European Union | European Regional Development Fund

Sharing solutions for better regional policies

Regional Action Plan

Portugal – Norte

Implementation of a Living Lab

In the context of:

HELIUM project,
under INTERREG Europe

Part I – General information

Project: HELIUM - Health Innovation Experimental Landscape through Policy Improvement -

Partner organisation: ANI - Portuguese National Innovation Agency

Other partner organisations involved: University of Porto

Country: Portugal

NUTS2 region: NORTE

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Part II – Policy context

The Action Plan aims to impact:	X	Investment for Growth and Jobs programme
	☐	European Territorial Cooperation programme
	☐	Other regional development policy instrument

Name of the policy instrument addressed: ROP North 2020 (Norte 2020)

Norte region of Portugal is a convergence region undergoing a structural change process towards a more knowledge intensive economy. Norte 2020 is a key instrument to support this change, comprising an integrated set of priorities and funding instruments addressing the main challenges and opportunities of Portugal's Norte region. Norte 2020 is comprised of an integrated set of priorities and funding instruments addressing the main challenges and opportunities of Portugal's Norte region.

Norte 2020 thus applies new instruments, i.e. Collaborative Projects, Demonstration Projects and Mobilisation Projects, which support the development of new products and services, the valorisation of results from previous R&D projects, their demonstration in real life conditions, including setting up of pilot lines. Health is a key smart specialisation sector to be targeted, with huge potential for interaction among different actors, cross fertilisation and further valorisation.

Although investment in R&D activities has strongly increased since 2003, it is still below the national level and much lower than the European average. The key challenges to be tackled in the region are improving knowledge and skills, facilitating the access to finance and business innovation. There is a need to support innovative companies applying and introducing new technologies in healthcare and foster the valorisation of research results into commercially successful innovations by further stimulating the collaboration between industry and research being lined up with ROP Norte 2020 on the promotion of the **commercialisation** of goods and services in wider markets and internationalise the business community. ROP Norte 2020 also enhancement the importance of

human resources skills, particularly through advanced training, being that goal achieved through action 3 of this plan, were different activities like training, mentoring and coaching actions. Training sessions are a tool for the idea's transformation into technology-based projects to the market. On the other hand, mentoring and coaching sessions with professional advisors with multiple domains of competence, will help the entrepreneurs to create the knowledge adjusted to the key aspects of their products / services.

Part III – Details of the actions envisaged

The 2018 edition of the European Innovation Scoreboard highlights that the EU's innovation performance continues to improve, that progress is accelerating, and that the outlook is positive. For Portugal, a Moderate Innovator, performance has declined over time relative to that of the EU in 2010.

Portugal's strongest innovation dimensions are an innovation-friendly environment and innovators, being the sales impacts and linkages the weaknesses that are the pointed out by the Scoreboard.

One of the key assumptions of the HELIUM project is that efficiency of public funding dedicated to health innovation can be increased if at the end of the innovation process actual market implementation happens, and innovative products and services are able to be translated into successful business models. This needs raising awareness and changing the mindset of all those actors who represent the potential market of these innovations, make them ready and willing to uptake innovative healthcare products and services.

Thus, to raise awareness and disseminate knowledge to health actors, we will put in practice the good practices identified and knowledge learnt from other partners for the benefit of their own region, through the creation of one Living Lab that operates according to the development model "open innovation functional region". The integration of Living Labs within our regional action plans will strengthen the collaboration within the quadruple helix and will improve the care system and competitiveness of the health industry.

The good practices to be implemented in the Action Plan described next, will follow mostly LiCalab's methodology, a mature care Living Lab based in Belgium that supports companies and care organisations in running R&D and innovation projects for the healthcare market. The lessons learned from interactions with this institution have helped us in the preparation of the Living Lab launch and the definition of its procedures and management activities (Action 1). Similarly, their approaches regarding Creation and Valorisation of innovation (Actions 3 and 4 of this plan) were paramount as benchmarks for the development of our training programme – Ignition and product development, and Acceleration and transfer to market.

We have also drawn lessons from some other Good Practices, regarding procedures for specific actions, namely some ways of increasing efficiency in innovation scouting (Action 2), learned from the Innovation Scouts Programme, from the UK, and from the Slimmer Leven initiative, from the Netherlands.

Since all three good practices referred above had already been signalled out during the earlier stages of the partner knowledge sharing within HELIUM, they were the main focus of our planned staff exchange programmes, and thus the interregional learning process upon which the project stands were of overwhelming importance for the success of the conceptualization of the actions presented in this document.

Moreover, in partnership meetings during the HELIUM project, we had the opportunity of engaging with relevant stakeholders with all the regional innovative ecosystems. Namely, we had interesting learning moments with Design Terminal, from Budapest. We were not able to personally develop the sharing of experience (since a third staff exchange was not possible), but have followed up remotely on some questions and have left an open door to the possibility of further partnerships with the Living Lab. Design Terminal's experience was a valuable addition to the definition of Actions 3 and 4.

The shared rational behind the five actions contained in this Region Action Plan is the establishment of a structure (even if a conceptual one) that will spread over all four stages of the innovation process (Scouting, Creating, Valorising, Uptake).

Although no specific activity is outlined to address the final stage – Uptake – we believe that the actions developed within the other stages and the amount of visibility that projects will gain from the participation in the Living Lab will definitely contribute for the significant increase in their success when approaching the market.

ACTION 1

Collaborative Living Labs – Set-Up and Management

1. The background

With the implementation of Living Labs focused on healthcare market, it is intended to boost the innovation ecosystem of the region by providing regional actors with a set of tools that will enable them to test and validate innovations with end users, in their own living environment.
A collaborative model that focuses on the constitution and development of long-term strategic partnerships between different regional actors will allow not only a project capable of acting in the R&D capacity, but also in the applied development of solutions and research-business cooperation, that stimulate potential customers to buy and use innovative products and services.

Similarly to LiCalab's experience, we intend to create an experimental environment for companies and care organisations that hope to launch new products or services in the health domain. We predict long-lasting synergies and exchange of good practices between Portugal and this living lab example, supported also by the Fraunhofer Portugal (FhP) expertise in COLABORAR Living Lab, through which they engage with elderly people who use the assisted living innovative technology.

The most important inputs concerning this action we have received from the exchange of experiences during the HELIUM project were the numerous examples of formal set-up and strategies for sustainability we were able to come in to contact with, both through project partners and through the participation in international events, such as the annual meeting of the European Network of Living Labs.

2. Action

This action's goal is the creation of collaborative Living Labs that will have as structural basis a cooperation between different actors in health innovation ecosystem. The intention is to understand what a collaborative Living Lab is, how it should be structured and implemented, and strategies for innovation in relation to what is already done at European level. Challenges and use cases relevant to Living Labs will be defined as well as models for collaboration and interaction between developers. This activity also includes the management and recruitment of end users and other stakeholders relevant to the definition of needs and requirements.
Additionally, this action will promote projects dissemination in national and international networks, in order to attract potential investors and leverage the results exploitation. To this end, at national level, Agency of Clinical Research and Biomedical Innovation (AICIB) founders will be deeply involved, particularly Health Cluster Portugal and APIFARMA, providing a very wide network of contacts in the various areas of health technology and medical devices. Internationally, we will establish contacts with the European Network of Living Labs and other relevant international players.

A.1.1. Collaborative Living Lab structuring and designing

A.1.1.1. Development of a sustainability plan

A.1.1.2 Communication and Distribution plan

1.1.2.1. Communication actions (web, social networks, newsletter ...)

1.1.2.2 Distribution actions

1.1.2.2.1. Advertising and corporate image manual

1.1.2.2.2. Dissemination events for technology centres, universities, investors, researchers, clusters, administration and other sectors involved in the socio-health sector

1.1.2.2.3. Web development of the project

1.1.2.2.4. Social networks. Creation of profiles on twitter, Facebook and LinkedIn

A.1.2. Collaborative Living Labs implementation

A.1.2.1. Recruiting End-Users and Other Relevant Actors

A.1.2.2. Definition of protocols for pilot tests in Living labs

A.1.2.3. Analysis of results and improvement actions in Living Labs

A.1.3. National and international network connection

The Living Lab will apply for membership with relevant networks, such as European Network of Living Labs or the Living Lab Network for EIT-Health.

3. Players involved

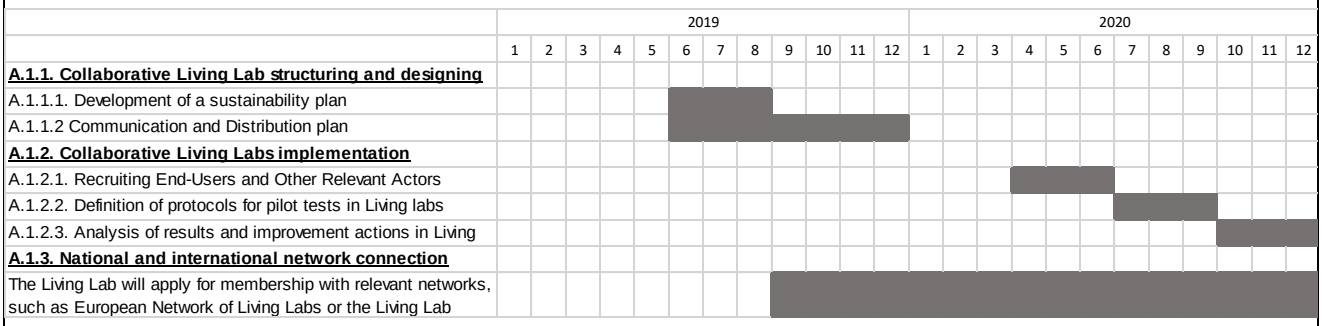
CCDR-N – regional authority responsible for the distribution of development funds, namely NORTE 2020, has the major implementation agent

Agency of Clinical Research and Biomedical Innovation (AICIB) – AICIB's purpose is the financing and promotion of clinical research and translation and biomedical innovation. The association, based in Porto, was founded by INFARMED (national authority for the regulation and supervision of medical devices and pharmaceuticals), FCT (public foundation for science and technology), APIFARMA (national association of the pharmaceutical industries) and Health Cluster Portugal. This partner will be a key partner to boost the network engagement and the dissemination efforts.

Porto4Ageing consortium – Porto4Ageing brings together more than 90 organisations, most of them established within the Porto Metropolitan Area, in the Northern Region of Portugal. Similarly to AICIB, Porto4Ageing consortium will be a key partner to boost the network engagement and the dissemination efforts.

Fraunhofer Portugal (FhP) - FhP knowledge in the implementation of the COLABORAR Living Lab will bring to this action an expertise mentoring.

4. Timeframe



5. Costs

Action 1 costs will be attributed to

(i) human Resources expenses

(ii) promotional and dissemination materials.

(i) Implementation will require the full dedication of a technical expert for at least six months; Management will have to be put in place by one senior manager and one technician**, with an estimated cost of 80.000 €.**

(ii) Promotional costs will depend upon the amount of effort that partners can dedicate using internal skills. Production of new materials and purchase of advertisement space will be calculated proportionally to the recruitment success rates over time, **being estimated a total of 135.000 €.**

6. Funding sources

For this first stage of the action plan we have secured public EU funding from EIT Health, as the University of Porto, through U.Porto Innovation and Porto4Ageing, is a RIS Hub in this organization and as presented the Porto Living Lab as 2019 flagship project.

ACTION 2

Living Labs Innovation Call - Scouting Innovation

1. The background

Throughout the HELIUM project, we have become increasingly aware of the common need across EU regions to increase the sustainability of healthcare systems that address societal challenges through innovation. Based on this, we decide to target our efforts to the scouting of innovative ideas that have access to the open innovation ecosystem.

This action intends to promote the submission of innovative ideas for the development of health technologies with potential for growth and value creation in the region's economy, applying the good practice of the Slimmer Leven Challenge of the Eindhoven University of Technology, where the five best care innovations applicants will be trained and supported to further develop the innovation. Although this NL initiative is directed to graduation students, these good practices can be applied to a regional ecosystem of entrepreneurs of all maturity levels.

We are also drawing a lot of input from the Innovation Scouts programme, in Liverpool. Based upon the idea of “creating the conditions and cultural change necessary for proven innovations to be adopted faster and more systematically through the NHS”, this program empowers employees of the healthcare institutions to actively encourage a culture of innovation within their organisations.

From our knowledge exchange with partners in HELIUM we have learned that a model based upon the creation of a community of practice (although requiring a certain degree of management) is the most effective of way of guaranteeing the engagement of the target institutions in the regional ecosystem, as well as a way of:

- Better understanding the specific needs and setting up collaborative work;
- Maximising the institutional knowledge of individuals within a region or system;
- Involving ‘fresh eyes’ for spotting and spreading innovation outside of usual channels;
- Creating a learning pathway for individuals not always tasked with innovation work; and
- Encouraging civic growth through an innovation mindset.

2. Action

As part of Action 2, a call for innovative ideas will be launched. The main purpose of this activity is the scouting of projects that be integrated as users for the Living Lab. It also aims to structure a set of integrated services to respond to the diverse and demanding needs of new projects, that include life tests with real users, training sessions for idea’s transformation into business, and finally, a professional and tailored advice through all the process and will take place with the following actions.

The call will have many potential targets, among which we highlight research institutions, industry (both start-ups and large established companies), and academia. In order to engage them, an appropriate communication and dissemination plan will be put in place among the partners and the rest of the R&D&I ecosystem of the Region. Based upon the learnings from Innovation Scouts, we will also invest in establishing a network of motivated ambassadors within the institutions, that actively promote the identification and development of new solutions.

The innovative ideas will then be analysed and structured according to what they need until they can be translated into successful business models. These needs may include validation of prototypes and proofs-of-

concept, end-users validation, consultancy on regulatory issues, mentoring for business management skills, Industrial Property (IP) management, among others.

A.2.1. Development and publication of the call

A.2.1.1. Call outline

A.2.1.2. Dissemination of the call by all the beneficiaries among its partners and the rest of the R&D&I ecosystem of the Region through the communication channels described in Activity 1 (web, social networks, newsletter ...).

A.2.2. Evaluation and presentation of projects

The manager of the Living Lab will receive the selected ideas and will be the interlocutor and guide of the idea's promoter(s) throughout the set-up of the innovative project at the Living Lab.

3. Players involved

In the first stages of this action, the main partner will be Porto4Ageing consortium.

Porto4Ageing brings together more than 90 organisations, most of them established within the Porto Metropolitan Area, in the Northern Region of Portugal. The partnership is built on the quadruple helix approach - which involves different stakeholders (Decision-makers / Caregivers; Business / Industry; Academy / Research and Civil Society / Users) who are well placed to conduct structural changes in real-world contexts. Porto4Ageing consortium will be responsible for the scouting and evaluation of the health innovative ideas with market potential with the strait collaboration of the two HELIUM partners (ANI, U.Porto), which have large experience in innovation contest actions.

4. Timeframe

	2019												2020											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
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5. Costs

Action 2 costs will be attributed to

(i) human Resources expenses

(ii) promotional and dissemination materials

(iii) Consulting services

(i) This task will require the full dedication of one technician to support Porto4Ageing in the activities, **with a budget of 20.000 €.**

(ii) Promotional costs will depend upon the amount of effort that partners can dedicate using internal skills. Production of new materials and purchase of advertisement space will be calculated proportionally to the recruitment success rates over time, **being estimated a total of 95.000 €.**

(iii) Partners may need to contract technical experts to help with the evaluation of the applications, **being estimated a total of 80.000 €.**

6. Funding sources

Funding results from a base funding from regional programs (N2020), complemented by funding from other project-based competitive funding mechanisms (like PT2020, H2020, as well as other international programmes in pilots, demonstrator projects and technology transfer actions). This base funding is leveraged by *in-kind* funding from identified partners**.**

In terms of international funding, applications for further funding from EIT Health will be submitted, in order to complement the funding referred in Activity 1.

ACTION 3

Living Labs Innovative Projects - Creating Innovation

1. The background

LiCalab good practice provides entrepreneurs with an environment in which they can extensively test innovative solutions together with end-users and with professional advisors. This approach addresses the need recognized by us as one of the lessons learned throughout Helium project, which is the enormous benefit of facilitating users/citizen to engage in a phased co-creation process.

We define as priority for the Creating Innovation process the following:

- To design and develop user-centric innovative projects in real life setting. Actively engaging with people living with specific health condition through the co-creation process.

- To develop ways of working (living lab) that ensures that people living with specific health condition are central to the development of new technologies and new solutions

- To actively collaborate with interested partners that engaged open and sustainable innovation

Based on face-to-face talks with end-users and professional advisors, LiCalab will advise on which approach is suitable and determine the necessary steps and which techniques and methods will yield the best results.

Other rather valuable inputs have been the exchanges we had with Design Terminal, from Hungary, regarding their approach to ignition and development of innovative business ideas.

The key messages and lessons learned from the good practice are:

- Cross-track, peer to peer learning bring great change in entrepreneurs mindset

- Program participants need to be cared after the program: alumni network

- The teams grow faster and work harder if they are closer to the program coordinators/mentors (co-working services)

2. Action

Different activities like training, mentoring and coaching actions are critical to the success of products or services development. Training sessions (50% total) are a tool for the idea's transformation into sustainable innovation, providing concepts and paving the way for ideas validation and for launching technology-based projects in the market. On the other hand, mentoring (25% total) and coaching sessions (25% total) with professional advisors with multiple domains of competence, will help the entrepreneurs to create the best and most suitable patient solution adjusted to the key aspects of their products / services. During Project Development implementation, entrepreneurs validate the process and/or product by testing innovative solutions and improving it according to the feedback received.

A.3.1. Training plan

A.3.1.1. Product design

A.3.1.2. Product Development

A.3.2. Project Design and Development

A.3.2.1. Need Identification with end-users

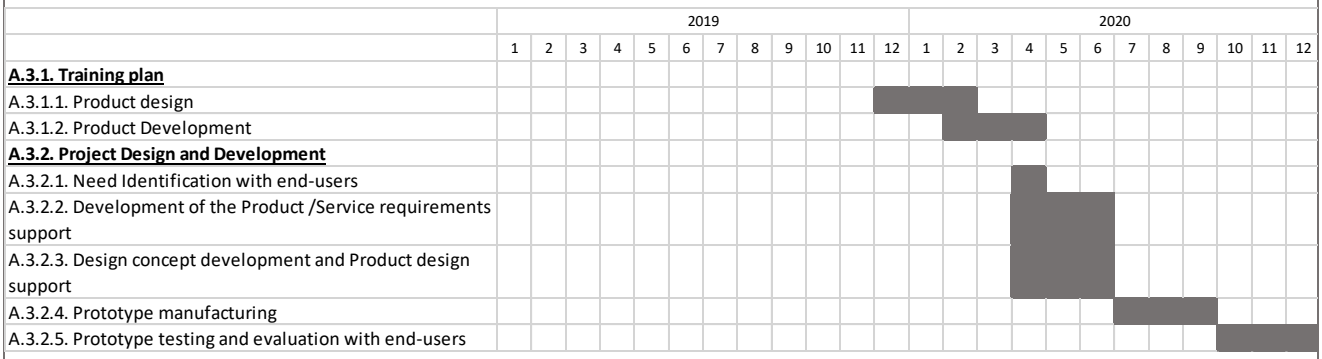
A.3.2.2. Development of the Product /Service requirements support
A.3.2.3. Design concept development and Product design support
A.3.2.4. Prototype manufacturing
A.3.2.5. Prototype testing and evaluation with end-users

3. Players involved

Fraunhofer Portugal (FhP) - FhP have expertise in Living Lab through which they engage with people who use the technology. COLABORAR is the FhP living lab, that is mostly composed of older adults and caregivers who take part in activities such as interviews, observations, focus groups, usability tests, ideation workshops, professional validation, human activity data collection, amongst others. The Living Lab has over 1000 participants from 76 partner institutions. Based on the described expertise, this action has a great probability of success having FhP as a partner.

Nortexcel 2020 - Associação para um Centro de Excelência em Dispositivos Médicos – Nortexcel streamlines the Norte region ecosystem, facilitating the joint development of R&D projects in medical technologies by companies and non-corporate entities of the national R&D system. It promotes applied development activities, proof of concept and feasibility, development of prototypes, technology transfer, among others, and an adequate results exploitation these activities in order to guarantee the creation of value. In this action, they will act as partner for the development of prototypes and the proof of concept and feasibility studies.

4. Timeframe



5. Costs

Action 3 costs will be attributed to

(i) human Resources expenses

(ii) consulting services for Training sessions

(iii) service acquisition for the Project Design and Development

(i) Implementation will require the full dedication of a technician, **with a budget of 40.000 €.**

(ii) Partners don't have in house skills to develop the planned trainings and will therefore need to subcontract consultancy and training companies to deliver the methodology, **being estimated costs of 210.000 €.**

(iii) Prototype development will need to be acquired on a case to case basis, depending on the projects. **It is estimated a total of 230.000 €.**

6. Funding sources

The services provided by the Living Lab to entrepreneurs and companies will be subject to fees, therefore, the activities in this action will be self-funded. This initiative is in close connection with firms

and will, expectably, allow for a relevant capacity to attract funding and sell services to regional and European companies, reinforcing its financial sustainability and lowering the risk of fully depending on public and project-based funding by the Portuguese government and ERDF.

ACTION 4

Living Labs Valorising Actions - Valorising Innovation

1. The background

For the development and validation of socio-health innovation projects it is essential the access to specialized investors in health sciences. Specialized investors know the sector, the key actors in the industry and the regulatory steps that must be followed for the licenses that are needed for market entry. On the other hand, the presence of investors or specialized partners is in many cases essential to ensure that national or regional investment funds are encouraged to co-invest in the projects, to valorise the research effort and even to develop companies in the Region.

LiCalab provides an example by giving the entrepreneur's access to the "Comprehensive care ecosystem". They help them find partners in the health sector, knowledge institutions, businesses and governments. LiCalab has a large, diverse panel (+1500 members: patients, care professionals, seniors) that help to give insight not only at the market needs but also to funding opportunities.

Design Terminal, from Hungary, has also been a benchmark for the methodologies used in this action, through their incubation and acceleration programmes.

2. Action

Besides the support during the project growth and consolidation, the final phase of this action will consist of the final analysis of the projects developed. The degree of achievement of the general and specific objectives will be analysed from each of the projects, assessing the efficiency and degree of market readiness of the products and / or processes.

The technology transfer experience of partners such as Nortexcel 2020 in the health and care strategic areas, will be essential for this success of this action. On the other hand, the National Authority of Medicines and Health Products, will support all the regulatory needs.

A.4.1. Acceleration and transfer to the market

A.4.1.1. Product requirements under Medical Devices Regulation consultancy
A.4.1.2. Industrial Property (IP) consultancy.
A.4.1.3. Business and Team Management Skills development
A.4.1.4. Development of a sustainability plan
A.4.1.5. Meetings with investors

3. Players involved

Nortexcel 2020 - As a promoter of applied development activities and particularly technology transfer activities, Nortexcel 2020 will be a key partner for the consultancy and advisory of the "Acceleration and transfer to the market" in MEDTECH related projects.

Agency of Clinical Research and Biomedical Innovation (AICIB) – This institution will be a key partner for the consultancy and advisory for the "Acceleration and transfer to the market" in clinical related projects and to boost the network engagement at public presentation events and meetings with mentors.

National Authority of Medicines and Health Products, I.P. (Infarmed) - Infarmed is a Government agency accountable to the Health Ministry, that evaluates, authorises, regulates and controls human medicines as well as health products, namely, medical devices and cosmetics for the protection of Public Health. Amongst Infarmed's top activities, the regulation and supervision of medicinal and health products from research up to

their use by healthcare professionals and patients is of particular importance. The National Authority of Medicines and Health Products will support all the regulatory needs related with the Medical Devices Regulation consultancy.

4. Timeframe

	2019												2020											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
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A.4.1.3. Business and Team Management Skills development																								
A.4.1.4. Development of a sustainability plan																								
A.4.1.5. Meetings with investors																								

5. Costs

Action 4 costs will be attributed to

(i) human Resources expenses

(ii) consulting services for Training sessions

(i) Implementation will require the full dedication of a technician, , **with a budget of 40.000 €.**

(iv) Partners don't have in house skills to develop the planned trainings, and will therefore need to subcontract consultancy and training companies to deliver the methodology, **being estimated costs of 170.000 €.**

6. Funding sources

The services provided by the Living Lab to entrepreneurs and companies will be subject to fees, therefore, the activities in this action will be self-funded. This initiative is in close connection with firms and will, expectably, allow for a relevant capacity to attract funding and sell services to regional and European companies, reinforcing its financial sustainability and lowering the risk of fully depending on public and project-based funding by the Portuguese government and ERDF.

Date:_____

Signature: _____

Stamp of the organisation (if available): _____