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Capacity building on sustainable and motivational training design enhanced by smart technologies for senior citizens.

Fast track training material

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1.IKIGAI55 PROJECT

As of 2020, one in five European citizens was over 65 years of age, a demographic trend that brings significant social and healthcare challenges. Older adults frequently experience social isolation, diminished self-esteem, and various aging-related mental and physical issues. Despite a high overall life expectancy in the EU (80.9 years), the healthy life expectancy stands at only 63.7 years, highlighting a gap that our project aims to address through targeted interventions.

Furthermore, there is a pronounced digital divide among older adults, with only 35% of those aged 55-74 and 30% of the retired and inactive population possessing basic digital skills. This divide exacerbates the challenges of engaging older adults in technology-enhanced physical activity programs. The IKIGAI55+ project seeks to bridge this gap by leveraging smart wearable technologies to promote active and healthy lifestyles among seniors.

To this end, the IKIGAI55+ project adopts the Living Lab methodology, a dynamic and iterative framework that emphasizes user engagement, real-life context, and collaborative innovation. This methodology is particularly well-suited for addressing the multifaceted challenges faced by older adults and ensuring that the solutions developed are practical, effective, and aligned with their needs.

The purpose of this deliverable is to provide a comprehensive introduction to the Living Lab methodology and articulate the rationale for its application in the design and execution of the IKIGAI55+ project pilots. This document is intended for all project partners involved in the pilot design and implementation phases. It serves as a foundational guide to ensure a unified understanding of the methodology, its benefits, and its practical application in IKIGAI55+ project.

2. OBJECTIVES

2.1. General Aim

IKIGAI55+ Project evolves around the concept of "life with meaning", our moto to express that the digital era has meaningful results for older population, helping to enrich their life with healthy habits, activity and joy. And, taking into consideration the similar situation in terms of ageing societies within the seven partner countries participating in the project, a multidisciplinary approach will be followed to the reach the following general objectives:

1. Capacity enhancement among trainers/facilitators dealing with the older population to enhance their health preserving sports engagement and reduce the digital divide between generations.

2. Improving awareness of healthy lifestyle, digital readiness and sense of inclusion among older adults.

2.2 Objectives of this deliverable

This deliverable aims to:

- Provide a detailed understanding of the Living Lab methodology.
- Outline the practical steps for implementing the Living Lab approach.
- Ensure that all project partners are aligned and prepared to execute the pilots effectively, leveraging the Living Lab methodology to achieve our project goals.

3. METHODOLOGY

In addressing the challenges faced by older adults in Europe, the IKIGAI55+ project aims to leverage smart wearable technologies to enhance active and healthy lifestyles. Given the complexity and the need for user-centric solutions, the Living Lab methodology has been chosen for designing and performing the pilots. This approach ensures that the solutions developed are practical, user-friendly, and effective in meeting the needs of older adults. Therefore, a set of microunits on the operation and methodology of Living Labs has been designed, with case studies and good practices.

By adopting the Living Lab methodology, the IKIGAI55+ project ensures that the development and implementation of smart wearables for older adults are deeply rooted in their real-life needs and contexts. This approach not only enhances the likelihood of successful adoption and sustained use but also fosters innovation through collaborative and iterative processes. The ultimate goal is to improve the quality of life for older adults by promoting active and healthy lifestyles through the strategic application of smart technologies.

The IKIGAI55+ Capacity Building on Living Lab Methodology and Fast Track Training material aims to provide the core theoretical background on the value of Living Labs and offer hands on guidelines on setting up and running efficiently a Living Lab.

The Fast Track Training material also supports and enables the running of impactful pilots within IKIGAI55+. This entails the selection of design-based process from the problem analysis to the ideation of a solution, its development and experimentation in a real-world context.

4. FAST TRACK TRAINING MATERIAL MODULES

The training material is divided into two training modules:

Fast Track Training I: this module is divided into three sections:

1. The Value of Living Labs: Open Innovation and Living Labs. Exploration and analysis of the involvement, work and collaboration strategies of the 5 agents of

the quintuple helix (companies, citizens, universities/research centres, public institutions and the environment or natural capital).

2. Case studies and good practices.
3. Real-life experimentation in Living Labs: why co-creating by following the Living Lab methodology? What real-life experimentation in a Living Lab entails? Why is the iterative process so important for Living Labs?

Fast Track Training II: this module is divided into two sections:

1. How to set up a Living Lab: Key principles. Living Lab Essentials, key characteristics and governance models.
2. Building a Living Lab: the Living Lab mapping canvas, self-assessment for Living Labs and transformation to older adults and silver economy specific tools.

6. FAST TRACK TRAINING MODULE I

6.1 The value of Living Labs

6.1.1 Living Lab Methodology

Living Lab is a concept to support the processes of user-driven innovative integration systems. One precondition in Living Lab activities is that they are situated in real-world contexts, not constructed in laboratory settings.

Living Lab is an answer to many contemporary trends such as, for instance:

• users' behaviour role changes from passive consumers to active prosumers of content,

• shortened time to market for innovators,

• a globalised market through the internet and IT's entrance into every-day activities of people.

A Living Lab has the endeavour to support the innovation process for all involved stakeholders, from manufacturers to end-users with special attention to SMEs, with the addressed users in the centre in their real-world context.

6.1.2 Benefits of using the Living Lab Methodology

Living Labs operate as intermediaries/orchestrators among citizens, research organizations, companies & government agencies/levels.

Living Labs are open innovation ecosystems in real-life environments using iterative feedback processes throughout a lifecycle approach of an innovation to create sustainable impact.

They focus on co-creation, rapid prototyping and testing and scaling up innovations & businesses, providing (different types of) joint-value to the involved stakeholders.

Within a wide variety of types of Living Labs and their implementation, they all have common characteristics (building blocks), and the common benefits of using Living Lab methodology are most of all:

1. Co-creating innovation/solutions.
2. Mastering the value chain of the given project.
3. Identifying key stakeholders.
4. Understanding the business of key stakeholders.
5. Recognizing the value created for the stakeholders.
6. Developing management capabilities to create value for the stakeholders.
7. Providing strategic intelligence to guide stakeholders into value creation.
8. Knowledge transfer to improve value for stakeholder.

6.1.3 The Living Labs explained

According to the European Commission, the basic premise of Open Innovation is to open up the innovation process to all active players so that knowledge can circulate more freely and be transformed into sustainable products for all. This means that innovation can no longer be the result of predefined and isolated activities but rather the outcome of a complex co-creation process that involves knowledge flows and absorptive capacities from all actors involved across the entire economic and social environment (European Commission, 2016).

Living Labs are indeed open **innovation ecosystems** based on a systematic user co-creation approach that integrates research and innovation activities in communities, placing citizens at the centre of innovation.

They focus on **co-creation**, rapid **prototyping & testing** and **scaling-up innovations & businesses**, providing (different types of) joint-value to the involved stakeholders.

In this context, living labs operate as intermediaries/orchestrators among citizens, research organisations, companies and government agencies/levels.

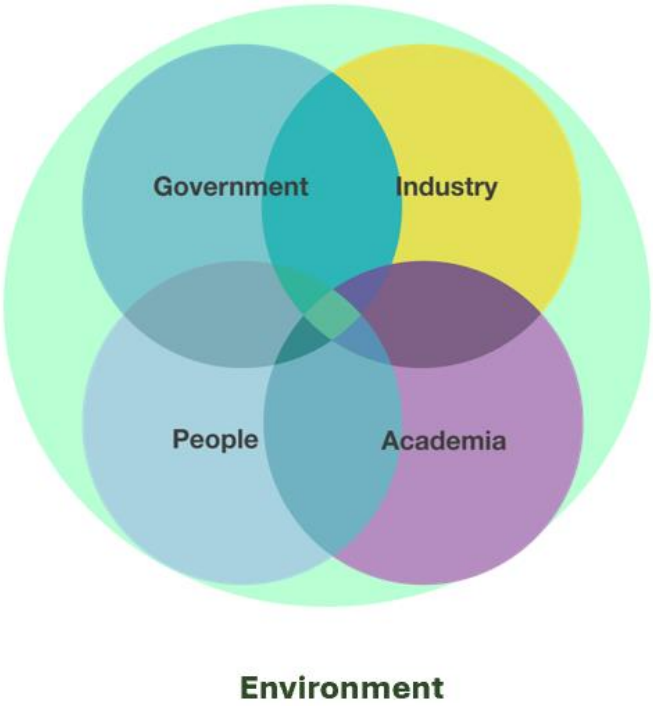


Figure 1. Quintuple Helix Model to Innovation. European Network of Living Labs, ENoLL, Member Catalog 2022 Quadruple Helix Model to Innovation Zsuzsanna Bodi – CaL CoP 2018

6.1.4 What Living Labs have in common

Within a wide variety of living labs, they all have common characteristics, but multiple different implementations where users can be involved in all phases of the innovation process thanks to Living Lab methods. From idea to generation, to building prototypes, from design to commercialization, as represented in the following image:

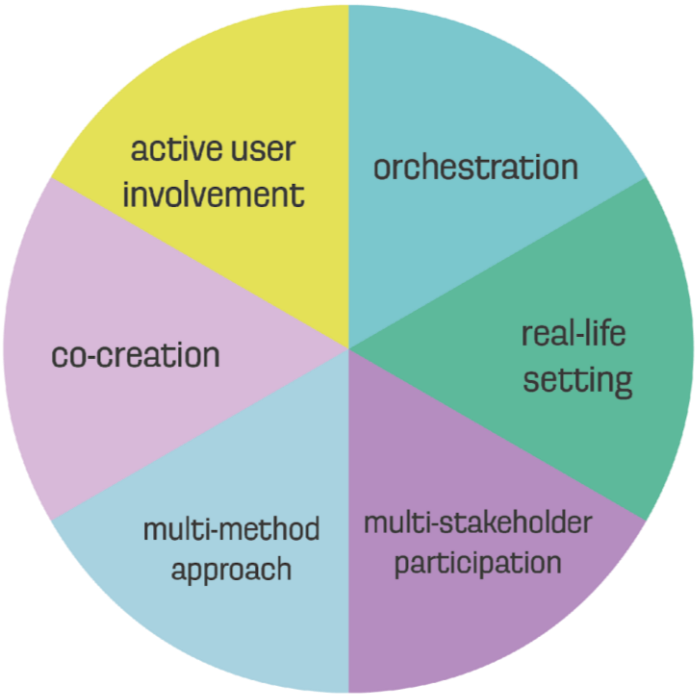


Figure 2. What Living Labs have in common. Zsuzsanna Bodi – CaL CoP 2018

Orchestration: the Living Lab operates as the orchestrator within the ecosystem to connect and partner up with relevant stakeholders.

Multi Stakeholder Participation: taking a holistic view on society, involving stakeholders from the quadruple helix model: government, academia, private sector and citizens.

Active User Involvement: a Living Lab involves relevant stakeholders 'actively' in all relevant activities, ensuring their feedback is captured and implemented throughout the whole lifecycle of the innovation.

Co-creation: in a Living Lab, values are bottom-up co-created not only for but also by all relevant stakeholders, ensuring a higher adoption at the end.

Real-life setting: a Living Lab operates in the real-life setting of the end users, infusing innovations into their real life instead of moving the user to test sites to explore the innovations.

Multi Method Approach: each Living Lab activity is problem driven. Therefore, the methodological approach towards every individual activity will be selected based on the expected outcomes of the activity and the stakeholders who need to be involved.

6.1.5 Typologies of Living Labs and Quadruple Helix Engagement

Living Labs bring experimentation out of companies' Research & Development (R&D) departments to real-life environments with the participation and co-creation of users, partners, and other parties. The study of Leminen et al. (2012) discusses Living Labs as four different types of networks characterized by open innovation: utilizer-driven, provider-driven, enabler-driven and user-driven.

	Utilizer-driven	Provider-driven	Enabler-driven	User-driven
PURPOSE	Strategic R&D activity with preset objectives	Strategy development through action	Operations development through increased knowledge	Problem solving by collaborative accomplishments
ORGANIZATION	Network forms around an utilizer, who organizes action for rapid knowledge results	Network forms around a region (regional development) or a funded project (e.g., public funding)	Network forms around a provider organization(s)	Network initiated by users lacks formal coordination mechanisms
ACTION	Utilizer guides information collection from the users and promotes knowledge creation that supports the achievement of preset goals	Information is collected and used together and knowledge is co-created in the network	Information is collected for immediate or postponed use; new knowledge is based on the information that provider gets from the others	Information is not collected formally and builds upon users' interest; knowledge is utilized in the network to help the user community
OUTCOMES	New knowledge for product and business development	Guided strategy change into a preferred direction	New knowledge supporting operations development	Solutions to users' everyday-life problems
LIFESPAN	Short	Short / Medium / Long	Short / Medium / Long	Long

Figure 3. Characteristics of different types of Living Labs Labs. Source: Leminen et al. (2012)

Industry, Academia, Public Authorities and Citizens are part of the so-called Quadruple Helix model (QHM), where users are placed at the heart of the innovation ecosystem. This means that citizens/users must be considered as actors, not factors, of the innovation process. Actors have their own knowledge base, individual needs, and reasons to contribute to the creation of new products and services. In this vein, co-creation relates to the various levels of involvement of end-users in the different stages of service/product development.

6.1.6 What a Living Lab is not

A Living Lab operates in a real-life context with a user-centric approach.

The scope, aims, objectives, duration, actor involvement, degree of participation, and boundaries of a Living Laboratory are open for definition by its participants (A Living Lab

could thus be established on a street, in a house, within an organization, or include a whole city or industry, depending on the project).

Living Labs are often confused with early testbeds. The main difference in their philosophy is to turn users, from being traditionally considered as observed subjects for testing modules against requirements, into value creation in contributing to the co-creation and exploration of emerging ideas, breakthrough scenarios, innovative concepts and related artefacts.

Living Labs constitute an experiential environment, which could be compared to the concept of experiential learning, where users are immersed in a creative social space for designing and experiencing their own future.

Finally, it is important to make a difference between Living Lab research, a Living Lab project and Living Lab constellations:

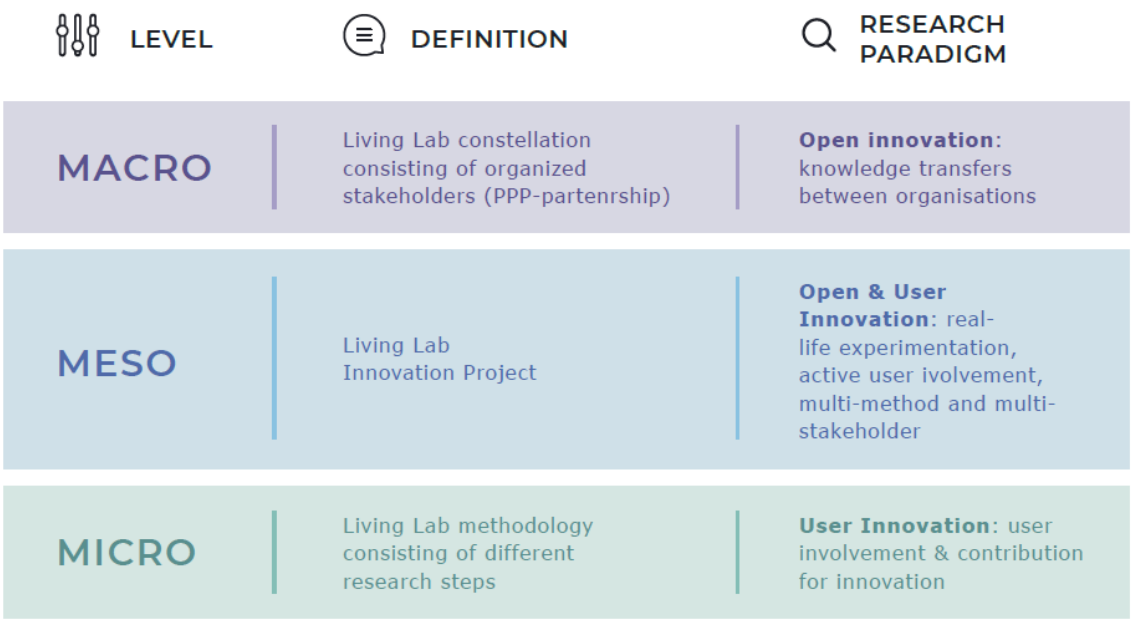


Figure 4. The three-layered Living Lab model introduced by Shuurman (2015)

6.2 Case studies and good practices

Next, different case studies and good practices will be presented in order to showcase how Living Lab methodology can be applied to different situations and scenarios and the potential of Living Labs is:

6.2.1 Gernika Silver Living Lab: testing of products and services for the elderly

Gernika Silver Living is a Living Lab which aims to **energize a collaborative ecosystem** between the main **actors in the areas of health and well-being** for the elderly, giving **visibility to their added value** at a European and international level and **attracting potential key collaborators from both the private and public sectors.**

Its main lines of action are:

- Aging of society – Aging society.
- Citizen-centered care.
- Health and Environment.
- Physical activity and health.
- Emerging technologies.
- User testing, co -creation and validation of innovative European products and services with local companies and associations for the best health and well-being of people over 55.

Its co-creation services aim are:

- Promote the international positioning of Gernika Silver Lab.
- transregional collaboration for the exchange of knowledge and the exchange of experiences with other ecosystems internationally.
- Become a key tool to promote and help the scalability, adaptation and exploitation of products and services related to health and well-being at a local or transregional and transnational level.
- Establish links and collaborations with key national and international actors when promoting innovation in health and well-being.

Gernika Silver Living Lab tests products and services to face the challenge of an area within the Biscay region called Busturialdea, in collaboration with the young people of the area among other stakeholders, in order to identify **11 territorial challenges to develop a potential silver economy.** Through **Gernika Silver Living Lab** We address the following:

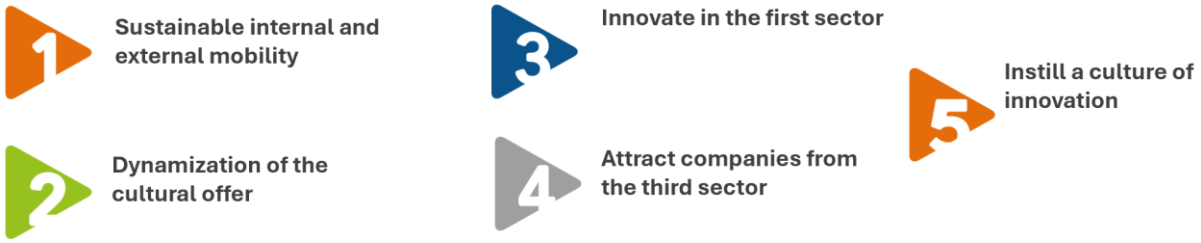


Figure 5. Territorial challenges addressed by Gernika Silver Living

6.2.2 6_0! Promoting health through recreational soccer

6_0! Project, is a project co-funded by the Erasmus+ Programme of the European Union for the development of an international sustainable football observatory, to disseminate and expand intellectual results and best practices to other municipalities and sports through Living Lab methodology.

The co-creation services developed within the project had the following results:

1. Collaboration to achieve a **scalable collective impact on the health and well-being of European citizens over 60** through recreational football and the **scalability of best practices** to other sports.
2. **Promote physical activity** among older citizens through **events to be organized in 5 countries**.
3. Organize a **"health" competition** to measure the degree of health and improvement, as well as **social aspects** (such as enjoyment) through indicators.
4. **Balance the three dimensions of sustainable development**: economic, social and environmental, using recreational football to achieve these objectives.

5. Transfer them through the development of a **toolkit.**

6. **Stakeholders. Involve local ecosystems** (teams, municipalities) to support the health and well-being of citizens over 60 years of age and **strengthen the efforts of ecosystems** for sustainable development through sport.

Within the project, 5 Living Lab pilots were executed, with 20 older people involved in each. Each of them had the objectives of:

- **Training** (adapted training, nutrition, event organization, indicators and measurement, EFDN method).

- **Testing of technologies and methodologies.**

- **Transfer** to other municipalities and sports – **ESPOO Method.**

The stakeholders involved in the pilot performed in Gernika, Biscay, where the universities of Deusto and Mondragon, Sports facilities and Municipalities, as well as the group of elderly people participating in the pilots:

	Universities: Deusto /Mondragón	**SPORTS FACILITIES**	**Gernika-Lumo City Council**
What can we contribute?	-Evidence -Measurements	-Integration of the social aspect -Technologies -Methodologies -Use of infrastructure during non-use hours (mornings)	-Increase in health indices -Adoption of the Finnish methodology -+ companies -+ specialization
What do we need?	-Population health data	-Infrastructure -Coaches	-Collaboration (support, senior associations, etc.)
	Group of 20 people		

Figure 6. Stakeholders' involvement in the Spanish Pilot performed in 6_0! Erasmus+ Project by Eskilara (2019).

6.2.3 Memory Project – Athletic Club

The Memory Project led by The Athletic Club Fundazioa, started around the idea of "enriching memory through football". Together with creativity experts, IT experts, clinicians and elderlies, the reminiscence days were created, consisting of a guided visit to the Club Museum and its AC Virtual Adventure, as well as a subsequent tour of the San Mamés field. The old memories of the elderly surfaced due to the stimuli associated with their experiences with Athletic and serve as a stimulus to combat Alzheimer's.

Following the Living Lab methodology, we achieved a new step towards innovation and the future of sports entertainment through a 100% immersive and interactive experience with audiovisual productions, interactive games and the latest generation immersive video wall, allowing the elderly people to tour Bilbao and Bizkaia since 1898, the year the Club was founded, and its evolution over the years.

6.2.4 IOANNA AAL Project

IOANNA Project, is an AAL funded project aimed at developing a solution aimed at older adults, local shops and businesses, and small and/or isolated municipalities.

The aim of the Living Lab methodology with the quadruple helix approach within the project was the co-creation of the following services:

1. Marketplace to **facilitate older adults' access and proximity to local businesses:**
   - Availability of offers on products and services.
   - Home delivery service (optional and offline).
   - Availability of direct chat with commerce/business.
   - Safer route planner.
2. **Boost local commerce by offering added value different from that of an online store.** An easy-to-use tool is offered, which facilitates the management and

tracking of orders and offers a solution to approach and attract the market niche of older adults and caregivers.

3. Offer the **possibility of including a volunteer service**:

- Offers from municipalities/businesses to older adults so that they can lend and value their knowledge and experience voluntarily.
- Offer a tool to motivate and enhance the group of older adults in our municipalities.

6.2.5 POSITIVE AAL Project

POSITIVE was an AAL funded project for the development of a personalized platform assisting seniors in Healthy, fulfilled and active life. The starting point was the reality of having more and more older adults feeling alone and isolated while still being active people of working age, which entails a progressive risk of physical and mental deterioration.

The co-creation sessions performed by partners within the pilots performed with a quadruple helix approach, lead to the design of a holistic digital platform that offers :

- Gamification and personalized service according to the interests and personality of the older adult, as well as experience with technology.
- Motivation for physical and mental well-being.
- Facilitate greater social connections through engaging activities and knowledge sharing.
- Default data protection.
- Service – update: e- learning.

The project followed a Living **Lab methodology** user-centric, involving target users from the beginning through:

- **Mock -Up Evaluation.**

- **Prototype evaluations.**
- **Feedback loops _ continue open.**

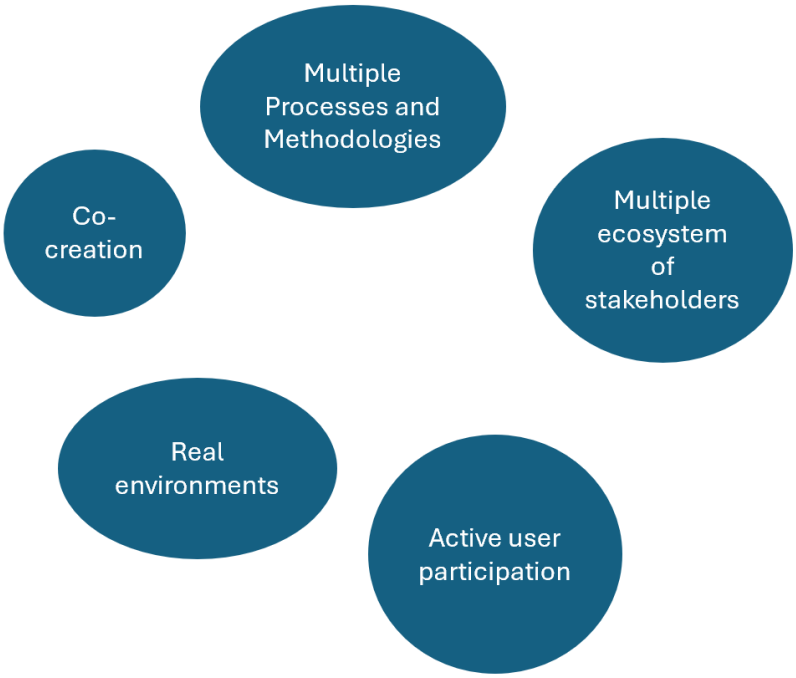


Figure 7. Living Lab Methodology process performed in POSITIVE AAL Project by Eskilara (2019).

6.2.6 REMEMBER-ME AAL Project

The aim of Remember-Me AAL funded project was to develop an Intelligent assistant to prevent and detect cognitive decline, promote cognitive functioning and social inclusion among older adults.

The solution aimed at both the private market (end users) and the regulated market (insurance companies, health providers, public and private institutions, universities, etc.)

The co-creation of services designed in the Living Lab pilots performed during the project execution where oriented towards the need to fill a gap in the current market for services and products aimed at addressing cognitive decline in a holistic and cost-effective

manner by combining elements missing from current solutions: integrative and multi-domain monitoring of cognitive function and detection of cognitive decline, promotion of social inclusion and personalized brain training in the user's real-life environment using a social robot and a tablet and addressing all areas considered important for a healthy brain, such as socialization, meditation, physical activity, brain puzzles etc.

6.2.7 SMARTBEAR Project

Smart Bear project is a H2020 funded project, that is **demonstrate and validate its technology in real, smart environments** with the goal of supporting **co-creation** and maximizing user acceptance and trust in the system, revolutionizing the consumption of digital services and enabling new self-managed care systems for better **quality of life for "silver" users** . In general, and in particular for those groups that cover the five main health and frailty conditions addressed by the project:

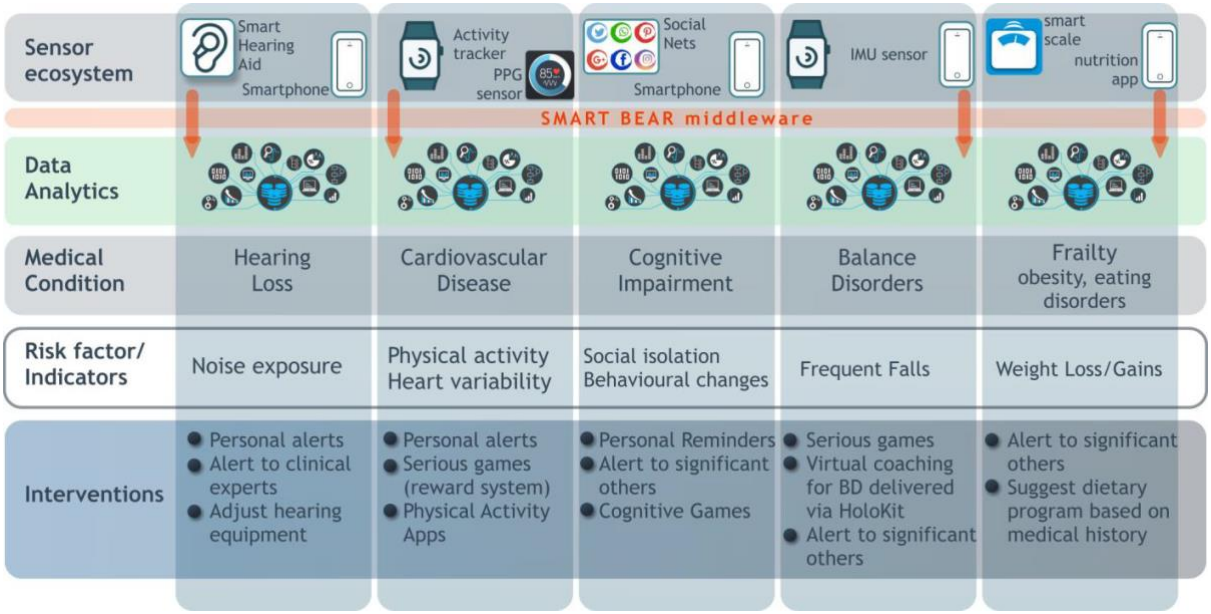


Figure 8. Five main health and frailty conditions addressed by Smart Bear H2020 project.

During the project, a user-centered testing and validation – Living Lab model is defined with older adults and stakeholders: patient organizations, associations of older people, municipalities, regional councils and governments, health systems and universities.

6.3 Real-life experimentation in Living Labs

Typically, especially in technology projects, activities are designed as top-down experiments, benefiting from users being involved as factors rather than actors. There is an increasing recognition that this needs to change so that users become equal contributors and co-creators rather than subjects of studies. The Living Lab approach strives for mutually valued outcomes that are the results of all stakeholders being actively engaged in the process from the very beginning.

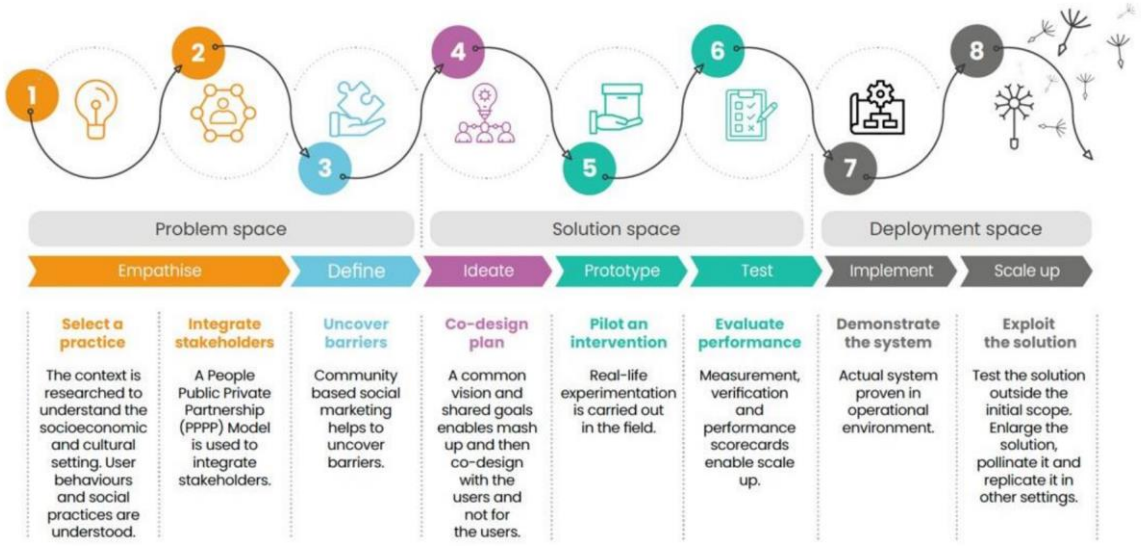


Figure 9. Living Lab Integrative Process. From Mastelic (2019)

There are different proven benefits of co-creation, to mention some of them:

Ideas out of the box: By engaging external audience in the ideation of a project, or upcoming service offerings, the organisation is likely to receive inputs for new, unexpected innovative solutions. Closed innovation is outdated, fresh, customer centric solutions are needed in our rapidly changing every day.

The client becomes the developer: By putting the user in the centre of the co-creation process, the project owner can count on better uptake on the market and de-risk development costs. Not to mention that partly the staff cost becomes outsourced and economises some budget on the headcount.

Products and services better fitting the market: Tailor made clothes will fit better and will be closer to the clients' own taste than just picking a random dress in the retail store. However, it requires you to collect needs in advance, have a plan and try it on several times. This simple example can illustrate well a much more complex exercise, Living Labs are carrying out. In this case, just like with Living Lab projects, the selection of key users is essential, since they will be the ones fine-tuning the end result.

Scaling up from local to global: As a result of allowing a diverse clientele to access the prototype, you have good chances that the marketing is partly running by itself. By experimenting the product with a heterogeneous user pool, you also validate the prototype for international markets, allowing a better match possibility for a wider audience. Cross-border Living Lab services are regular to pre-validate international acceptance of a new product or service.

Trust in the community: Creating a stable community of experimenters takes time in a Living Lab constellation, nevertheless once trust is created, you can count on a solid base of users ready to jump on a new project. The behavioural change does not only happen on a meso scale, but depending on the project a whole macro level, positively affecting policy and decision making levels.

Removing the silos: With the active use of the quadruple helix setup, communication becomes smoother between the different stakeholder groups. We can often experience the gap between academics and private sector representatives, by offering them a neutral discussion platform for joint co-creation. Through inspiring and/or heated conversations a common message will be elaborated at the end of the process.

Better financial performance: An automatic benefit of co-creation is to save certain costs of the development and de-risk investment. Based on a research study analysing Living Lab projects, the conclusion was that for 1 public euro invested in the Living Lab

projects that were evaluated, 1.5€ was realised in follow-up private investment, with an additional 11€ foreseen (Ballon et al. 2018).

6.3.1 What real-life experimentation entails

Real-life experimentation is a key requirement for Living Labs as it enables deeper insights in the potential success of innovations.

Reassuring real life setup within a Living Lab project is essential to provide the most reliable feedback from the users. The idea is to mimic the original environment and circumstances at the venue where the experimentations are carried out.

Figure 10. What real-life experimentation entails.

7. FAST TRACK TRAINING MODULE II

7.1 How to set up a Living Lab

A Living Lab environment should have a good relation with, and access to, users willing to be involved in the innovation processes. Any Living Lab should also have access

to multi-contextual environments, as well as high-end technology and infrastructure that can support both the processes of user involvement and technology development and tests.

Each Living Lab environment also needs organisation and methodologies suitable for its specific circumstances.

Finally, a Living Lab needs access to a diversity of expertise in terms of different partners that can contribute to the current activities. Equally important are the Key Principles of the approaches applied in Living Lab activities.

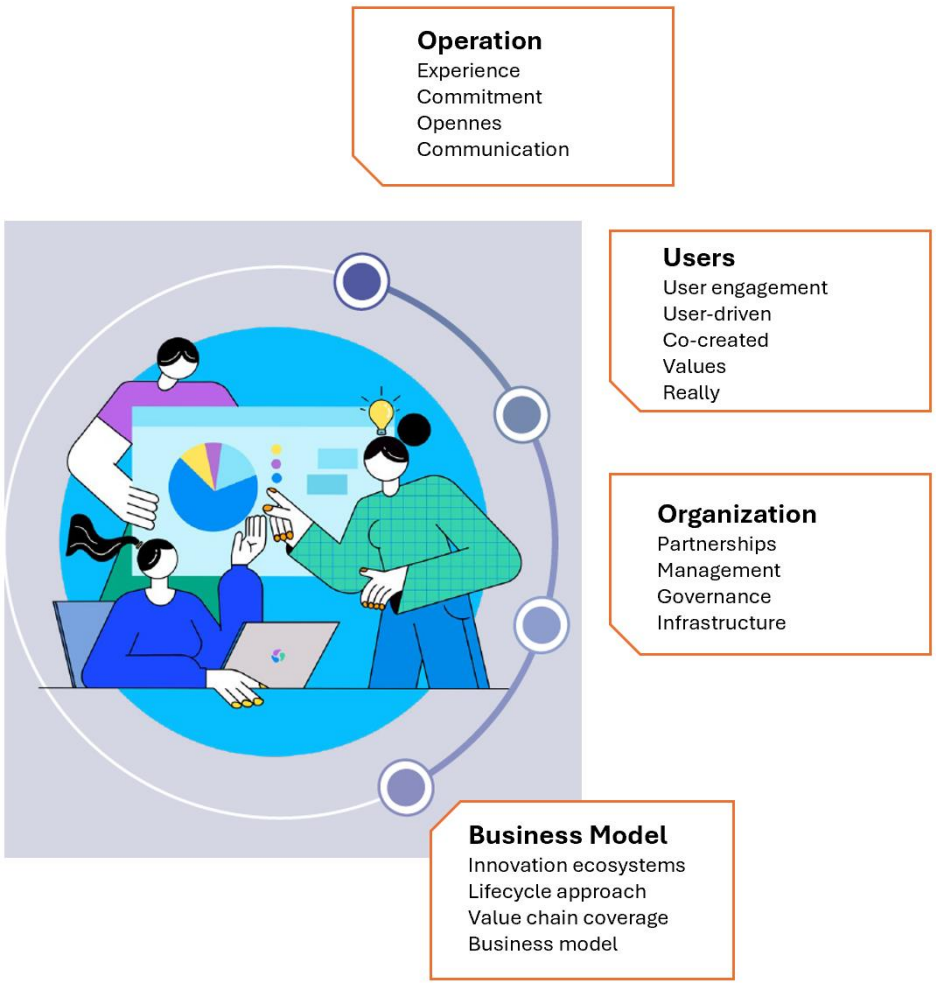


Figure 11. Essential factors when setting up a Living Lab. Source: ENoLL (2019).

7.1.1 Governance models

The governance and management structure reflects on the way that a Living Lab in the strategic or operational level is managed and organised. The domain specific Living Lab activities must be supported by the local governments, decision makers and the private companies. In this regard, the Living Lab vision and scope, risk management, operations, knowledge sharing as well as dissemination activities should be taken into account.

The governance model and key principles implemented by the Living Labs (LL) can entail multiple challenges on the constellation's performance and sustainability:

- Multi-business collaboration and issue of openness.
- Visibility and dissemination of LL activities.
- Flexibility and fast changing requirements.
- Collaboration and communication with stakeholders.
- Financial issues.
- Technical and infrastructural challenges.
- Integrating social and technical aspects of LL activities.
- Keeping user motivated, in the LL projects.
- Balance between research and development activities.
- Mutual learning.

7.2 Building a Living Lab

7.2.1 Living Lab Business Model

Living labs should establish as many partnerships as possible.

Living lab as an approach is grounded on multi-stakeholder collaboration. Important for a living lab is trying to establish as many partnerships as possible. Living lab partner and customer relationships are typically grounded on long-term relationships.

Typical partnership approaches:

- Citizen driven partnership model: collaboration with municipal organisms focused on Society.
- Local authority driven partnership model: Collaboration with local municipal and/or city authorities.
- Industry driven partnership model: founded on establishing customership with device manufacturers and /or digital service providers.
- Intermediary (or widespread) partnership model: combining multiple partnership models or seeking partnerships with as many partners' type as possible.
- State level cluster partnership model.

7.2.2 Why Business Model Canvas?

Living Labs service offering classification model consists of the following main services, which each can include one or more sub services. Main services are presented on the top of each column and examples of typical services within each main service group are presented underneath the headlines.

- Project planning and management.
- Market and competitor intelligence services.
- Co-creating products, services and processes.
- Testing and validation services.
- Business advisory and management consulting by giving expert opinion, sparring and advisory services business modelling, risk and IPR-management.
- Marketing and sales support activities include providing business contact and leads as well as giving visibility and credibility via online presence in living lab websites and social media channels, in showroom or during the events, and issued "user approved" certificates.

Furthermore, the business model canvas help the Living Lab define the most fitting governance model for their needs by answering the five main areas of a project:

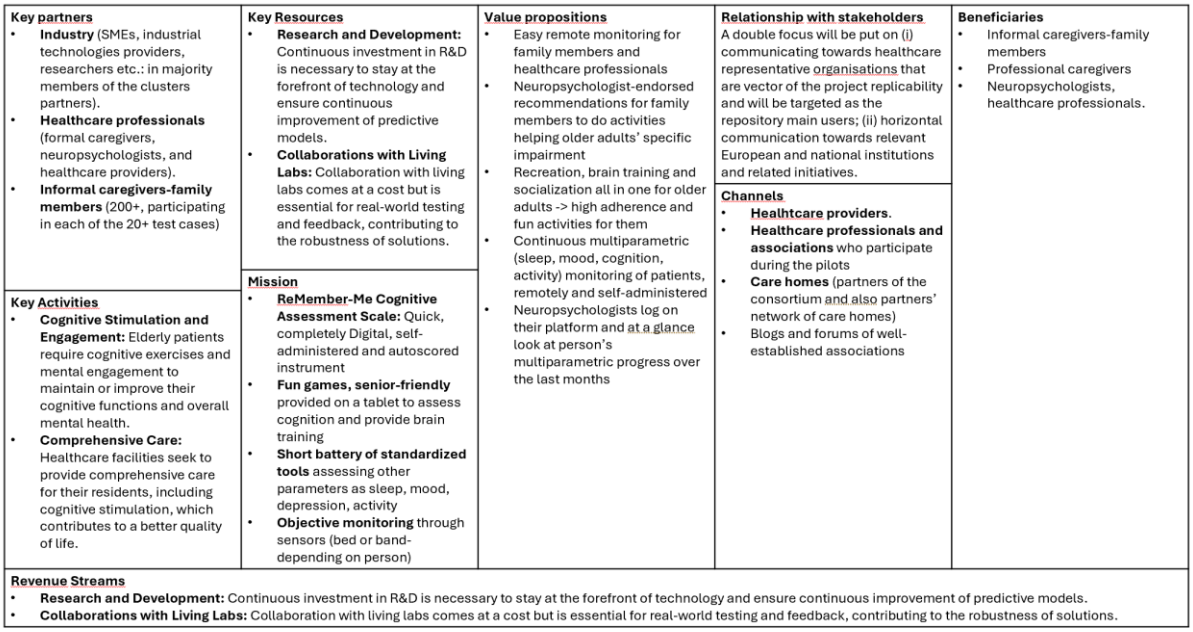
beneficiaries, supply, infrastructure and feasibility, infrastructure, mission and economic viability. The business model is a blueprint of a strategy to be applied in the structures, processes and systems of a specific entity and/or project.

7.2.3 Business Model Canvas: 2 seeds for example

Two different examples are provided, based on projects with a focus on promotion of health and wellbeing in older adults, first through creativity, and secondly, through the use of technology.

<table>
<tr>
<td rowspan="2">Key partners
• Industry (SMEs, industrial technologies providers, researchers etc.: in majority members of the clusters partners).
• Cultural and creative professionals and institutions (artists, designers, Regional Cultural agencies, universities).
• Citizens (250+, participating in each of the 20+ test cases, with a special focus on students/youngsters and women).</td>
<td>Key Resources
• Research and Development: Continuous investment in R&D is necessary to stay at the forefront of technology and ensure continuous improvement of predictive models.
• Collaborations with Living Labs: Collaboration with living labs comes at a cost but is essential for real-world testing and feedback, contributing to the robustness of solutions.</td>
<td rowspan="2">Value propositions
• The innovative processes of the industry will be supported through creativity, co-creation, and new formats of all the stakeholders.
• Promotion of digital and green transition through all the process.
• Strengthen and further develop existing or new schemes promoting arts-industrial technologies - citizens interactions that increase uptake of new technologies and innovative solutions through better societal understanding and acceptance.
• Adoption of a more human-centred and creative approaches in Industry.</td>
<td rowspan="2">Relationship with stakeholders
A double focus will be put on (i) communicating towards SMEs representative organisations that are vector of the project replicability and will be targeted as the repository main users; (ii) horizontal communication towards relevant European and national institutions and related initiatives.
Channels
• Technological platforms: Web platforms facilitate data collection and analysis, ensuring efficient and secure management.
• Living Labs: Collaborating with Living Labs enables testing in authentic environments, validating the feasibility and relevance of solutions.
• Alliances in the area of Culture, Creativity, R&D and Industry (SMEs): Integrating into the value chain of the aforementioned sectors ensures the effective implementation of seeds..</td>
<td rowspan="2">Beneficiaries
• Industry representatives (SME workers and managers, R&I stakeholders, industrial technology providers, designers, manufacturers, entrepreneurs and members of the clusters partners)
• Culture and creativity sector representatives (artists, designers, marketers and entrepeneurs)
• Societal actors: citizens, groups of people (communities), organizations, or institutions with representativeness in a certain territory or society.
• Researchers (universities/ companies/ research centres).
• Public sector authorities (city councils, CCIs public organisms and programs focused on CCIs (Cultural and Creative Industries), society and SME and R&I development.</td>
</tr>
<tr>
<td>Mission
• Strengthening the relationship between art and well-being, with an impact on stress reduction and mental health.
• Adopt new ways of working that link the tools of stress reduction through art and productivity improvement in organisations.</td>
</tr>
<tr>
<td>Key Activities
Dynamics that promote the well-being of people in organisations through the intervention of artists and creators (specially dancers and performers) to reduce stress and obtain tools to improve productivity and happiness in the working area.</td>
<td colspan="4"></td>
</tr>
<tr>
<td colspan="5">Revenue streams
• Exploitation of the Living Labs: with the results obtained in each Living Lab, a portfolio of marketable services will be created to promote the Arts-Industry-Society relationship.
• Consulting: Offering consulting services to organisations for the improvement of team well-being and organisational processes. Involves offering expertise in the implementation of customised interventions.</td>
</tr>
</table>

Figure 12. 1st seed: Art to promote wellbeing and Health



Key partners	Key Resources	Value propositions	Relationship with stakeholders	Beneficiaries
• **Industry** (SMEs, industrial technologies providers, researchers etc.: in majority members of the clusters partners). • **Healthcare professionals** (formal caregivers, neuropsychologists, and healthcare providers). • **Informal caregivers-family members** (200+, participating in each of the 20+ test cases)	• **Research and Development:** Continuous investment in R&D is necessary to stay at the forefront of technology and ensure continuous improvement of predictive models. • **Collaborations with Living Labs:** Collaboration with living labs comes at a cost but is essential for real-world testing and feedback, contributing to the robustness of solutions.	• Easy remote monitoring for family members and healthcare professionals • Neuropsychologist-endorsed recommendations for family members to do activities helping older adults' specific impairment • Recreation, brain training and socialization all in one for older adults -> high adherence and fun activities for them • Continuous multiparametric (sleep, mood, cognition, activity) monitoring of patients, remotely and self-administered • Neuropsychologists log on their platform and at a glance look at person's multiparametric progress over the last months	A double focus will be put on (i) communicating towards healthcare representative organisations that are vector of the project replicability and will be targeted as the repository main users; (ii) horizontal communication towards relevant European and national institutions and related initiatives. **Channels** • **Healhtcare providers**. • **Healthcare professionals and associations** who participate during the pilots • **Care homes** (partners of the consortium and also partners' network of care homes) • Blogs and forums of well-established associations	• Informal caregivers-family members • Professional caregivers • Neuropsychologists, healthcare professionals.
Key Activities • **Cognitive Stimulation and Engagement:** Elderly patients require cognitive exercises and mental engagement to maintain or improve their cognitive functions and overall mental health. • **Comprehensive Care:** Healthcare facilities seek to provide comprehensive care for their residents, including cognitive stimulation, which contributes to a better quality of life.	**Mission** • **ReMember-Me Cognitive Assessment Scale:** Quick, completely Digital, self-administered and autoscored instrument • **Fun games, senior-friendly** provided on a tablet to assess cognition and provide brain training • **Short battery of standardized tools** assessing other parameters as sleep, mood, depression, activity • **Objective monitoring** through sensors (bed or band-depending on person)			
Revenue Streams • **Research and Development:** Continuous investment in R&D is necessary to stay at the forefront of technology and ensure continuous improvement of predictive models. • **Collaborations with Living Labs:** Collaboration with living labs comes at a cost but is essential for real-world testing and feedback, contributing to the robustness of solutions.				

Figure 13. 2nd seed: Remember-Me AAL Project

In all cases, when doing your business model canvas, you answer the following questions:

Stakeholders' engagement: These are the segments served by the project/entity (can be one or several).

→ For whom do we create value?

→ Which stakeholders are the most important ones?

According to the market, there are several segments: mass market, niche market, segmented market, diversified market, multi-stakeholder platforms.

Mission: The mission statement indicates the short- and long-term objectives to be achieved through the implementation of concrete actions.

→ What is the overall purpose of the project?

→ What is the initial and final objective?

→ How does the project contribute to my interests as an organisation and to society as a beneficiary?

Value Proposition: Its aim is to solve your beneficiaries' problems and satisfy their needs through value propositions.

→ For whom do we create value?

→ To whom do we address the project?

→ Which beneficiaries are the most important ones?

Relationship with stakeholders: They are established and maintained independently in the different market segments.

→ What kind of relationship do the different market segments expect?

→ What kind of relationships have we established?

→ What is their cost?

→ How do they fit into our business model?

Stream Revenue: They are generated when our potential customers purchase the value propositions offered in the exploitation phase.

→ What value are they willing to pay for?

→ Why do they currently pay? How do they currently pay?

→ How would they like to pay?

→ How much do the different revenue sources contribute to the total revenue? income?

Key Resources: These are the assets needed to deliver and provide the elements described above.

→ What key resources do our value propositions, distribution channels, stakeholder relationships and revenue streams require?

→ They can be physical (buildings, vehicles, machines, systems...), intellectual (brands, private information, patents, copyrights, databases...), human and economic (cash, credit lines, portfolio...), etc.

Key activities: These activities are the most important actions a business must undertake to be successful.

→ What key activities do our value propositions, distribution channels, stakeholder and beneficiary relationships and revenue streams require?

Key partnerships: Some activities are outsourced and certain resources are procured outside the company.

Who are our key partners? Who are our key suppliers? What key resources do we procure from partners? What are the key activities carried out by the partners?

We can talk about four types of partnerships:

→ Strategic alliances between non-competing entities.

→ Competition: strategic partnerships between competitors.

→ Joint Ventures: joint ventures to create new businesses.

→ Customer-supplier relationships to guarantee the reliability of supplies.

7.2.4 The 15 criteria of a Sustainable Living Lab

Before establishing a living lab, an exploratory phase is required. In this exploratory phase, a feasibility study can offer insights in the viability of the living lab. Besides an analysis of the regional needs, this study can also explore if the aforementioned parameters can be sustainably defined and installed in the future living lab. It is important to have core actors on board and to be sure that the living lab can survive in the long term. In order to valorise innovative solutions, the living lab calls on the expertise and commitment of its core partners (from knowledge institutions, expertise centers, companies, (local) authorities…), considering the 15 criteria identified for establishing a sustainable Living Lab:

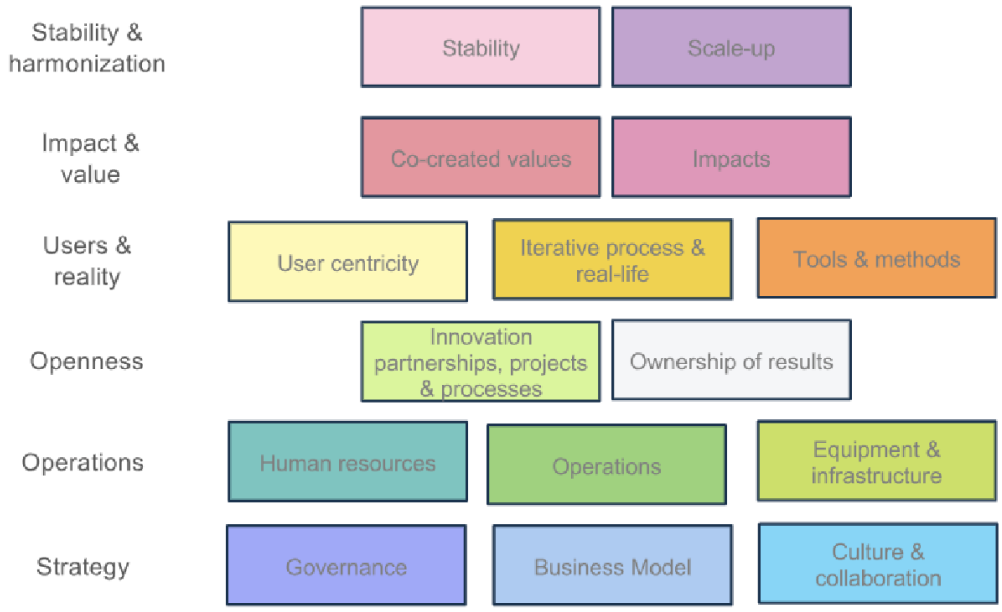


Figure 14. The 15 criteria of a Sustainable Living Lab by ENoLL (2024)

7.2.5 Evaluation Method for Living Labs

Within ENoLL, a harmonized assessment method and KPIs for evaluating Living Labs to help them become more impactful and sustainable (stable) has been developed in order to certify the excellence of the Living Lab and their acceptance within the European Network of Living Labas, which can also help Living Labs identify the key criteria every Living Lab shall take into consideration when setting up one. The evaluation method is divided in 6 chapters which are also divided into different criteria associated to each one, linked at the same time to KPIs that help measure the level of achievement of the Living Lab to each of those criteria:

1. Strategy: this chapter addresses macro-level aspects of a Living Lab, more particularly:

- Governance of the Living Lab.
- Business Model/Plan.
- Living Lab ecosystem and collaborations.

2. Operations: this chapter examines how the Living Lab manages its operations.

- Human resources.
- Projects.
- Equipment & Infrastructures.

3. Openness: this chapter investigates the openness of the Living Lab, more particularly:

- Innovation Partnerships, projects and processes.
- Ownership of results.

4. Users & Reality: this chapter examines how collaboration with users occurs in the real-life context. The following criteria are included in this chapter:

- User centricity.
- Lifecycle & real-life.
- Tools & methods.

5. Value & Impact: this chapter assesses the development of co-created values, along with investigating different impact clusters of the Living Lab. The following criteria are included in this chapter:

- Co-created values.
- Impacts.
- Communication.

6. Stability & Harmonization: this chapter focuses on the financial stability of a Living Lab from a macro-level perspective. It also examines the harmonization and replication of strategic and operational aspects of a Living Lab. The following criteria are included in this chapter:

- Stability and scale-up.

In the case of applying to any of the waves of acceptance that ENoLL defines each year, the possible results obtained by the Living Lab can be to be accepted as an Adherent

Member, or either be accepted as a Grow Member, in which case the Living Lab shall go through a process of training and maturity within one year or rejected.

For more detailed see Annex 1 "IKIGAI55 Fast Track Training LIVING LAB METHODOLOGY presentation".

8. CONCLUSION

In conclusion, the IKIGAI55+ project addresses a critical need to enhance the quality of life for older adults through the promotion of active and healthy lifestyles. The unique challenges faced by this demographic, including social isolation, lower self-esteem, and limited digital skills, necessitate an innovative and user-centric approach. The Living Lab methodology emerges as the optimal framework for designing and performing the pilots within this project due to its inherent focus on real-life contexts, collaborative development, and continuous iteration.

By adopting the Living Lab methodology, IKIGAI55+ ensures that older adults are not mere subjects of research but active participants in the creation and refinement of solutions tailored to their needs. This participatory approach fosters a deeper understanding of user preferences, enhances the relevance and usability of smart wearables, and ultimately leads to more effective and sustainable interventions. The iterative nature of the Living Lab allows for ongoing adjustments and improvements, ensuring that the final solutions are not only innovative but also practical and user-friendly.

Furthermore, the collaborative engagement of multiple stakeholders—including trainers, healthcare providers, technology developers, and the older adults themselves—ensures that the solutions are comprehensive and well-supported. This multi-faceted collaboration facilitates the integration of diverse perspectives and expertise, leading to more robust and adaptable solutions.

The real-life testing environments provided by the Living Lab methodology offer invaluable insights into the day-to-day interactions and challenges faced by older adults

using smart wearables. These insights are crucial for fine-tuning the technology and ensuring it meets the practical needs of its users. Additionally, the emphasis on real-world application helps in identifying and mitigating potential barriers to adoption and sustained use.

As the project progresses through the phases of preparation, co-creation, pilot testing, and evaluation, the continuous feedback loops inherent in the Living Lab approach will drive ongoing improvements and innovations. The ultimate goal is to develop solutions that not only enhance physical activity and health outcomes for older adults but also empower them with the confidence and skills to embrace digital technologies.

In summary, the Living Lab methodology is not just a choice but a strategic imperative for the IKIGAI55+ project. It aligns perfectly with the project's goals of fostering active, healthy, and digitally inclusive lifestyles for older adults. By prioritizing user engagement, real-life context, and iterative development, the Living Lab approach ensures that the solutions developed are practical, effective, and truly beneficial for the older adult population. This methodology sets the foundation for a successful project that can make a meaningful difference in the lives of European seniors, bridging the digital divide and promoting lifelong health and well-being.

Annex 1

Presentation designed for the Fast Track Training on Living Lab methodology.

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Capacity building on sustainable and motivational training design enhanced by smart technologies for senior citizens.