



# Guídelínes on Cross-border Lívíng Labs



ALCOTRA Programme 2007-2013 European Regional Development Fund

## The authors

Fabrizio Clermont, with a degree in civil engineering and a degree in political science, has been working for twelve years as a Director of the Directorate Assistance to Enterprises, Research and Quality in the Ministry of Productive Activities of Region Aosta Valley: he manages regional aid schemes for Research, Development and Innovation, and is in charge of projects co-financed by EU on the fields of research, quality management systems and continuing education.

Francesco Fionda, with a degree in economics and a master of science in quantitative finance and insurance, has been working for nine years as a civil servant in the Ministry for Productive Activities of Region Aosta Valley: as a project manager and investment analyst he manages several regional laws and projects co-financed by EU providing firms with financial aids, incentive instruments and consultancy services for investment and internationalisation programmes.

Francesco Molinari is an independent research and project manager working for several public and private organizations in Europe. In his career he has been involved in the coordination of (or participation in) about twenty ICT-related projects at European, national and regional level. For the European Commission, among others, he wrote in 2008 a study for the assessment of the Living Labs approach in the EU innovation scenario. For the Italian Government, he is now leading a State Region Working Group aimed at the establishment of Pre Commercial Procurement in public administration practice.

Federico Molino, with a degree in Veterinary Medicine (DVM) and a master in business management, after a significant experience in a pharmaceutical veterinary industry as a product manager and seven years as a project manager in Centro Sviluppo S.p.a. (Regional Development Agency), has been working as a Responsible of the Technological Innovation Area of A.t.t.i.v.a. S.r.l. (Valle d'Aosta Technology Transfer and Internationalisation Agency), in house company of the Chamber of Commerce of Aosta Valley.

Valeria Nossen, with a degree in economics and a master in tourism management, after a significant experience in the tourism sector as entrepreneur, has been working as a project manager of the Technological Innovation Area of A.t.t.i.v.a. S.r.l. (Valle d'Aosta Technology Transfer and Internationalisation Agency), in house company of the Chamber of Commerce of Aosta Valley.

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## Chapter 1: Presentation of the Alcotra Innovation project

The Alcotra Innovation project, funded by the Alcotra Italy-France 2007-2013 territorial cross-border cooperation program, has as partners the Regional governments of Rhône-Alpes and Provence Alpes Cote d'Azur, in France, and of Piedmont, Liguria and Valle Aosta, in Italy, as well as the Province of Turin.

The project, launched in September 2010 and lasting for three years, aims to create and develop a culture of partnership and action among the innovation actors on both sides of the Alpine frontier, in order to improve their innovation capacity and ability to compete internationally with better results.

The project stems from a pathway of cooperation and joint reflection of the Partner Regions, following the identification of innovation as a strategic issue in the Italy-France Cross Border Cooperation Programme, and as a central aspect within their respective local strategies: thus, a "community of interest" and a "shared vision" on the strategic value of innovation to strengthen competitiveness and sustainable growth in the productive systems lie among the assets of this initiative, in light of the economic situation of the territories involved, which is diversified but also holding significant points of convergence and commonality.

In this context, Regions are called to play a central role because it is at this level that the activities of animation of the local fabric and networking of actors in the innovation process can be carried out more effectively, to encourage the creation and diffusion of innovation.

Evidence of past decades has demonstrated, though, that technological transfer by itself is hardly able to feed growth and competitiveness; thus, to this narrow concept of innovation a broader one, the open innovation, has been coupled, in a number of sectors and disciplines.

Open innovation changes the intrinsic relationship between the production of goods and services and the intangible assets (research, culture, information), which are driving the development of the knowledge economy: in terms of innovation policy, what is emerging is a new approach that goes beyond the classic support to technology transfer or to clusters of innovative companies, to encompass the whole of innovative processes (technological, economic, social, etc.) as well as of stakeholders (not just SMEs and large industries but also the world of research, public administration, citizens, users/consumers, local communities, etc.) along common and shared pathways.

The aim of leveraging the concept of open innovation to shape the entire strategy of Alcotra Innovation has therefore resulted in the choice of the *living labs* approach as the most appropriate methodological instrument for the realisation of project activities.

The idea underlying living labs is to create open environments and in real-life conditions for the design, testing and validation of new products and services, where users can interact and experiment with these products and services, providing to the research and enterprise system very important feedbacks in terms of refinement and subsequent marketing: the purpose of living labs is, therefore, to stimulate innovation by moving research out of laboratories towards real-life contexts where citizens and users are encouraged to cooperate with researchers, developers and designers to contribute to the innovation process as a whole.

In particular, the products and services under experimentation are enriched, through testing, by the characteristics defined by the final users and typically have a potential for market success that is higher than other results of traditional technology transfer.





The innovative idea of the project strategy, able to provide real value-added to innovation actors, even beyond the territorial boundaries of the Alpine cooperation program, is to use the living labs model with a transnational view, for the building up and operation of cross-border living labs: by this approach, it will be possible to combine the advantages of living labs to the additional value brought in by the network and collaboration of actors residing on both sides of a border and sharing common interests.

This is the first time that a living lab approach is not only developed between two neighbouring countries, but is also implemented jointly, as if at last there were no more barriers that prevent many actors from working in a multinational perspective.

In light of this ambitious and challenging goal, the Alcotra Innovation partners agreed on the need to acquire a shared and common methodological support tool, namely some "Guidelines for the design and implementation of transboundary living labs", which provide a reference framework, both comprehensive and systematic: in that view, the present text is intended as a short handbook made available to the innovation actors on the topic of the experimental laboratories in real-life conditions and explaining the added value provided by conceiving the same on a transnational, instead of merely local, scale.

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## Chapter 2: Living Labs and the added value of being cross-border

In our definition, a Living Lab is a user-driven, open innovation environment in real-life settings in which users test and experiment new products or services, in a framework integrating companies, people, research and innovation actors and public sector (the so-called Public-Private-People Partnership, PPPP)<sup>1</sup>.

The integration of users into the development process ensures reliable market validation and supports the conception, design and evaluation of new products or services by the users themselves.

In this context of open innovation and in the current critical period facing socio-economical challenges, a Living Lab can be considered as an instrument, as a facilitator, for problem solving: it can help providing social and economic players with an innovative milieu for the conception of new business ideas, for the development of new product and services improving the quality of life. Benefiting of the iterative interaction between all the components of the socio-economical system, a Living Lab can catch significant market opportunities to adequate to changes in lifestyle: in this business model, researchers, scientists and technical experts collaborate with companies, civil society and public administration in a logic of crowdsourcing, by developing projects and ideas in an informal and open community.

User driven products or services can come out from this environment, that can even contribute to the creation of a new, real market demand driven by customers and to the start up of innovative SMEs and spinoffs of research centres and universities.

The empirical evidence suggests that by motivating to the participation of all the innovation actors involved and by promoting the multidisciplinary exchange of ideas, the Living Lab can facilitate an approach based on functional analysis, based on the needs and requirements that a suitable product or service should satisfy: this methodology potentially stimulates a type of innovation different from existing practice, different from an incremental improvement, the socalled radical innovation, that represents significant change, and often opens up new markets and potential applications.

Radical innovations include products that are completely new to the company or new to the market and benefit from questions such as "Why has been this product created, for which functions has been it conceived?", questions that a virtual, informal, community can address to itself. Radical innovation includes as well cases of technological crossover, with a material, product already existing in a particular sector that can become source of new applications, through functional variations, in different sectors and domains. Last but not least, the innovation comes up even from the integration of known ideas, mature elements, creatively recombined in a new and unexpected context, depending on evolving lifestyles and social trends.

Moreover, the empirical evidence suggests that a consolidated Living Labs, besides providing innovation players with facilities, material and virtual (such as an ICT platform), is a potential source of technological foresight and could assist innovative firms in patenting new products, services and solutions, giving the entrepreneurial system real and value added services able to substain competitiveness, R&D and qualified job creation.





Up to now, all over the Europe we have assisted to the start up and the development of hundreds of Living Labs with a clearly defined territorial dimension, not exceeding the national boundaries: in fact, if we take a look at each single member of the European Network of Living Labs (ENoLL), the state-of-the-art is represented by typically national or even regional partnerships involving public sector, private players and the civil society, in an environment that doesn't go beyond the boundaries of a country.

A further step in the development process of the Living Labs phenomenon turns out to be the cross-border Living Lab, an environment of open innovation that exceeds the country boundaries and covers regions belonging to different neighbour States.

A cross-border Living Lab approach can bring about many significant benefits<sup>2 34</sup>:

• opportunities for an innovative firm to enter new markets and to internationalise its own business;

testing of advanced technologies in different cultural settings; •

in an environment more and more globalised, the problems faced are not limited to • national borders, nor is the right expertise: the cross-border approach allows to access user groups in other countries as well as platforms to build new markets;

• possibilities to create a cross-border network of Living Labs for the macroregion involved, by connecting people, innovation actors, public sector and markets and by understanding the different stakeholder perspectives;

• opportunities for organizations with similar characteristics or shared issues to learn from each other and to exchange best practices, in the aim of reaching broader cooperation and stronger integration;

• development and exploitation of synergies, complementarities and economies of scale between neighbour regions belonging to different countries.

Thus, a cross-border Living Lab can provide the People Private Public Partnership with a unique opportunity to leverage multi-cultural, multi-disciplinary and multi-thematic strengths and assets, giving in particular innovative companies the benefit of accessing a larger group of potential users, of gaining in scalability and of reducing the market risk and the time to market during the launch of new products or services.

#### 2.1 - Neighbour regions with common issues

A potential factor of success for a cross-border Living Lab is represented by the similarities and the complementarities in the issues of the regions and countries involved: the more numerous are the points in common between them in terms of economic structure, policy priorities and vision for sustainable development, the higher will be the probability of starting up and running a crossborder Living Lab in an effective and efficient way.

If we agree on this perspective, an important and preliminary role should be assigned to the mapping and the identification of thematic domains, business visions and cultural settings across a number of neighbour regions.



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<sup>&</sup>lt;sup>1</sup> Pallot M. (2009). Engaging Users into Research and Innovation: The Living Lab Approach as a User Centred Open Innovation Ecosystem. Webergence Blog. http://www.cwe-projects.eu/pub/bscw.cgi/1760838?id=715404\_1760838

<sup>&</sup>lt;sup>2</sup> Evaluation and impact assessment of cross-border Living Labs cooperation – The Apollon KPI framework, Sallstrom A., 2011.

<sup>&</sup>lt;sup>3</sup> LILAN, a Nordic-Baltic Research and Innovation programme on Living Labs, programme description, 2009.

<sup>&</sup>lt;sup>4</sup> Living Labs: pourquoi aller cross-border?, Francesco Molinari, Turin 11 February 2011.







Recent trends in European policy making at the level of the Structural Funds show a growing propensity of the European (EU and Regions') industrial policies towards promoting specialized production niches, in identified sectors of excellence for the local economic activity: the premise of such "Smart Specialization" model is to avoid duplication of efforts, funding, and possibly conflicts, while creating the conditions for sustainable competitiveness, in coherence with the vocations of the territory, the goals of the economic and social actors already operating in a given Region, and those that may be developed in the future. The logic, therefore, is to start from the territory itself, identifying its strengths and opportunities, and building on such a basis a sustainable development model that increases the value of the local economy, governing all the actors of the productive system.

This model consists of several key elements, such as the territorial vocation perspective, the enhancement of territorial specificities, the identification of sectors of industrial specialization for the region concerned, as well as a model to facilitate and support innovation and technology transfer. However, the basic element in the structuring of a development strategy seems to be the definition of a territorial vocation perspective, being the main driver of the process. This is a challenging vision, an aspiration, or a mission, capable of directing the territorial development actions and the global positioning of the territorial system concerned.

In Alcotra Innovation, the identification of areas of convergence and common characteristics between bordering territorial systems and development strategies is the enabling factor for the initiation and development of actions aimed at cross-border Regional partnership, networking of local innovation actors, and experimentation of new products or services by the activation of multiregional Living Labs.

As an example, the recognition of existing overlaps within a group of regions on the thematic platforms and priority industrial sectors creates the conditions for a possible cooperation on their further development, promoting the opening of markets, new business opportunities and a territorial integration that improves economic and social cohesion.

In fact, from an economic point of view, the production systems mentioned above share a territorial context characterized on the one hand, by the presence of traditional industries that remain strong and driving, and, on the other, of innovative areas of excellence (ICT, healthcare, renewable energies, risk management, nautical industry, optics, microelectronics, nanotechnology, biotechnology, design, perfumes/fragrances/cosmetics) that have given rise to important centres of scientific and technological competence on the respective territories<sup>5</sup>.

In addition to these common strength points, there are inevitably also some elements of fragility of the manufacturing and business environment that characterize both the Italian and the French territories, which are largely attributable to the small size of the majority of local firms, very little capitalized, who encounter obstacles in investing on development and innovation, with a low rate of internationalization, scarce propensity to network and work together or cooperate with universities and research centres<sup>6</sup>.

Taking advantage of the synergies in the strengths and opportunities and tackling together in an integrated manner the structural weaknesses of the regional systems, one can start a shared crossborder cooperation pathway, enhancing mutual understanding between business and industrial clusters on both sides of the Alpine frontier: in light of this potential, the project aims to promote processes of Open Innovation, not only with regard to the business sectors, but also the territories involved.

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In this respect, the Alps-Mediterranean Euroregion, which includes Piedmont, Liguria, Valle d'Aosta, Provence-Alpes-Cote d'Azur and Rhône-Alpes, currently offers significant opportunities, given the convergence, similarities and complementarities of local territorial systems: in this way, the Alcotra Innovation project fulfils the requirements of the Cross-Border Cooperation Programme Alcotra Italy-France 2007-2013, to create and develop a culture of partnership and joint initiatives between innovation actors located on both sides of the Alpine frontier, in order to improve their innovation capacities and compete internationally with better results.

Part of such development strategy characterized by the Open Innovation model is the goal to create cross-border Living Labs, which, starting from the synergies, complementarities and similarities found in the partner regions, will create networks of innovation actors integrated with the civil society, for the testing of prototypes and new products/services ahead of their market launch.

In light of the mapping of regional economic systems, and consistent with the aforementioned Smart Specialization approach, the Alcotra Innovation project partners have jointly identified four thematic areas, subject to potential collaborations, exchanges of know-how and the activation of cross-border Living Labs:

- Smart energy, alternative sources of energy, energy efficiency;
- Automotive, transportation, logistics and monitoring of the territory;
- e-Health, Ambient Assisted Living and applications of ICT for Well Being;
- Creative and multimedia industries.

#### 2.2 - Good practices on cross-border Living Labs

Even if the cross-border category of Living Labs has been up to now experimental and quite new with respect to the LL phenomenon globally considered, nonetheless it is possible to have a look at some good practices in Europe: in particular, here we are going to give a brief overview on pilot action on the field of cross-border Living Labs, named APOLLON.

The APOLLON project (acronym of Advanced Pilots of Living Labs Operating in Network) is aimed at networking and harmonising Living Lab approaches throughout Europe and at evaluating the positive impact of domain-specific cross-border Living Lab networks: this consortium, consisting of 30 Core Partners in 10 European Member States, involving Living Labs, SMEs, large ICT companies, such as NOKIA and SAP, as well as research partners, was launched in November 2009, has a duration of 30 months and is co-financed by the Competitiveness and Innovation Framework EU Programme<sup>7</sup>.

APOLLON selected four domains in which ICT products and services innovation may benefit most from crossborder Living Lab networking: Homecare, Energy Efficiency, eManufacturing and eParticipation through Social Media.

- The main objectives of the APOLLON project are:
- (1) to conduct cross-border Living Lab pilots, aimed in particular at SMEs, (2) to harmonise methodologies and tools for cross-border Living Lab projects, (3) to create sustainable cross-border domain-specific Living Labs networks.

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Progetto Alcotra Innovazione, Alcotra Italia-Francia 2007-2013, scheda tecnica, 2010. <sup>6</sup> Progetto Alcotra Innovazione, Alcotra Italia-Francia 2007-2013, scheda tecnica, 2010.













The APOLLON four domains



APOLLON will draft and validate a methodology for setting up and piloting cross-border thematic Living Lab networks: along with these guidelines on how to create these sustainable networks within a bottom-up process, APOLLON will recommend a toolset to support these processes and procedures.

Moreover, APOLLON aims at creating sustainable, cross-border thematic networks that further explore the added value of connecting different Living Labs into a cross-border network, grouped by a thematic approach: in order to verify the benefits of this approach, APOLLON will provide an impact assessment of this added value in terms of results, as well as operational efficiencies.

Finally, APOLLON will actively disseminate recommendation and action plans for viable, sustainable and scalable initiatives to further domains and sectors: these recommendations, based on a dialogue with the thematically structured Living Lab communities, will address the various requirements, governance structure and possible business models for a cross-border Living Lab Network.



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The APOLLON technical approach







## **Chapter 3: Operational procedures and governance** rules for the start up of cross-border Living Labs

As we have seen previously, the rationale behind the innovative milieu represented by Living Labs is to open up corporate boundaries toward their external environment and to give enterprises and SMEs the opportunity to collaborate and cooperate with the different stakeholder groups, such as customers, competitors, researchers, providers, and the public in general<sup>8</sup> : the empirical evidence available suggests that this innovative ecosystem, inspired by the open innovation paradigm and more and more adopted all over Europe, is able to contribute in a significant and effective way to the launch of new products and services, by reducing both time to market and the market risk of innovation.

The idea of a cross-border Living Lab has the ambition to take a further step along this train of logic, thus providing the innovative firm with an opportunity to open itself to new markets and research clusters, internationalize and further expand its own business, test and validate advanced technologies with the prospective end users in different cultural and language settings.

In this chapter, we are going to investigate several possibilities of running and managing a cross-border Living Lab, focusing our attention on the operational procedures and governance rules: of course, we must pay attention to the fact that no general and absolute guideline exists on how to deploy Living Labs and that some degree of localization is always required, depending on the one side on the conditions and features of the socio-economic territorial system, and on the other side on the involved stakeholders' nature and propensity to interaction.

#### **3.1** - The Federation approach and its possible application to the Alcotra **Innovation project**

Within the organizational options to realize a cross-border Living Lab, we first identify the so-called Federation approach, which implies the existence of several, independent, thematic Living Labs that are spontaneously growing up inside each participant country border, and are then brought to unity by means of the creation of cross-country links, clusters and multi-location experiments.



#### Piloting of Living Labs network: Multi-location experiments

Cross-border Living-Labs: The Federation approach (Santoro, 2008)

<sup>8</sup> Concept design with a Living Lab Approach, Bergvall-Kåreborn B., Holst M., Ståhlbröst A., 2009.

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The big advantage of this approach is that it is not centrally managed nor governed, thus it can be coherent with several Living Lab's birth and growth models, leaving the door open to sharing all or some of the respective key assets (local communities, ICT infrastructures, methodologies etc.) in the perspective of cross-border collaboration. In that respect, a learning process can also be possibly activated, between the "newly born" and "mature" Living Labs, either belonging to the same or to a different country or region.

Indeed, the practical feasibility of the Federation approach requires the existence of a number of consolidated Living Lab experiences in the participant countries to the Alcotra Innovation project (each marked with a different capital letter, from "A" to "C"... in the above picture) and a relative lack of thematic specialization, which could allow the same national Living Lab to be represented in several transregional clusters through the deployment of independent and "parallel" technology trials. Apparently, this would not be the best option for Alcotra Innovation, given the situation of most consortium members, who did not host any Living Lab at the beginning of the project's life, or were not fully mapping in terms of existing Living Lab experiences the specific thematic domains identified as targets in relation to the various regional priorities.

#### **3.2** - The Umbrella approach and its possible application to the Alcotra **Innovation project**

Thus, as an alternative option to realize a cross-border Living Lab, we propose to adopt the so-called Umbrella approach, which implies the presence of a central ("light") management entity that is in charge of facilitating the deployment of trials inside a transnational environment. This, in turn, is built upon several local "chapters" - hopefully one per participant region - that are shaped in the form of "classic" or cross-border Living Labs, open to end-users located in any of the five regions involved in the project.

In more detail, we think about an overarching structure, composed by representatives of all the regional "chapters" of the cross-border Living Lab, in charge of defining common guidelines, assessment tools and monitoring systems: these assets are delivered to the local stakeholders, who will be left free to set up one or more pilot actions in their respective region, on a range of thematic domains, yet according to a common methodological approach.



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Cross-border Living-Labs: The Umbrella approach (Schumacher, 2011)







This model does not imply that there must be a 1:1 correspondence between a regional Living Lab and a thematic domain of specialization. Actually, the most important features of the Umbrella approach are the unique governance framework and a common repository of methods, tools and experiences between all the regions involved in the pilot actions . However, there is no prescribed implementation pathway or set of rules for the cross-border trials, which can well be defined by the spontaneously emerging interests and the converging requirements of the various national actors involved. In this sense, the Federation and the Umbrella approach turn out to be quite alike in the very end.

After the results coming up from the mapping of regional economic systems and policies and in coherence with a Smart Specialization paradigm, the Alcotra Innovation project partners jointly identified four thematic domains, which are the most promising candidates for future cooperation networks, exchange of know-how and start up of pilot actions in the field of Living Labs:

- Smart energies
- Intelligent mobility
- E-health
- Creative industries

For each of the above thematic domains, there will be a regional Living Lab that is driving the process of deploying cross-border trials, while the others are being associated to such an effort on a peer basis, with their own enterprises, research institutions and citizen/user communities.

#### **3.3 – Living Lab governance rules**

Having given preference to the Umbrella approach for the realization of a cross-border Living Lab, the Alcotra Innovation partners had to design a flexible set of rules in order to ensure the appropriate governance of pilot actions in the participant countries and regions as well as a fruitful exchange of the know how created in the respective thematic domains. To this end, the focus was set on the creation of four cross-border working groups, one for each thematic domain, coordinated by the specific partner that has been assigned the leadership of that respective domain and participated by all the remaining ones with a supporting function. Thus, each working group is governed by a single leader and supported by the collaboration of partners from all the participant regions.

	Smart energies	Intelligent Mobility	E-health	Creative industry
Piemonte	Supporter	Leader	Supporter	Supporter
Valle d'Aosta	Leader	Supporter		
Liguria	Supporter Supporter		Supporter	
Rhône-Alpes	Supporter	Supporter	Supporter	Leader
Provence-Alpes- Côte d'Azur	Supporter	Supporter	Leader	Supporter
Provincia Torino	Supporter	Supporter	Supporter	Supporter





#### **3.3.1. – Working group composition**

The working groups composition should be slim, with a small number of members (possibly integrated by external experts), in order to be able to manage and run their operations in an effective and efficient way. The thematic definition of the four working groups is the result of a bottom up process from the different regions involved in the project, taking into account the smart specialization of the regions, their industrial vocation and social landscape, as well as the potential synergies, research complementarities and thematic collaborations with neighbor territories within the Alcotra area.

The working group members should encompass representatives from business associations, regional development agencies, users associations and research centres.

Specific Guidelines have been defined for the involvement of local stakeholders in the Living Lab's establishment, which are presented in the next subchapter 3.4 under the common header of "LEADERS approach". These Guidelines belong to the methodology and evaluation side of the process, thus they should be kept distinct from any (self-defined or superimposed) governance rule for the cross-border working groups under discussion here.

A useful tool for the management of these working groups is the groupware created inside the official web site of the project Alcotra Innovation: this collaborative digital platform allows and promotes accessing, sharing, and disseminating information within the Alcotra Innovation community. In particular, the groupware is aimed at providing all relevant stakeholders with an intangible, open and always-on milieu where it is possible to share documents, send communications, keep up to date with the working group activities, participate to fora, call meeting

#### **3.3.2.** – What is a thematic leader supposed to do?

A proposal for the operational role of the thematic leader inside a cross-border working group could be the following one:

- in specific sectors and/or fora;
- Initiates the working group's activities on the basis of the results of regional policy mapping, the direct interviews and workshops held with the regional stakeholders, in close collaboration with the thematic supporters;
- Ensures a unitary management of the pilot experimentation process, especially in its cross-border aspects;
- Supervises the thematic implementation of the methodological Guidelines distributed (both for experimentation and evaluation purposes);
- Proposes additional partnerships for the cross-border pilot actions;
- Prepares interim and final reports for the overall working group activities.

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• Coordinates the cross-border working group in its entirety, also through the tool of the groupware within the official website of the project: the thematic leader should play the role of working group manager, by managing registered users and their inclusion













#### **3.3.3.** – What is a supporter supposed to do?

Conversely, the thematic supporter of a cross-border working group should be in charge of the following tasks and responsibilities:

- Supports the thematic leader in the adaptation of the methodological Guidelines to the selected domain;
- Provides feedback on the regional workshop(s) carried out, including the contacts with relevant stakeholders or players that have been engaged at local level;
- Identifies relevant partnerships outside the own region following leader's orientation and advice;
- Coordinates the activities in the own region for the planning and start up of the pilot actions;
- Collaborates with the thematic leader in the preparation of interim and final reports for the overall working group.

#### **3.3.4.** – Organizational issues

As far as other organizational issues are concerned, we can think about some suggestions, in order to contribute to make each working group as efficient, smart and coordinated as possible:

- Members should work and communicate via email, intranet, and A/V conference;
- Formal working group meetings should be held (at least) every second month via A/V conference:
- Each working group should be autonomous and free in the choice of the best way to animate and coordinate the thematic activities in the region, including the early involvement of well identified local innovation actors (enterprises, user associations...) in the design and implementation of the pilot actions;
- Each member should remain open to suggestions and ideas coming from these local innovation actors and report to the working group leader about any project relevant result and outcome from the thematic activities in the region.

#### **3.3.5.** – Feasibility plans

In this paragraph we would like to propose a methodological instrument for the elaboration of projects and pilot actions in the field of open innovation in general and Living Labs in particular: as far as our project Alcotra Innovation is concerned, with the help of this tool it will be possible to develop a sort of common framework for feasibility plans coming out from the working groups, result of a bottom up process from the different regions involved in the project.

Of course this is just a suggestion for the elaboration of pilot actions, to be adapted depending on the working groups needs, features, domains,...

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A feasibility study with the aim to develop an idea and to provide conditions and elements for the start up of a Living Lab could benefit of a business model approach: in particular a business model can be considered as an abstract conceptual model that represents the business logic of a company or of a project and as a layer between business strategy and processes.

A feasibility study should help innovation actors to determine the scope and budget for an innovative and sustainable management of the Living Lab.

In particular, a common framework allowing us to address all the issues typically coming out with the management of a Living Lab can be the Business Model Canvas.

The **Business Model Canvas** is a strategic management tool, which allows project managers to develop and sketch out new or existing business models: it is a visual template pre-formatted with several relevant blocks of a business model.

The Business Model Canvas, initially proposed by Alexander Osterwalder, implies formal descriptions of the business that become the building blocks for its activities. As for the conceptualization, Osterwalder's work and thesis (2010) propose a single reference model, with a business model design template, on whose basis a Living Lab project manager can easily describe his business model:

- > Infrastructure
  - business model.

  - administration, regional development agencies, incubators,...)
- > Offer
  - tutoring services...
- Customers

  - relationships is referred to as customer relationship management.



#### The business model Canvas: a methodological tool for the feasibility plans

o Key Activities: The activities, formal and informal, necessary to implement a

o Key Resources: The resources that are necessary to create value for the customer, and in general, for the players and stakeholders in an open innovation environment o Partner Network: The business alliances which complement other aspects of the business model (users, enterprises, research institutes and universities, public

o Value Proposition: the statements of benefits that are delivered by the Living Labs to the stakeholders, in terms of source of innovation, open access R&D platform, crowd sourcing, training and facilitating activities, offer of consultancy, advisory and

o Customer Segments: The target audience for a business' products and services.

o Channels: The means by which a Living Lab can be run and can achieve its relevant aims of open innovation, experimentation process of prototypes between end-users and interaction with innovative companies. This includes the communication strategy inside the Public Private People Partnership, an IT platform for the collection, transmission and processing of the data resulting from the testing process. o Customer Relationship: The links a company, or a Living Lab, establish between itself and its different customer segments. The process of managing customer

Pagina 1









**KEY PARTNERS** 



- > Finances
  - o Cost structure and business model sustainability;
  - o Source of financing and revenue streams: self-financement (funding and fees from Living Labs partners), public source of finance, EU funding, fees from advisory and consultancy activities provided by the organisation, technical assistance.



KEY













#### **3.4 – Operational procedures for Living Lab establishment – the** "LEADERS" approach

After a general definition of the governance rules, we can now go on by trying to define some operational procedures for Living Lab establishment and to apply them to the partners of Alcotra Innovation project. In so doing, we will now turn our attention from the working groups and pilot actions described in the previous subchapter in the framework of a single thematic domain, to the creation (from scratch) or enforcement (if existing) of regional Living Labs, the "building blocks" of the Umbrella approach that we have selected before – as described in the corresponding picture.

Keeping in mind the definition of Living Lab approach, we can imagine the following steps:

- 1. = Localise and identify your stakeholders
- 2. = Establish a Living Lab PPP (Public Private Partnership)
- 3. = Assess the relevance of « cross border » issues
- 4. = Deploy an ICT infrastructure
- 5. = Establish a local and/or « cross border » PPPP community (PPP+People)
- 6. = Run one or more User Driven, Open Innovation pilots
- 7. = Summarise and evaluate the results

which taken together, represent the so-called "LEADERS" approach (from the initials of the headlines used to define the seven steps)<sup>9</sup>. In terms of timing, the proposed approach covers the full spectrum covered by the project, as the following Gantt chart shows:

	II- 11	III- 11	IV- 11	I- 12	II- 12	III- 12	IV- 12	I- 13	II- 13	III- 13	IV- 13	I- 14
Localise and identify your stakeholders												
Establish a Living Lab PPP												
Assess the relevance of "cross border" issues												
Deploy an ICT infrastructure												
Establish a local and/or "cross border" PPPP												
Run one or more Living Lab pilots												
Summarise and evaluate the results												

#### **3.4.1.** – First step of the LEADERS approach (# 1): Localise and identify your stakeholders

In Alcotra Innovation, this first task started at the very beginning of 2011 and its results were put online in the e-Atlas, a sort of georeferentiated database of innovation actors. This tool will constantly be updated by project partners till the end of the initiative.





However, it can well happen in the normal practice that a government has already completed this mapping activity beforehand.

Suggestions:

- withdrawals)
- Consider the following items:
  - The thematic domain(s) targeted in the region
  - ways of financing the local pilots (see #6 below)

  - o Other...

There is an obvious need for communication and publicity at this stage. All project partners in Alcotra Innovation have adopted the tactics of running individual, direct interviews to selected stakeholders (particularly for the sake of the e-Atlas) and one or more public workshops, also aimed at initiating the segmentation of stakeholders according to the thematic domains selected. Again in support to awareness raising and dissemination, but also with an eye to the following steps (e.g. #3 and #6-#7), some regional governments may launch an informal, non engaging call for expressions of interest, to be published on the institutional website. The proposals received will contribute to a better definition of the research and innovation scenario in the area(s) of interest.

#### 3.4.2. - Second step of the LEADERS approach (# 2): Establish a Living Lab **PPP (Public Private Partnership)**

This should emerge as output of the previous phase, at least in terms of candidatures to being part of the Living Lab community. A formal partnership agreement (e.g. to be signed by going to a notary) is not strictly required.

In most regions, where other infrastructures exist in support to research and innovation policy - such as the Innovation Poles, or the Technology Districts, or similar examples - the tactics has been adopted of leveraging these infrastructures as "embryos" of the desired PPP community. This approach has the merit of being parsimonious in terms of avoiding the creation of new entities in the already crowded panorama of local actors and institutional players. However, it also places an additional burden of responsibility on the regional government, being the only to ensure visibility and access to the Living Lab PPP all along the process. Suggestions:

• Do not limit the publicity effort to the initial stage, be always visible and open anyway - as more stakeholders may want to jump in later

- - o A general assembly and/or management board
  - o Individual working groups (e.g. one per thematic domain)

  - ICT forum see step #4)



• Be as open and inclusive as possible at this stage (there will be time to handle the

• The policy priorities of the territory, which can lead e.g. to practically adopt a lower number of thematic domains than the initial four, or to differentiate the

o The « cross border » Living Lab model selected ("federated" or "unitary") that has some impact on the design and implementation of the overall approach • The aims of the whole initiative (your vested interest in doing all this)

• Create mechanisms for governance and engagement of Living Lab stakeholders, e.g.

o Periodic consultation mechanisms (e.g. frequent stakeholder workshops and an

o External communication items (e.g. portal, newsletter, webinars)



Seven steps to build up a "Cross Border Living Lab": The LEADERS approach, Francesco Molinari, Marseille 21 April 2011.







#### **3.4.3.** - Third step of the LEADERS approach (# 3): Assess the relevance of « cross border » issues

It is quite important to tackle this matter upfront, with the best possible clarity and level of definition, as the ultimate goal of the Alcotra Innovation project is not simply to establish one or more regional Living Labs, but a single cross border one. Technically speaking, it cannot be taken for granted that in all the thematic domains selected, and/or in all of the participant regions, "going cross border" is viewed as relevant from the perspective of the stakeholders involved. Furthermore, this discussion is also affecting the monitoring and evaluation step (#7), which requires an early initialisation with respect to the pilots' execution (#6).

Suggestions:

- Involve your stakeholders in this assessment
- Include, where possible, selected "champion" users in the same task on a peer (not agency or dependency) basis
- Consult with other project partners, domain experts and especially the four thematic leaders
- Compliance with the current Regional policy setup is helpful but not mandatory in this case. Otherwise, what would this whole exercise be for?
- This approach based on experimentation is also an advantage: no firm commitment, • lower level of accountability for results

### 3.4.4. - Fourth step of the LEADERS approach (# 4): Deploy an ICT infrastructure

Every known Living Lab can count on such an infrastructure for both internal communication and experimentation purposes. At basic level, it can well be a (permanent) online forum attached to the Regional government's portal. Best would be a (freely accessible, geo-localised, always-on) mobile platform, which is possibly the best way to involve and engage individual persons (citizens, entrepreneurs, other stakeholders and decision-makers) in the Living Lab establishment and the PPP community. An intermediate solution can be the one of creating regional sub-sections in the Alcotra Innovation project portal.

Care should be taken of:

- User anonymity (by default) and profiling (with privacy protection) especially for the sake of pilot execution
- Language differences, leaving the opportunity to participate in the local debates using any of the spoken languages of the participant communities
- Structuring (and perhaps moderating) the discussions in the forum at working group level, to limit off-topic interventions and avoid the useless and dangerous "noise", as it happens in most social networks
- Alternating on- and off- line initiatives that can bring more users into the platform, by spreading the awareness on its existence, scope and purposes
- Documenting pilot results on the platform itself in a timely manner
- Integrating the parallel activities that are ongoing within and across the borders on the same thematic domain under the care of other Alcotra Innovation Partners
- Monitoring traffic on a daily basis and keeping contents up to date as much as it is possible





### 3.4.5. - Fifth step of the LEADERS approach (# 5): Establish a local and/or « cross border » PPPP community (PPP+People)

The strength and impact of regional Living Labs is measured by the existence of a community of people (P) that integrates the one of local stakeholders (the PPP), leading to the 4P model, which is essential to activate operationally whenever this is required by the organisation of a Living Lab trial (or pilot). In Alcotra Innovation, this community could and should take on the additional aspect of being (wholly or partly) transregional. This suggests splitting the task above in three consecutive steps:

- a) Create a local community in your region, cutting across the thematic domains selected
- b) Merge your local community with those established in the other regions
- to be setup in the selected thematic domain

Given the early stage of Living Labs establishment in most of the Alcotra Innovation partner regions, it is presumed that this task will have to be initiated from scratch and performed iteratively and accumulatively - in other words, the community of people will grow up over time, in parallel to the successful execution of local and/or cross border pilots. Care should be taken of:

- another is to actively take part in a pilot)
- and awards)
- etc.)
- The language divide, as basic issue in a « cross border » environment

impact of social innovation, e.g. for

- Crowd sourcing of ideas
- Preference aggregation
- Matchmaking
- IPR tracking
- Feedback provision at the point of experience

which heavily depend on the specialisation and thematic orientation of the Living Lab and its pilots, thus cannot be fully described at this stage or in this part of the document.

### **3.4.6.** - Sixth step of the LEADERS approach (# 6): Run one or more User **Driven, Open Innovation pilots**

This step is the most heavily dependent on the needs analysis carried out by each regional partner of Alcotra Innovation on its own territory (see steps #1 and #3 above) and its specific results in terms of identification of local requirements and interested actors for the prospective pilots. Also, the availability of side financing (both within and outside the Alcotra Innovation budget) may make a lot of difference in defining the best possible way to practically implement this phase.

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c) Activate a subset of community members in relation to the goals and methods of the pilot

• Being as inclusive as possible (one thing is to be nominally part of the community,

• Alternating on- and off- line initiatives to promote engagement (see step #4 above)

• Providing incentives to individual participation in the pilots (like small value prizes

Segmenting the community, as long as it is established according to people's skills, preferences and wishes as well as to the nature of prospective pilots (thematic domain,

A number of tools can be attached to the Living Lab's ICT platform to enhance the power and









In principle, every regional government is expected to issue a call for proposals (or a tender for public procurement, if feasible) having the following characteristics:

- aimed at the development/deployment of an innovative solution to satisfy local needs, of either technical or socio-economic nature;
- whereby the Living Lab approach is adopted as method for engaging people (citizens, end users) in the execution of the pilot;
- and with the specific requisite that testing and validation activities take place "across the borders" of the Alcotra Innovation regions, for a precise (technical or commercial) reason that has to be clarified and motivated by the pilot proposers;
- in this context, priority in evaluation can be assigned to proposals formulated by local actors (regional Living Lab stakeholders) - always taking into account the principles of non discrimination and parity of access that are mandatorily enforced in any public procurement procedure.

As alternative options to regional calls, one may imagine the following:

- The Alcotra Innovation project as a whole launches a call for proposals, merging some of the budget resources available at individual partner level;
- The Regional government mobilizes alternative resources to fund the upcoming calls;
- Activities in this phase stop at the level of definition of suitable pilots (e.g. after the results of an informal call for expressions of interest, followed by a direct negotiation between the Regional government and the proposers) waiting for future availability of dedicated funds at regional, national or European level.

Here, as well as in the following step (#7), the role played by the Regional government has to be differentiated, from promoter and animator of the previous stages of the process, to supervisor and "director" of the tendering process, as well as guarantor of the concrete execution of the cross border Living Lab experiment(s).

In the former role, key suggestions are to:

- Assign goal and content leadership to the stakeholders themselves (e.g. SMEs, larger enterprises) prior to the definition of the call for proposals
  - o Here the instruments of the public workshops and thematic working groups are particularly suitable to the purpose
- Be aware of the IPR aspects and their implications (both in the AS IS and the TO BE scenario)
  - o It is not necessarily true that the adoption of an "Open Innovation" approach positively contributes to the protection of rights on background and foreground knowledge created
- Make sure that end user engagement occurs since the early stages of the process
  - o Otherwise, it would not be a Living Lab approach
  - o A number of social research methods and tools can be useful to this purpose (e.g. ethnographic observation, facilitation of small group discussions, Delphi, EASW, direct deliberation etc.)
- Make sure that cross border aspects have relevance

o Otherwise, it would not be coherent with the Alcotra Innovation purposes

In the latter role, the public procurement regulations should be exploited to ensure:

- Openness / transparency of the whole process
- Documentation and reporting (periodic and final)
- Transfer of benefits from innovation to the local community as a whole





#### 3.4.7. – Seventh step of the LEADERS approach (# 7): Summarise and evaluate the results

Whatever the implementation pathway carried out in the previous step, the pilot action under way at regional (and/or cross border) level will be subject to periodic assessment at the level of the overarching structure composed by the representatives of the regional partners of the "Umbrella" Living Lab. In order to facilitate this, a monitoring and evaluation system is to be established (and embedded) upfront and used at a later project stage under the care of each Regional government in charge.

Basic targets of the evaluation should be:

- Community building and proper functioning
- User driven, Open innovation methodology implementation •
- Pilot outputs (and outcomes)
- Stakeholder satisfaction
- Cost / Benefit analysis
- Reuse / Transferability potential
- Policy impact of trials

Particular care should be taken of:

The added value of the « cross border » aspect

For more information on the configuration and execution of this step, the reader is referred to Chapter 5 of this document - "Follow-up and ex-post evaluation".

#### **3.5** – Functioning rules for the cross-border working groups

A specificity of the LEADERS Approach is that it mostly applies to regional officials wanting to establish a cross-border Living Lab. Yet, for a complete definition of the governance rules, we need to cover also the functioning of the cross-border thematic groups, which are to be established in each of the four selected domains of the Alcotra Innovation project. Attendance to each working group is expected to be composed of business associations, regional development agencies, users representatives and research centres from all the participant regions. A proper organisation of work is essential, in order to ensure meaningful inputs for the preparation of the project's cross-regional pilots. The working groups composition should be slim, with a small number of members (possibly integrated by several external experts) and simple rules, in order to be able to manage and run their operations in an effective and efficient way.

In principle, each cross-border working group should play an advisory role to the Regional governments involved in the pilot, facilitating the identification of key technological trends in the thematic domain selected and particularly the advantages of going "across the borders" for trial and validation purposes, having in mind e.g. the wider extension of target market, both for sale and for procurement, as well as its diversity / heterogeneity (which are still a source of innovation).

As a result and in relation to the above, the advice from the working group should also specify the "levels" of innovation that are needed to classify prospective cross-border pilots in the various thematic priorities (e.g. technological innovation by itself, integration of existing technologies, new

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industrial applications etc.), in compliance with the current policy orientation of the participant Regions, as well as the general prescriptions of the "Smart Specialisation" model introduced above.

Additionally to that, the working group is expected to assess the present Guidelines and adapt it to the specific issues and requirements of the respective thematic domain. As the addition of a community of real-life testers is normally expensive per se, thus requiring and justifying the financial intervention of the Region, this discussion might be extended to consider the current and prospective availability of public funds - either within or beyond the Alcotra Innovation budget and to put that in relation with the priority needs of certain implementation areas (e.g. with respect to time to market, market uncertainty, too slow return on investment etc.). In this regard, the working group could help both by introducing new business models and by giving priority to certain innovations, perhaps less radical than others, however more promising from the point of view of the market and the return of employment.

Finally, a huge contribution from the cross-border thematic groups could emerge in the stage of monitoring and evaluation of the trials executed. A highly relevant issue here might be the analysis and discussion of the business model(s) suggested by the user validation or co-creation processes. Since the financial resources for exploitation are normally available outside of the public funding system, one idea might be to associate to the working groups (at least during the evaluation stage) some representatives of the banking and venture capitalist community, who could be asked to comment on the results of the pilots in terms of "short term" profitability and possibly support the following phase of market launch, by necessity run outside the provisions of the Alcotra Innovation project.

As a non-binding proposal for the project partners, the functioning rules for the cross-border thematic domains could be borrowed from a methodology of foresight and future visioning that was developed in the context of the Nordregio project (see Report 2009:2 - "Strong, Specific and Promising. Towards a Vision for the Northern Sparsely Populated Areas in 2020" - by Erik Glørsen) and which is described by the help of the following diagram.



Thematic Working Group Methodology (Nordregio, 2009)

Fondo Europeo di Sviluppo Regionale



The proposed workflow is based on the organisation of two consecutive sessions of the crossborder working groups:

- the first one starts by a joint assessment of the situation (critical problems to overcome, assets available for possible use, etc.)

- then, by means of some facilitation and/or crowdsourcing tools, as many ideas as possible should be generated by the participants, which can later become thematic priorities and/or action strategies (at least those that survive some kind of collective evaluation, to be done later during the workshop)

- next step would be to identify those "essential actors" to the performance or concretisation of some of those ideas, who are not represented at the moment in the working group;

- then some ranking mechanism should be put in place, in order to start prioritising the best ideas (8 of them in this example), not necessarily distributed evenly across the five participant regions, and possibly belonging to the four thematic domains of Alcotra (here marked from A to D), in case the option has been taken to run one single cross-border workshop for all of them;

- prioritisation should be done in terms of strategic/practical value and feasibility of the ideas, short or long term impact and payoff, etc. (as stipulated above while describing the advisory role of the working groups);

- "wild cards" could always be foreseen, to add last-minute proposals to the discussion and evaluation at any time;

- the 8 best ideas (possibly "voted" during the workshop in order to ensure the widest possible consensus) should be presented in plenary at the end of the session and become a visible part of the final proceedings in such a way that the results can no longer be changed at a later stage.

Between the two workshops, a report of the activities should be distributed to the attendees and to additional stakeholders of relevance, in order to ignite reactions and comments from across the respective networks and communities. These reactions should become the starting point for the initial discussion at the second session of the working group, whereby:

- some participants should be expressly invited to speak in favour or against the results of the first session;

- someone (like the workshop organiser or facilitator) should recapitulate the proceedings in terms of common vision(s) on the one hand, but also identification of possible alternatives for the implementation strategy on the other hand;

- most of the discussion should be focused on these multiple directions for implementation (at the level of each proposed theme, supposing again that a single workshop has been setup for the four thematic domains of Alcotra);

- at the end of the session, a shared roadmap towards the future should be prepared and mostly agreed upon, including a selection of administrative instruments (see Chapter 4 and Appendix).

Again the proceedings of the workshop should be made public and known to a wider audience as early as possible by the organising committee. Then at a later stage, when pilot implementation is in progress or completed, the cross-border working group(s) may still be involved in the monitoring and evaluation of results, as discussed above.

Nonetheless, this methodology of foresight and future visioning presents some significant criticalities in the application to the specific case of Alcotra Innovation project. In particular, it is suitable and desirable to organise a first workshop with the participation of stakeholders proposing as many ideas as possible in the thematic domains previously identified: however, if a public authority is going to activate a pre-commercial public procurement or a public











procurement of innovation, not surprisingly this procedure will have the final task of fulfilling, satisfying, needs and expectations of the community represented by the same public body.

Thus, it may not be feasible a prioritisation of the possible solutions and ideas by the working group.

However, it would still be appropriate and advisable a second session of the working group, where the public authority as a coordinator and facilitator involves actively end-users and innovative firms to show and disseminate the results of Living Labs pilot actions: in this occasion all the stakeholders can start an open discussion on the potential implications in terms of territorial policy and development strategy.

This open debate should outline strengths, weaknesses, opportunities and threats of the experimental applications: these data, elements, findings in terms of feasibility and sustainability, will be useful for the elaboration, drafting and joint validation of a strategic cross-border Action Plan for innovation, the last deliverable of our project conceived with the aim of providing regions, in their role of facilitators and accelerators, with recommendations for a common and effective planning of research and innovation policies.

## Helpful Harmful to achieving the objective hieving the objective Internal origin Strengths Weaknesses External origin **Opportunities** Threats

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## SWOT ANALYSIS





## **Chapter 4: Implementation scenarios**

In this chapter we present a brief outline of the current level of definition of the participant Regions implementation plans.

#### 4.1 The Aosta Valley case study

In Aosta Valley, we intend to carry out the pilot action of Living Labs experimentation by means of a pre-commercial public procurement procedure aimed at purchasing services of research, development, prototyping and subsequent testing with end users, hopefully distributed on the crossborder territory.

This procedure is based, as a first element, on a mapping of the regional economic system that, according to a Smart Specialization model, enables the identification of specific thematic areas, consistent with the territorial vocation perspective, the enhancement of territorial specificities and the areas of industrial specialization, towards which experimentation should be directed.

In our case, we have identified the following technology platforms:

- Smart energies;
- Intelligent mobility;
- E-health;
- Creative industry.

The second element needed to support such a system of open innovation consists of the publication of a call for ideas, something less binding than a design contest, which is intended to carry out a survey of the local production system (enterprises, research institutions, ...) in search of possible innovative solutions to technological problems or socio-economic needs that are emerging in the area.

The call, restricted to local actors involved in the previously listed technological platforms, is proposed as an instrument to identify suitable projects for subsequent experimentation with and by the end users, in compliance with the Living Labs approach.

At the same time, it will be necessary to identify the needs and expectations of the community as a whole, in consultation with local public bodies and stakeholders (associations, foundations, agencies, ...).

The "matching" of these findings - on the one hand the proposals of innovative solutions not yet available in the market, on the other hand the emerging needs in the area – will serve to define the specific technological environment in which to activate the Living Labs.

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At this point, the actual pre-commercial procurement tendering process can start, leading to the tendering of "research and development services other than those where the benefits accrue exclusively to the contracting authority, for use in the conduct of its own affairs, on condition that the service provided is wholly remunerated by the contracting authority", which are excluded from the scope of Directive 2004/18/EC, pursuant to Article 16 letter f): however, it always lies with the contracting authority the obligation to respect, all along the procedure, the general principles of transparency, adequate publicity, proportionality, impartiality, and equal treatment.

The rationale for the process described above is that there must be some identified needs for which commercial solutions are not yet available, but at the same time, they are not too far from existing solutions: in fact, in the former case, there would be no need to carry out research and development, while in the latter, research and development may not be sufficient to achieve any results. Thus, analysing community needs or the requirements of the contracting authority is a first critical baseline to pre-commercial public procurement.

Moreover, the contracting authority, although obviously unable to define the technical means for satisfying the needs detected at the base of the contract, is required to translate these needs, previously expressed within the contract notice by means of a qualitative analysis, in terms of a set of functional requirements. In other words, what has possibly emerged from any preliminary need survey done in preparation of the tender, must be translated in terms of technical and quantitative characteristics, suitable for a functional analysis that enables a dialogue to be started with the





suppliers. This crucial activity, which must be carried out under the supervision of an expert in the field, also allows assessing the requirement of correct positioning of the tender with respect to the state of the art in the market of reference.

This apart, the contract notice must obviously specify the terms and conditions of access to the tender, its deadlines and budget. It must be accompanied by the tender documents, which set the rules of procedure and specify the rights and obligations of the contractor.

The first step of the process consists of the invitation to tender, which has to be made public, open and transparent, without undue restrictions to competition, and will be concerning the exploration of possible solutions able to fulfil the needs and requirements above mentioned.

On the basis of the functional requirements expressed by the authority, a dialogue is activated between the contracting public body and the companies who responded to the invitation to tender, where the pros and cons of alternative solutions are analyzed and compared, based on the functional requirements expressed in the contract notice.

In this step, the preliminary selection of proposals for innovative solutions should take place according to predetermined evaluation criteria mentioned in the contract notice, such as:

- authority and declared in the tender documents;
- Scientific validity and/or technological excellence of the project idea;
- results:
- formulation of the proposal;
- idea.

Given the remarkable degree of innovation of the products/services required, it is convenient to foresee some collaboration between companies and research organizations, particularly during the experimental sessions, where user feedback has to be collected and analysed in order to improve the prototypes. This collaboration can either be formally requested by the contract notice, or, more appropriately, be among the awarding criteria while evaluating the proposals.

This step should not last for more than two months. At the end of it, following the criterion of the most economically advantageous offer, the tender can be awarded simultaneously to more than one company, in order to preserve competition among economic operators.

The phase of prototype development should last no longer than six months.

Once the prototype has been developed, a new selection process should be started that would hopefully result in the identification of at least two companies (always with a view to ensure competitive conditions) involved in the development of products in the form of experimental series, suitable to be tested in a Living Lab.

In this phase the evaluation criteria could be the following:

- authority in the tender documents;
- Quality and methodology of the proposed project;
- Innovative characteristics of the product/service prototype(s) involved;

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• Degree of compliance and likelihood to meet the needs detected by the contracting

Potential impact of the research and prototyping through testing and use of project

Quality of the partnership, in terms of complementarity of their skills and extension of the network, in case several businesses and/or research centres are associated for the

• Technical and scientific skills of the human resources involved in the project idea; Adequacy and appropriateness of the costs estimated for the realisation of the project

• Degree of compliance and likelihood to meet the needs declared by the contracting









- Creation of synergies and/or collaborations with other companies, universities and research institutes;
- Utility, consistency and sustainability of the project experimentation done by the end users;
- Reliability of the monitoring and evaluation system as far as the user experimentation actions are concerned:
- Economic offer.

The third step is the real testing phase where the Living Labs are involved, which should last approximately 6 months. Here, the end users, identified in local governments or other public bodies (hopefully located on both sides of the territorial border), will perform validation and verification activities for free, hosting, under a free loan, the products/services to be tested in facilities owned by themselves.

In this phase, we expect to see an upcoming stream of data related to performance, consumption of resources, user satisfaction and other observations, which, starting from the end users, will reach the businesses and research institutions involved in the project through a freely accessible online platform.

At the end of the experiment, the enterprise, by processing the data received as feedback from the end users, with the support of the research organization, will be able to optimize the product or service at hand, which will then be possibly made ready for commercialization.



As far as the management of intellectual property rights is concerned, the public purchaser may not restrict to its exclusive use only the results of R&D aimed at developing and testing the innovative solution, in order, firstly, to respect the principle of risk and benefit sharing, at market conditions, between private enterprise and public administration, and, secondly, to encourage a wider marketing and distribution of the innovative solution identified. Thus, the private company





shall use the results with other potential customers and be in the best position to commercially exploit the prototype.

In particular, if the government should give up all of the intellectual property rights, this would allow the company to make more profits from the sale of the product or service generated by the process of R&D. In this regard, the value of IPR would become an integral part of the price paid to the company, which should apply a further "discount" off the market value of the contract. This reduction of price would be the counterpart of the government relinquishing its own IPR on the market exploitation of the innovative results generated. The contracting authority, however, would retain the right to use the product or service "license free".

It is clear that in this scenario, the economic valuation of IPR is a complex and delicate task of great importance by itself.

#### 4.2 The Piedmont case study

Region Piedmont will give some consultancy / supporting services to its regional stakeholders interested in the four thematic areas.

The beneficiaries will be SMEs, as well as Universities, Research centres and Users' associations who will have written a feasibility plan positively evaluated by the Scientific Committee and the Living Labs project experts. Fundamental criteria will of course be cross-border positive effects and the application of the Living Labs methodology.

The idea behind is of providing innovative actors with some help on the basis of what somehow offered by the Poli d'innovazione or/and other Living Labs. Hereafter some examples of services (the list is not exhaustive and can be changed according to the proponents' needs):

- Management of IPR;
- Technology intelligence;
- Testing of new prototypes in some peculiar lab;
- design of new products / services;
- increase:
- an eye on how to attract Venture Capital and Business Angels.

#### **4.3** The Liguria case study

Regione Liguria is supporting partners for the Alcotra Innovation project in the thematic areas of Intelligent Mobility, Smart Energies and E-health. In the development of the project, Regione Liguria is supported by the public equivalent body Centro Regionale per la Ricerca e l'Innovazione (CRRI – Research and Innovation Regional Centre).

The choice of the specific thematic areas have been carried out on the basis of the mapping of the regional economic structure and the recent creation of several Innovation Poles, matched with the other Regions' industrial policies, identifying a common strategic field.



Assessment and feasibility studies aiming at involving the end users in the co-creation / co-

• Creation of new business relationships between the world of designers and the one of businesses which are often separated and are not aware of the advantages the introduction of design can bring making not only the performances better but also making the turnover

Business management, improvement of company strategy, financial planning – maybe with









The research and innovation policy at regional level has had a special development since the regional law n. 2/2007 passed and a specific planning on research, innovation and higher education has been set since that year. The building of the research and innovation system is one of the focus of the regional policy. Alcotra Innovation reflects this regional policy view and expects to be a step forward in the research and innovation policy, by integrating the policy of the Euroregion, the macroregion including Liguria, Piedmont, Aosta Valley, Rhône-Alpes and Provence Alpes Cote d'Azur.

The birth of the Innovation Poles, with a specific policy action dedicated to them, is another milestone in the system building. The Innovation Poles gather key local stakeholders joined around a specific field of research and innovation and are participated by enterprises, research centres, universities, end users association in some cases, with the relative expertise.

The Alcotra Innovation project gives Liguria the chance to experience a collaborative process toward the experimentation of Living Labs, both regional and trans-border.

Thus the process is inspired to the following principles:

- > Openness
- ▶ Integration of all the relevant local stakeholders (PPPP)
- Participative approach
- Merging of bottom up and top down approach

Given this background, the Alcotra Innovation project, after a mapping of the local stakeholders (mainly based on secondary data), started a gradual raising of awareness process, with different and progressive steps.

After the opening regional workshop, that took place in November 2011, dedicated to a wide public composed by Innovation Poles, enterprises, University, research centres, institutions, consumers and citizens associations, a call for ideas was launched. The objective was to collect ideas on which a Living lab can be experimented and to detect expressions of interest from the stakeholders that could be involved in the following steps of the Alcotra Innovation project.

Local seminars were held in December 2011, one for each thematic area, to discuss and compare the proposed ideas, and preparing the participation to the first cross border meetings.

In all these meetings the focus was set on open innovation and living lab methodology, underlining the importance of the role of the end users in the innovative process.

Since the very first moment the volunteer participation to the project, without specific financing for the development of projects and prototypes, had a strong impact on the features of the participation itself. In fact it meant a participation strongly based on the interest for integrating views, collaborative approach to development of innovation, commitment to the objectives of the project without an immediate financial revenue, focus on the relevance towards regional policy, interest towards trans-border and trans-regional relationships mediated by a new and challenging methodology (Living Lab). All the players have a medium/long term vision, that is very important for the regional strategies.

In this ongoing process of team building for the experimentation phase, Regione Liguria aims at facilitating the collaboration between different subjects, tutoring and selecting the ideas which are the most adequate to be developed in a cross-border environment with a Living Lab approach.





The feedback of local subjects is up to now positive: the participation to meetings is steady and the participants confirm their interest in going ahead with the experimentation. Some newcomers were welcomed in the last local meeting and the group is still open in coherence with the approach of the project.

Following this design, Regione Liguria is going to involve all the interested subject in order to let them

- > participate to the most appropriate trans-border group;
- > contribute to the definition of the idea that will be tested in a Living Lab;
- participate to the transfer of the groups on the online tool (intranet in the website);  $\triangleright$
- > suggest the best services to be provided by the Alcotra Innovation project for the support of the Living Lab.

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## **Chapter 5: Follow-up and ex post evaluation**

Program monitoring and ex-post evaluation uses a combination of qualitative, statistical and econometric techniques to analyze the effects of the policy intervention. The diversity of the methodologies available for performing an evaluation is a signal of the multiple dimensions in which the impacts of policy intervention might manifest themselves. For this reason, no single best evaluation methodology exists. Each methodology can be fitted to analyze particular dimensions of impact, but a 360° evaluation approach would certainly require a combination of several concurrent methodologies, possibly applied at various levels of data aggregation. Proceeding in this way would allow cross checking the robustness of the observed effects of the specific intervention<sup>10</sup>.

To appreciate the added value and the degree of sustainability of the cross border Living Lab approach in relation to the objectives of Alcotra Innovation, it is important to define a grid of indicators that should be measurable and measured both in the preparatory stage, right after the regional Living Lab's first time establishment, and in the pilot execution stage, both for monitoring and post project evaluation purposes.

The proposed grid of indicators should be common to (and thus accepted by) all the partners involved in the Alcotra Innovation project, with the only possible qualification deriving from the specificities of the thematic domains selected. This would avoid the risk of heterogeneity (if not discretion) in the evaluation approaches naturally followed by partners with different cultural and technical background, domain experience and expertise. In case a common grid of indicators and a common template for textual reporting were not defined, a second level control of the individual evaluation sheets should be foreseen, with the aim of making them as "comparable" as possible – both in terms of normalization of the quantitative indicators, and alignment of qualitative analyses between each other and with the respective numerical values. Of course, this procedure would be extremely time consuming, while at the same time bringing no guarantee of adequate performance.

After reaching an agreement on indicators and reporting templates, the Alcotra Innovation partnership should decide if the monitoring should be carried out by each single partner on the Living Labs and pilots of direct competence (territorial and thematic) or by a team of external experts, through remote means (web based) and site visits. Joining remote evaluation to site visits allows speeding the process, running more activities in parallel and saving time by the automation of certain procedures, including the return of results.

A suitable methodology in order to undertake a consistent ex post evaluation could be the involvement of the cross-border working group (see paragraph 3.5), invited to comment on and validate the results of the pilot actions.

It is then advisable to prepare a simple evaluation form, made available on the project's web portal, allowing the upload of information by each single partner, the automatic aggregation of data pertaining to the same cross border pilot, the feeding of project indicators and their visualization by an appealing graphical layout, easily understandable by non technical people. By acting in this way, it would be possible to spread the knowledge about the evaluation results to a much wider audience, in line with the principles of Open Innovation that are connatural to the Living Lab approach.

Remote evaluation and site visits of individual experts can be integrated by some of the eleven methodologies, which are usually adopted for the ex-post evaluation of EU funded RTD programs and policies. These have been clustered by the "RTD Evaluation Toolbox" into three

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main categories (i.e. Statistical data analysis, Modeling and Qualitative or Semi-quantitative methodologies), which are further described here below:

### 5.1 - Statistical data analysis methodologies

- it using descriptive statistics.
- across entities and providing a reasoned explanation for their values.

#### 5.2 - Modeling methodologies

- socio-economic impact of policy interventions.
- individual participant had the program not taken place.
- effects of R&D on the economy.
- participant using sophisticated statistical techniques.

#### **5.3** - Qualitative and Semi-quantitative methodologies

- investigate behaviors in their indigenous social setting.
- economically efficient by appraising all its economic and social effects.
- observed behaviors by following their social connections into networks.
- strategic efficiency of projects and programs.

The following table extrapolates from the aforementioned Toolbox a number of indicators, in association with the methodologies (highlighted in green) that could possibly be used in the Living lab evaluation process:



• Innovation Surveys: provide basic data to describe the innovation process, summarize

Benchmarking: allows performing comparisons based on a relevant set of indicators

• Macroeconomic modeling and simulation approaches: allow estimating the broader

• Microeconomic modeling: permits to study the effect of policy intervention at the level of individuals or firms. There are mechanisms to control for the counterfactual by specifying a model that allows estimating the effects on the outcome of the

Productivity analysis: permits to assess the impact of R&D on productivity growth at different levels data aggregation. This is particularly relevant to analyze the broader

• Control group approaches: allow capturing the effect of the program on the individual

• Interviews and case studies: use direct observation of naturally occurring events to

• Cost-benefit analysis: allows establishing whether a program or project is

• Expert Panels/Peer Review: measure scientific output relying on the perception scientists have of the scientific contributions made by other peers. Peer review is the most widely used method for the evaluation of the output of scientific research.

• Network Analysis: allows analyzing the structure of co-operation relationships and the consequences for individuals decisions' on actions providing explanations for the

• Foresight/ Technology Assessment: are used to identify potential mismatches in the

<sup>&</sup>lt;sup>10</sup> RTD Evaluation Toolbox - Assessing the Socio-Economic Impact of RTD-Policies - August 2002











In this framework, our proposal, which derives from step #7 of the LEADERS approach, is to focus on the following evaluation targets:

- Community building and proper functioning
- User driven, Open innovation methodology implementation
- Pilot outputs (and outcomes)
- Stakeholder satisfaction
- Cost / Benefit analysis
- Reuse / Transferability potential
- Policy impact of trials
- The added value of the « cross border » aspect
- Miscellaneous

items – naturally open to discussion with the Alcotra Innovation partners.

EVALUATION TARGET	INDICATOR NAME	NATURE	VALUE AND RANGE	ACTION ITEM	SOURCE OF
1. Community building and proper functioning	1.1. Number of stakeholders involved in the Living Lab PPP	Process indicator (quantitative)	Integer >0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	Internal to the PA
	1.2. Number of citizens involved in the Living Lab PPPP	Process indicator (quantitative)	Integer >0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	Internal to the PA
	1.3. Stakeholder categories represented in the Living Lab PPP (out of a given list, e.g. business associations, R&D and TT centers, public agencies, SME's, consumer associations etc. – to be prepared in advance)	Process indicator (semi- quantitative)	For each category Yes = 1, No = 0	Self-evaluation. In case a category is not represented, explain the rationale and potential impact on Living Lab functioning	Internal to the PA
	1.4. Formal establishment of a Living Lab partnership	Process indicator (semi- quantitative)	Protocol of intent = 1, New entity created = 0, No such thing = -1	Self-evaluation. Please motivate the choice and confirm its validity over time	Internal to the PA
	1.5. Number of stakeholder workshops held	Process indicator (quantitative)	Integer > 0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	Internal to the PA
	1.6. Community ICT infrastructure	Process indicator (semi- quantitative)	Dedicated = 1, Dual use = 0, No such thing = -1	Self-evaluation. Please motivate the choice and confirm its validity over time	Internal to the PA
2. User driven, Open Innovation methodology implementation	2.1. Collection of tools used in the Living Lab trials, e.g. for •Crowdsourcing of ideas •Preference aggregation •Matchmaking •IPR tracking •Feedback provision at the point of experience •Other	Process indicator (semi- quantitative)	For each tool Yes = 1, No = 0	Self-evaluation. In case a tool is not used, explain the rationale and potential impact on Living Lab functioning	Internal to the PA

Evaluation Indicators								
Methodology	Data application level	Areas of application	Output Indicators	Outcome Indicators	Impact Indicators			
Innovation Surveys	Firm Industry Economy-wide	Innovation IPRs Technology transfer Research collaboration	New products and processes Increase in sales Increase in value added Patent counts, IPRs	Creation of new jobs Innovation capacity building	Enhanced Competitiveness Institutional and organisational efficiency, Faster diffusion of Innovation Employment			
Micro Methods	Plant Firm Industry Economy-wide	Sectoral Returns to R&D	Output and value added (collect baseline info for before-after comparisons)	Sectoral productivity industry sectoral spillovers Additionality, Leverage effects	Firms competitiveness			
Macro Methods	Firm Industry Economy-wide	Sectoral Regional Economy-wide	Output and value added	Change in R&D Capital, Human capital, Social capital International R&D Spillovers	Regional, country productivity Employment, Good governance Economic and social cohesion			
Productivity Studies	Plant Firm Industry Regional Economy-wide	Sectoral Regional Economy-wide	Output and value added	knowledge, geographical and International R&D Spillovers	Regional, country productivity Employment Economic and social cohesion			
Control Group Approaches	Firm Industry	Technology implementation Innovation	Output and value added (on supported and non supported firms)	Additionality Rate of return to R&D	Firm, industrial competitiveness			
Cost Benefit Analysis	Firm Industry	Health Environment Energy Transport	Value added benefit-cost ratio IRR Consumer surplus	Health improvements Consumer protection Environmental sustainability	Quality of life Standard of living			
Expert Panels/ Peer Review	Firm Industry Economy-wide	Scientific merit Technological capacity	Publication counts Technological output	Scientific and Technological capabilities	R&D performance			
Field/ Case Studies	Firm Industry	Science- industry relationships	Detailed inputs and outputs	firms RTD capabilities on the job-training educational schemes	Industrial competitiveness Quality of life Organisational efficiency			
Network Analysis	Firm Industry Regional	RJVs, cooperation science industry Clusters	Co-operation linkages	Co-operation in clusters Social embededness	Efficiency of institutional relationships			
Foresight/ Technology Assessment	Institution Regional Economy-wide	Technology Trends	Identification of generic technologies Date of implementation	Technological capacities	Technological paradigms shifts			
Benchmarking	Firm Industry Economy-wide	Efficiency of technology policy	S&T indicators	Technology capabilities	Industry competitiveness Good governance			



## In association to the above, we present the following grid of indicators, scores and action













	<ul> <li>2.2. Collection of methods used in the Living Lab trials, e.g. for</li> <li>Ethnographic observation</li> <li>Facilitation of small group discussions •Delphi</li> <li>EASW</li> <li>Direct deliberation</li> <li>•Other</li> </ul>	Process indicator (semi- quantitative)	For each method Yes = 1, No = 0	Self-evaluation. In case a method is not used, explain the rationale and potential impact on Living Lab functioning	Internal to the PA
	<ul> <li>2.3. Online participation rates, e.g. in terms of</li> <li>Registered users •Number of visits</li> <li>•Number of posts •Number of threads</li> <li>•Number of up/downloads</li> <li>•Number of votes</li> <li>•Other</li> </ul>	Output indicator (quantitative)	For each item Integer >0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance (possibly scaled by the number of Internet users in the region)	Internal to the PA
	<ul> <li>2.4. Offline participation rates, e.g. in terms of</li> <li>Number of events organized</li> <li>Number of attendees</li> <li>Number of letters sent</li> <li>Number of replies</li> <li>Number of technical proposals received</li> <li>Other</li> </ul>	Output indicator (quantitative)	For each item Integer >0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance (possibly scaled by the adult population in the region)	Internal to the PA
3. Pilot outputs (and outcomes)	3.1. Number of trials activated	Output indicator (quantitative)	Integer >0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	Internal to the PA
	3.2. Number of thematic domains represented in the trials	Output indicator (quantitative)	Integer >0 (actually between 1 and 4)	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	Internal to the PA
	3.3. Number of new and/or innovative products, processes and services experimented	Output indicator (quantitative)	Integer >0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	External to the PA (e.g. pilot leaders)
	3.4. Number of joint ventures, strategic alliances, Newco's and business plans launched	Outcome indicator (quantitative)	Integer >0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	External to the PA (e.g. pilot leaders)
4. Stakeholder satisfaction	4.1. Feedback received during interviews on a variety of predefined items (to be specified – basically taken out of this grid of indicators, but in qualitative terms)	Outcome indicator (semi- quantitative)	Likert scale (2 = very satisfied, 1 = satisfied, 0 = neutral, -1 = not satisfied, -2 = very unsatisfied)	Self-evaluation. In case of poor results, justify the most likely causes and potential impact on Living Lab functioning	External to the PA (e.g. citizens, SMEs etc.)
	4.2. Online feedback from surveys on the same items as above	Outcome indicator (semi- quantitative)	Likert scale (2 = very satisfied, 1 = satisfied, 0 = neutral, -1 = not satisfied, -2 = very unsatisfied)	Self-evaluation. In case of poor results, justify the most likely causes and potential impact on Living Lab functioning	External to the PA (e.g. citizens, SMEs etc.)
	4.3. Number of stakeholders globally involved in the trials (consortia)	Output indicator (quantitative)	Integer > 0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	Internal to the PA

	4.4. Number of stakeholders involved in more than one trial (consortium)	Output indicator (quantitative)	Integer > 0	Self-evaluation. In case of unexpected results, be ready to interpret or find the most likely causes and potential impact on Living Lab functioning	Internal to the PA
5. Cost / Benefit analysis	5.1. Global funding available to the trials	Input indicator (quantitative)	Integer > 0	To be normalized later on (e.g. scaled by no. of trials, pilot outputs and outcomes)	Internal to the PA
	5.2. Number of trial proposals submitted	Output indicator (quantitative)	Integer > 0	Self-evaluation. Helps estimate the administrative burden.	Internal to the PA
	5.3. Average time before trial start-up (in months)	Process indicator (quantitative)	Integer > 0	Self-evaluation. Helps estimate the administrative burden.	Internal to the PA
	5.4. Average duration of funded trials (in months)	Output indicator (quantitative)	Integer > 0	To be normalized later on (e.g. scaled by no. of trials, pilot outputs and outcomes)	Internal to the PA
6. Reuse / Fransferability potential	6.1. Number of follow-up projects activated	Outcome indicator (quantitative)	Integer > 0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	External to the PA (e.g. pilot leaders)
	6.2. Number of new markets approached	Outcome indicator (quantitative)	Integer > 0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	External to the PA (e.g. pilot leaders)
	6.3. Number of new collaborations activated with external entities	Outcome indicator (quantitative)	Integer > 0	None. As the Living Lab is normally created from scratch, this indicator will be used in several points of time to monitor performance	External to the PA (e.g. pilot leaders)
7. Policy impact of rials	7.1. Collaboration level of the Living Lab with existing entities and infrastructures (e.g. technology districts, innovation poles etc.)	Output indicator (semi- quantitative)	High = 1, Fair = 0, Critical = -1	Self-evaluation. Please motivate the choice and confirm its validity over time	Internal to the PA
	7.2. Need to revise existing priorities, action lines, budget allocations etc. after the trials	Outcome indicator (semi- quantitative)	No = 1, Perhaps = 0, Yes = -1	Self-evaluation. Please motivate the choice and confirm its validity over time	Internal to the PA
3. The added value of the cross border aspect	8.1. Number of cross border stakeholders involved in the trials (consortia)	Output indicator (quantitative)	Integer > 0	Self-evaluation. In case of unexpected results, be ready to interpret or find the most likely causes and potential impact on Living Lab functioning	Internal to the PA
	8.2. Number of cross border citizens involved in the trials (community members)	Output indicator (quantitative)	Integer > 0	Self-evaluation. In case of unexpected results, be ready to interpret or find the most likely causes and potential impact on Living Lab functioning	External to the PA (e.g. pilot leaders)
9. Miscellaneous	9.1. Global employment created during the trial phase	Output indicator (quantitative)	Integer > 0	Self-evaluation. Helps estimate the economic impact	Internal to the PA
	9.2. Female employment created during the trial phase	Output indicator (quantitative)	Integer > 0	Self-evaluation. Helps estimate the gender parity factor	Internal to the PA
	9.3. Youth employment created during the trial phase	Output indicator (quantitative)	Integer > 0	Self-evaluation. Helps estimate the social impact	Internal to the PA

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## **Appendix: Pre-commercial public procurement and** Living Labs

The Open Innovation model represented by the Living Labs has considerable and undeniable aspects of synergy and complementarity with the instrument of pre-commercial public procurement, i.e. that particular type of public sector's tendering and purchasing that only (or mostly) include R&D and innovation services and their resulting prototypes.

Recently the European Commission, being aware that the public sector is increasingly called to respond to major societal challenges, in sectors ranging from health care to environment, from energy to transport, has highlighted the importance of public demand to boost the Community's research and innovation capacity. In particular, the EC Communication COM(2007)799 of 14.12.2007 addresses the topic of pre-commercial procurement, intended as a tool for promoting innovation to ensure sustainable and high quality public services, in particular at a time when financial resources are limited and their allocation to R&D support should become more and more focused, also in relation to the Smart Specialisation approach.

By adopting the pre-commercial procurement instrument locally, "synergetic" policies may be developed, by which governments can acquire innovative prototypes prior to marketing and at lower-than-market prices, while at the same time stimulating private companies in carrying out industrial research and experimental development on sectors of public (societal) relevance.

Following are the key features of pre-commercial procurement<sup>11</sup>:

- > Limited scope to R&D services. R&D can cover activities ranging from the search to the elaboration of solutions, from the refinement of prototypes to the initial development of a limited number of preliminary products or services in the form of experimental series, with the aim of incorporating the results of field testing and demonstrating the suitability of the product or service to marketing, in accordance with acceptable quality standards;
- > Sharing of risks and benefits applies. The public purchaser does not restrict the results of R&D to its exclusive usage. Public authorities and enterprises share the risks and the benefits of R&D as necessary to develop innovative solutions, more efficient than those available on the market;
- > A competitive procurement designed to exclude State aid. This because the procurement process still obeys the principles of competition, transparency, openness, fairness and pricing at market conditions, by which the public purchaser can identify the best solutions that the market is able to offer, under the sole conditions that more than one single bid is awarded in the pre-commercial phase, and for the purchasing of commercial products the standard procurement legislation is followed;
- > Performance evaluation in real operational settings. This is one of the aspects that closely resemble the Living Lab approach. By testing and assessing the prototypes in a real-life operating environment, public purchasers can drive product developments to their own priorities in a stage where it is still possible to influence the industrial plans and upcoming standards. This opportunity to experiment products fulfilling the needs of





prospective customers can be enhanced by the adoption of Living Labs, where, by the involvement of public sector entities in the validation and verification stages, meaningful feedback can be sent to the private companies. Moreover, the possibility of sharing knowledge on future market trends enables innovative businesses to better predict the demand for new solutions, to reduce the time to market and to optimize their R&D spending, while governments and other local public bodies are allowed a quicker and more focused adoption of the new technological solutions they were looking for;

other markets.



In terms of operational procedures, to preserve competition among companies in creating a range of options, the pre-commercial procurement is based on a staged development process, designed to gradually select the most suitable solutions:

> 0. "Phase Zero" (not shown in the picture): detection of actual or potential needs of the public sector and/or territorial community as a whole, for which there are not yet available solutions capable of satisfying them: this phase allows to ensure the conformity of the goods and services subsequently produced to the specific requirements and needs defined and expressed at the outset;

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> Early involvement of public sector authorities in the process of innovation. Such engagement since the beginning of the innovation process also enables public bodies to identify, at an early stage, potential problems of policy or legislation that have to be solved to ensure a legitimate and timely introduction of the new solutions in public services and

Pre-commercial procurement: Staged development process



<sup>&</sup>lt;sup>11</sup> Communication of the European Commission COM(2007)799 of 14.12.2007 "Pre-commercial procurement: Driving innovation to ensure sustainable high quality public services in Europe".







1. **"Phase 1"** (Solution exploration): it starts by the publication of a pre-commercial call for tender, by inviting a number of private companies to develop, in a competitive environment, the best possible solutions to meet the aforementioned needs and requirements of the contracting body. Based on these requirements, an open and transparent dialogue is activated with the companies responding to the invitation, to analyze and compare the pros and cons of alternative solutions: this process of mutual learning between public authorities and private companies enables the contracting authority to get a firmer confirmation of its functional and performance requirements (the "demand side"), and the bidders to become more aware of the capabilities and limitations of their new technological developments (the "supply side");

2. **"Phase 2"** (**Prototyping**): at the end of the tendering process, several enterprises must be concurrently awarded the service of prototype development, in order to preserve the competition between economic operators, to be identified according to the criterion of the most economically advantageous bid for the contracting authority;

3. **"Phase 3"** (**Test series**): once the prototypes have been developed, a new evaluation process starts identifying at least two undertakings involved in the development of products in the form of experimental series, again having mind to ensure competitive conditions in the market. By keeping a positive competitive pressure on suppliers, public procurers can get the best solutions the market has to offer, while at the same time avoiding to be tied to one single supplier.

Only at the end of the tendering process, the public purchaser will have all the elements of comparison that allow establishing whether the solutions developed are actually better than those available on the market at that moment: the fact that a company has done the R&D and developed a working test series can not by itself constitute a guarantee of obtaining a contract for mass delivery.

Thus, pre-commercial procurement has to be seen as a kind of preparatory exercise, which enables public purchasers to "filter" the technological R&D risks of potentially alternative solutions before entering into contracts for their commercial supply. This distinction with respect to commercial procurement allows a contracting authority to stay focused on the acquisition of knowledge to identify the "best" solutions that the market can offer in the stage of commercial maturity, without any State aid implication in favour of private enterprises.

Given the effective sharing of risks and benefits between the contracting authority and the bidding company, the cost paid for product/service development can only be lower than the market price. This takes into account the implicit costs incurred by the public authority and the benefits obtained by the enterprise through collaboration with the public body in the production of results.

As far as intellectual property is concerned, we can say in general that the results should be made available to a wider audience, composed of further public authorities potentially interested, and especially of additional companies. In the event that patent rights or similar arise from the execution of activities, the company awarded the contract and the contracting authority will be co-owners, in the spirit of risk and benefit sharing. If the contracting authority requires an exclusive use of such intellectual property rights and, therefore, obtains full ownership of exploitation rights, a higher price can be negotiated and granted to the bidding company by way of compensation. Conversely, if the government relinquishes the commercial exploitation of research results and





related intellectual property rights, a lower price can be awarded, taking into account the loss of economic utility deriving from that behaviour.

In light of this overview of the features of pre-commercial public procurement, it is possible to start a reflection on the methodology of Living Labs and find important areas of complementarity between these instruments and the public procurement for innovation, together with common goals and opportunities.

Having said that, in practice, for the realization of Living Labs, it is necessary to identify which regulatory framework is suitable to regulate these cases. Our reflections led us to investigate three different scenarios.

First, the Directive 2004/18/EC of 31.03.2004 on the coordination of procedures for the award of public works contracts, public supply contracts public and service contracts specifically caters for the possibility that a contracting authority decides to purchase "research and development services other than those where the benefits accrue exclusively to the contracting authority, for its use in the conduct of its own affairs, on condition that the service provided is wholly remunerated by the contracting authority" (Article 19, Paragraph 1, Letter f) of the Italian Code of Public Contracts – ex Art. 16, Bullet f) of the Directive 2004/18/EC).

In this case, the purchasing process can well exclude the application of the Code of Public Contracts (or EC Directive): the contracting authority would have only the duty to comply with the general principles of economy, effectiveness, impartiality, and equal treatment. For instance, the award should be preceded by an invitation extended to at least five competitors, if they actually exist on the market.

Framed within these principles, for practical implementation purposes, one could adopt a tendering procedure that, starting from a public contract notice, would compare different proposals to meet a specific need of the public administration involved. The selection process, based on the criteria established in the invitation to tender, should be achieved along several consecutive phases (at least two of them should be foreseen), awarding more than one single bid at each phase till the end of the process – which is the essence of pre-commercial public procurement indeed.

However, the Directive 2004/18/EC already foresees a procedure that, in its broad lines, is very similar to what one could put in place here: the competitive dialogue (Article 29). This also can be split up into phases, in order to gradually reduce the number of solutions to be evaluated. At the end of a dialogue with all the participants, the contracting authority invites them to submit their "ultimate bids" on the basis of the solutions proposed and specified during the dialogue phase: among these, the most economically advantageous will ultimately be chosen. In this case, only one single bid may be granted – which is one of the key differences with respect to pre-commercial public procurement – but the nature of the products and services required should be closer to the "solution" than the "prototype" level, i.e. able to fulfil the needs of a contracting authority while being already existing, as products or services, on the general market.

According to art. 29 of Directive 2004/18/EC, the competitive dialogue can be used by the contracting authorities "in the case of particularly complex contracts, ... (if they) consider that the use of the open or restricted procedure will not allow the award of the contract", adopting the sole awarding criterion of the most economically advantageous tender. To the purposes of art. 29 of the Directive, a public contract is considered to be "particularly complex" in two cases:

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- a. when the contracting authority does not have, because of objective factors not attributable to it, sufficient knowledge on the legal and financial make-up of a given project;
- b. when the contracting authority is not objectively able to define the technical means to satisfy its needs or objectives.

Additionally to that, the Italian Code of Public Contracts considers particularly complex, according to the specific circumstances, contracts where the contracting authorities do not have, due to objective reasons that are not attributable to them, prior studies available on the identification and quantification of their requirements, or the instrumental means to their satisfaction, or the functional, technical, managerial and financial-economic characteristics of the same. In fact, in this case, those innovative products or services that are aimed at meeting the requirements of public administration but have not yet been fully developed, may be considered as non-available.

A third option to make the Living Lab approach operational could be the activation of a service contract, specifically for the provision of testing services aimed at the adaptation of existing prototypes to the needs expressed by the public administration. A prerequisite for this experiment is that the contracting authority should then be able to capture the benefits of the product or service in full during the duration of the contract. At the same time, the service provider might take benefit from running a test of the product/service in real-life conditions on concessional terms, by which an important end user feedback would be received in the perspective of future commercialisation.

Additionally to that, if the Living Lab project refers to the field experimentation of a product or service that already exists at the level of pre-series, a negotiated procedure could be set up without the prior publication of a contract notice for the supply of products that are "manufactured purely for the purpose of research, experimentation, study or development; this provision does not extend to quantity production to establish commercial viability or to recover research and development costs" (Article 57 of the Italian Code of Public Contracts - Article 31 of the Directive 2004/18/EC).

This negotiated procedure should include the consultation of at least 3 economic operators to award the most economically advantageous bid. Its operational rules are already defined in the Italian and French Codes of Public Contracts, which set out in detail how to evaluate and select the bids.

With regard to the activities of field-testing of the product or service, which is the qualifying aspect of a Living Lab, one might think of delivering the prototypes to the end users (for example local government officials) in ownership or temporary use (by a contract of loan, lease, etc...). The end users would provide feedback to businesses in terms of product/service performance, reliability, responsiveness to public needs, participating in the Living Labs for free. As a corollary, a service contract could also be setup for the construction of an information environment by which test data would be exchanged in encrypted mode between users and businesses.

Either approach described above, in our opinion, is applicable in particular to those types of Living Labs in which the trial takes place by a really creative process that meets a need formally expressed and/or spontaneously emerging from the territory, id est in cases in which research and development of a new product and/or service also requires the interaction with end users.

These are all scenarios in which the user co-creation approach is essential to innovation, lying ahead of the industrial product development stage. However, one can also have a creative process in cases where there already is a demonstrator, so there is room to steer prototype development by the interaction with the Living Lab users.

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However, in the pre-commercial procurement scenario, a clear answer to the issue of shared intellectual property must be given upfront, because the results of R&D also belong to the contracting authority, in view of the sharing, at market conditions, of the risks and benefits between private enterprise and public administration, so that both parties are interested in the marketing and wide adoption of the innovative solution identified. The government should, therefore, somehow, learn how to manage their exploitation. The public purchaser may not restrict the results of research and development to its exclusive use: thus, the private company can reuse them in relation to other potential customers.

So the question becomes how to promote, in terms of regulatory environment and contractual relations between the contracting authority and the awarded company, a wider adoption of the innovative solution generated in this context. In order to answer this question, it seems reasonable to start from the assumption that a generic research and development project that is viable for commercial exploitation, or the results of which can be sold on the market, should be characterized by a higher value of the associated intellectual property rights (IPR) from the perspective of a private enterprise.

Thus, the renunciation of all or part of the IPR by the contracting authority should be desirable for the firm, in so far as it would allow it making more profits from the sale of the product or service generated by the process of R&D. In this respect, the value of IPR should be considered as part of the compensation to the company for the R&D work done during the project, and in case it were negotiated upfront within the procurement process, it should result in a further "discount" to the price of the R&D services, a reduction in their market value that is compensated by having, in full, at a later time, the right to commercial exploitation $^{12}$ .

This latter option is provided by the Commission Staff Working Document that accompanies the aforementioned EC Communication COM(2007)799 of 14.12.2007 on pre-commercial public procurement. To confirm its validity is the fact that a private enterprise, at least in the case of its own core business, is certainly more capable of economically exploiting the results of any research than public administration. Secondly, IPR may involve huge maintenance costs - as well as legal, in case of disputes: relinquishing the property rights "frees" the contracting authority from these charges, leaving them entirely to the private enterprise. Last but not least, the company, if owning the IPR in full, is in the best condition to take advantage of the associated know-how, often a real wealth of information, for additional projects in the medium to long term.

In any case, this approach generates some problems, referring to the economic valuation of the emerging rights.

For each of the three scenarios outlined above, the following table highlights the legal constraints, opportunities and positioning with respect to the market.







<sup>&</sup>lt;sup>12</sup> The contracting authority, in this case, would retain the right to use the results on a « license free » basis.







LEGAL REFERENCES	DESCRIPTION	CONSTRAINTS	OPPORTUNITIES	AWARDING PROCEDURE	POSITIONING WITH RESPECT TO THE MARKET
Art. 16 of Directive 2004/18/EC EC Communication COM(2007)799	Pre-commercial procurement of research and development services	Following a need expressed by the community The public authority takes part in the product/service development process Intellectual property of results must be defined upfront Complex procedure	Thanks to the competition among several providers, procurement costs are ultimately lower for the contracting authority. Also the company takes benefit from sharing the costs of R&D and being visible during the (Living Lab) experimentation Compliance of product/service to community needs	Stepwise (not regulated in the Directive)	Prior to industrialisation of the good or service prototype
Art. 29 of Directive 2004/18/EC	Competitive Dialogue	The contracting authority can use the product or service only during the (Living lab) experimentation Complex procedure	The public authority doesn't have to incur in maintenance and management costs because the product/service is available just in the Living Lab period	Stepwise (regulated in the Directive)	Phases reasonably near to the market launch
Art. 31 of Directive 2004/18/EC	Negotiated procedure	It is not a real co-creation – rather a validation and verification process Limited adaptations and refinements of the prototype are possible after the testing phase If other users than the contracting authority participate in the Living Lab experimentation, this has to be defined upfront	Simplicity of the procedure The contracting authority buys the prototype (or pre- testing series thereof)	Regulated in the Directive	Phases of prototyping, engineering and industrialisation of the good or service





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## Sitography

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