect)
Identification of the Llab trial reqs	<ul style="list-style-type: none"> – Product Market Requirements analysis template
Identification of a specific user group	<ul style="list-style-type: none"> – VT operational models and legal tools – IT platform for VPC (and VT in particular);
Identification of a Virtual Team of experts	<ul style="list-style-type: none"> – VT operational models and legal tools – IT platform for VPC (and VT in particular);
Establishment of the Llab trial plan	<ul style="list-style-type: none"> – Living Lab operational model and trial metrics
Set-up of the Llab trial IT environment	<ul style="list-style-type: none"> – Integration strategy (ECOSPACE); – Collaboration 2.0 (ECOSPACE); – Living Lab Interoperability Platform (COIN); – C@R, collaborative platform for living and working in rural areas; – Creativity and serious gaming tools, such as INNOTUBE, IDEM, (LABORANOVA)
Conduction of the Living Lab trial	<ul style="list-style-type: none"> – Living Lab operational model and trial metrics
Results analysis of the Living Lab trial	<ul style="list-style-type: none"> – Living Lab operational model and trial metrics

Table 3.2.2 Living Lab Operation phase: Activities and supporting tools

4. POLICY IMPLICATIONS

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 maximising the societal and industrial impact of the specific targeted market, relevant for the regional development policies, and of integrating complementary resources and expertises 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 the following objectives:

- To analyse 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).

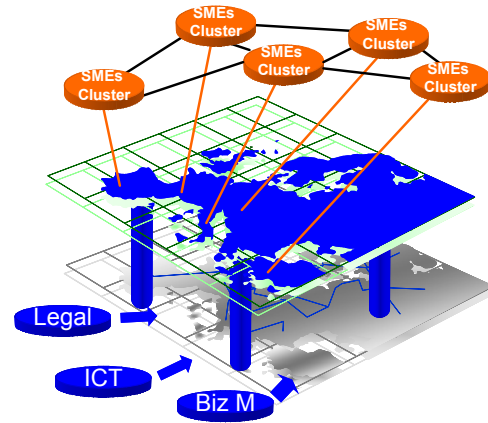


Fig. 4.1: European Added value of the Network of European Functional Regions

5. BENEFITS and IMPACT METRICS

Living Labs are indeed moving research out of laboratories into real-life contexts to stimulate innovation. The benefits for the different types of stakeholders to deploy user-driven open innovation and Living Lab methodologies can be summarized as follows:

- For the users in their role as citizens and the community: To be empowered to influence the development of services and products which serve real needs, and to jointly contribute to savings and improved processes through active participation in the R&D and innovation lifecycle.
- For the SMEs, including micro-entrepreneurs as technological and service providers: developing, validating and integrating new ideas and rapidly scaling-up their local services and products to other markets.
- For larger companies: making the innovation process more effective by partnering with other companies as well as end-users, which are rooted in active user experiences, increasing 'right the first time'.
- For research actors, the economy and the society: Stimulating business-citizens-government partnerships as flexible service and technology innovation ecosystems; integrating technological and social innovation in an innovative 'beta culture'; increasing returns on investments in ICT R&D and innovation.
- For Policy Makers and Regional Development Agencies: Harmonizing national and regional initiatives in the domain with a view of optimizing public and private investments in the targeted market. Delivering common process for validating market offer in the targeted market and supporting innovation and additional demand creation. Adopting common business taxonomy and language for launching inter-cluster collaboration initiatives and for putting SMEs acting traditionally at a local level in a position of

accessing competencies and technology at international level. Attracting further investments, especially private equity and venture capitals

This allows citizens and businesses to influence research, design and product development earlier and more directly and more collaboratively. End-users will be encouraged to co-operate closely with researchers, developers and designers to test ideas and prototypes. Functioning as Public-Private Partnerships, especially at regional and local level, living labs provide advantages over "closed labs": they stimulate new ideas, provide concrete research challenges and allow for continuous validation of research results.

The successful implementation of Living Labs approach can be monitored on the basis of the following metrics:

- Actual formalization of the cluster network and identification of the relevant legal entity (association, EEIG);
- Number of SMEs mobilized;
- Number of citizens involved in the activities of the Living Lab, both directly and indirectly;
- Number of new, innovative, added-value products and services validated at local level;
- Amount of funding mobilized, additional with respect to the initial investments done by the local Development Agency and suitable for ensuring long term sustainability of such a setting ;
- Number of Venture Capitals and Private Equity Funds involved;
- Number of links established outside the specific Functional Region, in view of promoting the access to both new competences and markets for the specific industrial sector targeted;
- Number of stakeholders involved, relevant to the specific targeted market and to SMEs involvement in the development of the relevant products and services.

6. CONCLUSIONS

This white paper has contributed to the establishment of a conceptual framework for a new Open Innovation Functional Region Model, capable to overcome the barriers observed by SMEs to take active part in the Innovation Cycle within current settings. In particular to overcome a lack of access User and Demand Creation Mechanisms, in the co-creation of ICT based services meeting key socio-economic challenges, such as e-Health and Energy. The interaction of the Collaborative Networks of SMEs and Professionals enables:

- User Driven service/product development, bringing in the requirements originated in real life settings. This allows for a dramatic reduction of the iteration cycles during the service / product development and for a significant reduction of the investment costs associated, thus optimising the use of the resources available;
- User Driven Market demand creation, through the structured request to potential users categories for additional services and/or products which have a huge commercial potential since the outset;

A successful development of the European Industry (and SMEs, in particular) depends upon the ability of amalgamating all the different stakeholders in the development processes of new products and services, from SMEs to Customers, from Regional Development Agencies to Citizens in the new model of the "Open Innovation Functional Region", as user-driven innovation can play an important role in speeding up actual value creation from the innovation process through addressing the actual user needs.

The 129 members of the European Network of Living Labs can provide an outstanding environment for the adoption and refinement of the proposed model.

REFERENCES

R. Santoro, A. Bifulco ESoCE-NET White Paper 2006: The “Concurrent Innovation” paradigm for Integrated Product/Service Development, <http://www.esoce.net>

Andrea Bifulco, Roberto Santoro, A Conceptual Framework for “Professional Virtual Communities”, IFIP International Federation for Information Processing, Volume 186, Jan 2005, Pages 417 – 424

R. Santoro, A. Bifulco “Professional Virtual Communities PVC Reference Framework”-, : Methods and tools for Collaborative Networked Organizations –Springer Book Chapter 2008 – ISBN 978-0-387-79423-5

ECOLEAD www.ecolead.org ; <http://www.ve-forum.org/default.asp?P=284>

LEGAL-IST Project (IST-004252-SSA) <http://www.legal-ist.org>

COLLABS Project <http://www.ami-communities.eu/wiki/CO-LLABS>

The European Network of Living Labs <http://www.openlivinglabs.eu>

ECOSPACE Project <http://www.ip-ecospace.org/>

LABORANOVA Project <http://www.laboranova.com>

COIN project <http://www.coin-ip.eu>

INNOFIT Project <http://www.inno-fit.eu>.