



Hands-on **SHAFE**

01: STUDY TO CROSS KNOWLEDGE GAPS AND TO PREPARE ONLINE TRAINING PACKAGES

Research results for Portugal

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The aim of IO1 is to create a valid basis for the training packages to be developed in the frame of the Hands-on SHAFE Erasmus+ project. This national report summarizes the research results in Portugal.

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1 Aims of the report

Based on the approach of the World Health Organization, age-friendly environments include three dimensions – physical environments, social environments, and municipal services – with eight interconnected domains: 1) Outdoor environments, 2) Transport and mobility, 3) Housing, 4) Social participation, 5) Social inclusion and non-discrimination, 6) Civic engagement and employment, 7) Communication and information, 8) Community and health services.

The overall aim of the Hands-on SHAFE project is to promote smart healthy age-friendly environments by fostering the implementation and application of ICT solutions, adequate physical environments as well as health and well-being. For each of these areas - abbreviated by SMART, BUILT and HEALTHY- training packages for facilitators are to be developed. The target groups of the trainings are volunteers, entrepreneurs, family members, formal and informal caregivers and other stakeholders in personal services. Special awareness is given to low-skilled or low-qualified persons who want to engage in an entrepreneurial initiative.

Against this background, the Hands-on SHAFE project addresses:

-  Facilitators who support the implementation of SHAFE products and services as direct target group,
-  Persons of all ages whose social participation and inclusion can be improved by means of SHAFE products and services as indirect target group.

The aim of IO1 is to create a valid basis for the training packages to be developed. Information gaps on needs and demands on the side of end-users still hinder the implementation and usage of existing technologies and appropriate environments. Findings are needed to learn how adults can be best approached, trained and advised on aspects of smart healthy age-friendly environments.

This national report summarizes the research results in Portugal. Besides an overview on the national context it describes existing SHAFE products and services as well as their target groups, gaps between their availability and usage, existing implementation support offers and their funding, and examples of good practice for the application and implementation of user-centred services and products in the realms of SMART, BUILT and HEALTHY. With special regards to facilitators who want to start their own company, the BUSINESS chapter informs about SHAFE areas which are appropriate for this intention, main regulation, support offers and stakeholders for starting a business, available training concepts and examples of good training practice. Based on this information, conclusions will be drawn on appropriate strategies regarding the training and support of the target groups.

Together with the reports of the other Hands-on SHAFE partner countries, this national report will be used to elaborate a European synthesis report. Further, a European factsheet will be provided to interested stakeholders, containing information in a reader-friendly and low-threshold style and serving for further dissemination activities.

2 Methodology and proceedings

In compliance with the project proposal, the following methods served to achieve the above-mentioned aims:

1. Desk research in each partner country concerning offers in SHAFE products and services, practices in the application and implementation of these offers, and examples of good practice;
2. Interviews in each partner country with experts from the individual modules (SMART, HEALTHY, BUILT and BUSINESS) or interconnected areas as well as with representatives of the target groups for the training.

The lead organizations for the training IOs defined keyword for the desk research, and interview questions for experts and stakeholders were jointly decided upon. Given the complexity of the topics, an exemplary case was to be discussed at the beginning of the interviews. It was agreed that the interviews could be adapted according to the specific background and expertise of the interviewee.

Interviews with experts included the following questions:

1. Which SHAFE products, services and initiatives are known besides those that were mentioned in the initial example?
2. Which SHAFE products and services are available in the region?
3. Do you think there is a considerable gap between the availability of SHAFE products and services and their usage by those in particular need of them?
4. If yes:
 - 👉 What are the underlying reasons for this gap?
 - 👉 What should be done to remove such barriers?
5. Which role can personal counselling and accompaniment play in facilitating the usage of SHAFE products and services?
6. Can you tell us about specific initiatives in the pilot region to facilitate the usage of SHAFE products and services?
7. Are there areas for SHAFE products and services which can be recommended to start one's own enterprise?
8. Can you tell us about funding opportunities in the pilot region if someone wants to facilitate the usage of SHAFE products and services by those who are in need of them?
9. Which agencies or other organisations offer support to persons who want to start a business?
10. Which themes should be in the focus of SHAFE facilitators?
11. What are the specific counselling needs of the SHAFE end users?
12. What are the specific training needs of SHAFE facilitators?
13. Which problems may arise during the training of facilitators?
14. Do you know any training concepts and experiences that should be taken into account in the design of the Hands-on SHAFE training?

15. What else can you recommend for the Hands-on SHAFE training?

Focus groups discussions with potential future facilitators were structured along the following questions:

1. Which SHAFE products and services are known besides those that were mentioned in the initial example?
2. Which SHAFE products and services are available in the region?
3. Who is in need of SHAFE products and services, and what are characteristics of these target groups?
4. Given these special needs: How should the implementation of SHAFE products and services be facilitated?
5. What can be done to make the role of a facilitator of SHAFE products and services attractive?
6. Which preconditions must be met to encourage facilitators to enrol in a training?
7. Which special requirements as regards contents, methods, duration and timing and certification must be met in the training?
8. What should be done to sustain the training outcomes?

In compliance with the specifications of the research plan, 8 expert interviews were carried out. 4 Interviews were performed face-to-face, 3 interviews by email and 1 interview by telephone.

The experts covered a wide range of competences and thematic areas:

Smart	Healthy	Built	Business
<ul style="list-style-type: none"> Computer vision and robotics researcher Innovative and R&D projects manager 	<ul style="list-style-type: none"> Medical expert Nursing expert 	<ul style="list-style-type: none"> Architect and space organization researcher Environmental engineering expert 	<ul style="list-style-type: none"> Project manager and financial controller Innovation and social entrepreneurship expert

TABLE 1: EXPERTS COVERED AND THEMATIC AREAS

A focus group session was performed with four stakeholders engaged in different projects connected to age-friendly environment and social support to people with low skills in Coimbra. One is working in the area of home assisted services for the ageing population, another with social income beneficiaries, unemployed and fragile families. A third participant manages a social support Centre for people in financial emergency, while the fourth volunteer is currently connected to implementing age-friendly, innovative solution sin the Region and has a long background on social policies and support.

3 Offers and implementation of SHAFE products, services and initiatives

3.1 National, regional and local contexts

3.1.1 Profile of the pilot location



FIGURE 1: PORTUGUESE MAP

The Centro Region of Portugal is one of the seven regions of Portugal (according to NUT II subdivisions¹). It is bordered in the north by the Northern Region, to the east by Spain, to the south by Alentejo NUT II, to the southwest by the Lisbon Metropolitan Area and to the west by the Atlantic Ocean.

In opposition to what happens in almost all EU Member States (including substantially smaller countries such as the Netherlands, Denmark or Belgium), NUTs in mainland Portugal do not correspond to regions with directly elected political powers and their administrative skills are very limited. Currently, the only political bodies restricted to NUTs II are the Regional Coordination and Development Commissions (CCDR), whose directorates are appointed by the central government and whose activities focus, in addition to statistical purposes and regional planning, also in defining areas of decentralized services of the various ministries, replacing the districts².

It includes 43 statistical cities, 194 small towns and 972 villages³, covering a total area of 28.199 km². In 2018⁴, its population totalled 2.216.569 inhabitants, with a population density of 78.6 inhabitants per square kilometre. From these, 47.4% are male and 52.6% are female⁵. Regarding the population distribution by age groups⁶, the scenario in Centro Region of Portugal is summarized in Table 2:

Centro Region	0-14 years		15-64 years		65+ years	
	270.525	12.2%	1.407.071	63.5%	538.973	24.3%

TABLE 2: POPULATION DISTRIBUTION BY AGE GROUP IN CENTRO REGION OF PORTUGAL (2018)

¹ AICEP PORTUGAL GLOBAL [Online]. Available from:

<http://portugalglobal.pt/EN/InvestInPortugal/RegionsofPortugal/Pages/TheRegionsofPortugal.aspx>. [Accessed: 15th December 2019]

² PORDATA (2019). *What are NUTS?* [Online] Available from:

<https://www.pordata.pt/O+que+sao+NUTS>. [Accessed: 9th december 2019]

³ INE - STATISTICS PORTUGAL (2019). [Online] Available from:

https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&userLoadSave=Load&userTableOrder=9956&tipoSelecao=1&contexto=pq&selTab=tab1&submitLoad=true&xleng=pt. [Accessed: 10th december 2019]

⁴ PORDATA (2019). *Resident population estimates at 31 December* [Online]. Available from:

<https://www.pordata.pt/Municipios/Popula%C3%A7%C3%A3o+residente++estimativas+a+31+de+Dezembro-120>. [Accessed: 9th december 2019]

⁵ PORDATA (2019). *Resident population, annual average: total and by sex* [Online]. Available from:



<https://www.pordata.pt/Municipios/Popula%C3%A7%C3%A3o+residente++m%C3%A9dia+anual+total+e+por+sexo-357>. [Accessed: 10th december 2019]

⁶ INE (2019). *Estimativas Anuais da população residente*. [Online] Available from:

https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_publicacoes&PUBLICACOESpub_boui=358632586&PUBLICACOESmodo=2. [Accessed: 10th december 2019]

The most populous cities in the Centro region are Coimbra (143 396 inhabitants), Leiria (126 897 inhabitants), Viseu (99 274 inhabitants) and Aveiro (78 450 inhabitants). The cities with major administrative status inside this region are Coimbra, Aveiro, Viseu, Leiria, Castelo Branco, Covilhã and Guarda.

The Centro Region of Portugal has been very active on the related areas of Smart Healthy Age-Friendly Environments and claims formally that aims to strengthen its living lab, guided by specific needs and territorial bases. For this regional purpose, it entails the mobilization of some dimensions, namely:

-  To consolidate the region as an innovative space, mobilizing, liberating individual and collective potential, generating employment and economic, social and territorial value.
-  Strengthening productivity and territorial cohesion based on the research and innovation strategy for smart specialisation (RIS3) dynamics, establishing the Centro Region as a territory that values the response to societal challenges, namely circular economy and active and healthy ageing.

The regional stakeholders are also very active on the domain of Age-Friendly Environments, Active and Healthy Ageing, Smart specialisation strategy, innovation hubs and Health clusters. Namely, Coimbra has a reference site of 4 stars⁷ - Ageing@Coimbra⁸, which involves as core partners the University of Coimbra (UC), Instituto Pedro Nunes (IPN), the City Council, Cáritas Diocesana de Coimbra (CDC), Centro Region Authority (CCDRC), the Regional Health Administration (ARS), the regional Hospital University Centre (CHUC), Social Welfare (ISS) and Coimbra's Nursing School (ESENfC), among 84 associated partners.

Ageing@Coimbra emerged, in 2014, in the city of Coimbra, as a strong consortium driven by the quadruple helix approach⁹, supported by an ecosystem of organizations related with health and innovation, with the ambition to create a reference site on AHA – Active and Healthy Ageing¹⁰, reinforcing the Centro Region of Portugal capacity to respond to SHAPE demands.

Presently, the consortium is composed by 84 members, with a clear regional coverage and involving a diverse and complementary network of organisations, from public regional and local organisms, to civil society organisations and companies, that together form a consolidated ecosystem that mix AHA health, knowledge, public entities, citizenship and innovation. In this framework, Ageing@Coimbra has a flagship project – MA Portugal - to concentrate excellence and avoid dispersion of scientific resources and to consolidate the AHA ecosystem as a regional development pillar.

The recent Consortium Agreement signed in July 11, consolidated a formal/legal structure for the network, embedded in the operational structure of a perfect alignment with the quadruple helix: universities, regional authorities, business incubation/companies, civil society. Members strongly believe in their partnership and intend to ensure its sustainability, by creating an

⁷ EUROPEAN COMMISSION. *EIP on AHA partnership marks* [Online]. Available at: https://ec.europa.eu/eip/ageing/design/logos_en. [Accessed: 15th december 2019]

⁸ AGEING COIMBRA. *The Centro Region of Portugal offers a unique ecosystem for the development of good healthcare practices in active and healthy ageing* [Online]. Available at: www.ageingcoimbra.pt/en/. [Accessed: 19th december 2019]

⁹ EUROPEAN UNION. *Using the Quadruple Helix Approach to Accelerate the Transfer of Research and Innovation Results to Regional Growth* [Online]. Available at: <https://cor.europa.eu/en/engage/studies/Documents/quadruple-helix.pdf>. [Accessed: 19th december 2019]

¹⁰ EUROPEAN COMMISSION. *Welcome to the EIP on AHA portal* [Online]. Available at: https://ec.europa.eu/eip/ageing/home_en. [Accessed: 15th december 2019]

organisation with professional dedicated staff able to perform the planning, management and monitoring of activities, and to continue developing ongoing and future projects.

The Portuguese Network on Smart, Healthy and Age-Friendly Environments¹¹ is another relevant initiative in Portugal, that was scientifically and methodologically derived from the Thematic Network on SHAPE¹².

In June 2018, CDC invited a range of Portuguese organizations to create a broad network of partners around the themes of inclusive environments for all ages and ageing in place. The network brings together a wide range of Portuguese organizations committed to promoting a joint agenda for the implementation of Inclusive Environments for All Ages, with a focus on Health, Social Support, ICT and Building Environments.

The Portuguese Network also uses a quadruple helix participation and actively promotes the collaboration between research/academia, public authorities, companies and civil society /citizens, with the aim of finding common solutions to national challenges in this theme, based on clear and public principles of governance, participation, funding and communication.

The Network activities are supported in a web page, assured by Cáritas Coimbra. This page includes the Network's identity, Work Groups identification and partners, strategic agenda, dissemination of relevant activities and good practices.

Communication is privileged, whenever possible, through digital tools, in order to avoid financial constraints and to allow the broadening of participation to all partners. Regular work events and meetings are essential to implement the network's strategic objectives, foster collaboration among the various partners, allowing to share challenges, explore opportunities, and implement the scheduled agenda.

3.1.2 Population by age-group and sex

According to the National Institute for Statistics¹³, the resident population in Portugal was estimated to be, in December 2018, 10.276.617 inhabitants, of which 4.852.366 are men and 5.424.251 are women.

In fact, this corresponds to less 14.410 people compared to the previous year of 2017. This variation is due to the negative values of the natural balance (difference between births and deaths) and the positive values of the migratory balance (difference between the number of immigrants and emigrants), which were -25 980 and 11 570, respectively¹⁴.

Regarding the population distribution by age groups¹⁵, the Portuguese scenario, according to the same source, can be pictured in the following table:

¹¹ CÁRITAS COIMBRA. *Rede Portuguesa Ambientes Saudáveis, Inteligentes E Amigáveis* [Online]. Available from: <https://caritascoimbra.pt/project/rede-portuguesa-ambientes-saudaveis/>. [Accessed: 20th december 2019]

¹² CÁRITAS COIMBRA. *SHAPE* [Online]. Available from: <https://en.caritascoimbra.pt/shafe/>. [Accessed: 20th december 2019]

¹³ INSTITUTO NACIONAL DE ESTATÍSTICA. *Statistic Portugal* [Online]. Available from: <https://www.ine.pt/>. [Accessed: 20th december 2019]

¹⁴ INSTITUTO NACIONAL DE ESTATÍSTICA. *Estatísticas Demográficas – 2018* [Online]. Available from: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_publicacoes&PUBLICACOESpub_boui=358632586&PUBLICACOESmodo=2. [Accessed: 15th december 2019]

¹⁵ INSTITUTO NACIONAL DE ESTATÍSTICA. *Estimativas Anuais da população residente* [Online]. Available from: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_publicacoes&PUBLICACOESpub_boui=358632586&PUBLICACOESmodo=2. [Accessed: 15th december 2019]

Country	0-14 years	15-64 years	65+ years
PORTUGAL	1.407.566 13.7%	6.624.826 64.5%	2.213.274 21.8%

TABLE 3: PORTUGAL POPULATION BY AGE-GROUPS

In fact, Portugal is an ageing country, following the similar tendency in other European states, with an ageing index growing from 136 older adults (for every 100 youngsters), in 2013, to an index of 159 older adults (for every 100 youngsters), in 2018.

Regarding population projections between 2015 and 2080, according to the central projection scenario in the same source:

Portugal will lose population from the current 10.3 to 7.5 million people, falling below the 10 million thresholds in 2031. The number of young people will fall from 1.5 to 0.9 million; Even assuming increases in the synthetic fertility index, it still results in a decrease in the number of births, motivated by the reduction of women of childbearing age, reflecting the low levels of fertility recorded in previous years.

The number of older adults will rise from 2.1 to 2.8 million. Given the decline in the young population, along with the increase in the older adult's population, the ageing rate will more than double from 147 to 317 older adults people per 100 young people in 2080.

3.1.3 Workforce

Silver Economy can be described as the sector of the economy that concerns the specific needs of the older population. Concerning the Silver Economy enterprises in Portugal, further and detailed data is provided in section 3.5.

In terms of **labour force** by age group, the statistics drawn by 2018 data also reinforce the ageing tendency of the Portuguese workforce, when compared to previous years:

Less than 25 years	25-34 years	35-44 years	45-54 years	55-64 years	65+ years	TOTAL
371,9 thousand	1.016,4 thousand	1.384,2 Thousand	1.322,5 thousand	881,2 thousand	256,3 thousand	5.232,6 thousand

TABLE 4: LABOUR FORCE BY AGE GROUP IN PORTUGAL (2018)¹⁶

National **projections** envision that the working age population will decrease from 6.7 to 3.8 million people. The sustainability index (ratio between the number of people aged 15 to 64 and the number of people aged 65 and over) could decline sharply, as the working age population declines, along with the increase in the older adults' population. This will rise from 315 to 137 working-age people per 100 seniors between 2015 and 2080¹⁷.

¹⁶ PORDATA. Labour force: total and by age group [Online]. Available from: <https://www.pordata.pt/en/Portugal/Labour+force+total+and+by+age+group+-29>. [Accessed: 18th december 2019]

¹⁷ INSTITUTO NACIONAL DE ESTATÍSTICA. *Projeções de População Residente em Portugal* [Online]. Available from: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=277695619&DESTAQUESmodo=2&xlang=pt. [Accessed: 18th december 2019]

Regarding the **employment rates**¹⁸, Portugal presented, in September 2019, 70.8% of working age population. As for the self-employment rates (workers who work for themselves)¹⁹, the numbers for Portugal in 2018 were at 16.6% out of the total employment rate.

When considering this distribution by age group²⁰, the numbers are displayed in table 5.

15-24 years	25-54 years	55-64 years
28.2%	85.2%	61.1%

TABLE 5: EMPLOYMENT RATES BY AGE GROUP IN PORTUGAL (SEPTEMBER 2019)

As for employment by education level²¹, there are 70% of the active working population (between 25 and 64 years old) below upper secondary level, 83.7% with upper secondary/non tertiary level and 88.4% holding tertiary level, all these rates being slightly higher than the OECD average.

On the other hand, when it comes to the **unemployment rates**²², 6.3% of the Portuguese labour force is unemployed. The numbers for long-term unemployment rate²³ (people who have been unemployed for 12 months or more) are up to 48.4%. Among the youngest (15-24-year-olds), the numbers for unemployment²⁴ are around 20.3% in the country.

If considering unemployment by education level²⁵, there are 6.9% active aged people holding below upper secondary level (with this number being the only one lower than the OECD average), 6.6% with upper secondary/non tertiary level and 4.7% holding tertiary level.

3.1.4 Health

The Health care model in Portugal is composed by two main areas – Health system and Social Care services and except for very specific initiatives (e.g. long-term care), there is not an integrated governance.

In Health, three systems coexist: National Health Service (SNS), special social health insurance schemes and voluntary private health insurance. The dominant model is the SNS, where the State assures the right to national, universal, general and free health protection, under the Ministry of Health. The system is managed by a Central Administration that manages financial, human, equipment and facility resources, as well as health policies, plans, rules and standards. There are 5 Regional Health Administrations responsible for providing healthcare services to the populations and execute the national health plan. The SNS has also conventions with private entities to provide complementary healthcare services.²⁶

¹⁸ OECD (2019). *Employment rate (indicator)* [Online]. Available from: <https://doi.org/10.1787/1de68a9b-en>. [Accessed: 18th december 2019]

¹⁹ OECD (2019). *Self-employment rate (indicator)* [Online]. Available from: <https://doi.org/10.1787/fb58715e-en>. [Accessed: 18th december 2019]

²⁰ OECD (2019). *Employment rate by age group (indicator)* [Online]. Available from: <https://doi.org/10.1787/084f32c7-en>. [Accessed: 18th december 2019]

²¹ OECD (2019). *Employment by education level (indicator)* [Online]. Available from: <https://doi.org/10.1787/26f676c7-en>. [Accessed: 18th december 2019]

²² OECD (2019). *Unemployment rate (indicator)* [Online]. Available from: <https://doi.org/10.1787/997c8750-en>. [Accessed: 16th december 2019]

²³ OECD (2019). *Long-term unemployment rate (indicator)* [Online]. Available from: <https://doi.org/10.1787/76471ad5-en>. [Accessed: 16th december 2019]

²⁴ OECD (2019). *Youth unemployment rate (indicator)* [Online]. Available from: <https://doi.org/10.1787/c3634df7-en>. [Accessed: 18th december 2019]

²⁵ OECD (2019). *Unemployment rates by education level (indicator)* [Online]. Available from: <https://doi.org/10.1787/6183d527-en>. [Accessed: 16th December 2019]

²⁶ SNS. *Política de saúde* [Online]. Available from: <https://www.sns.gov.pt/institucional/politica-de-saude/>. [Accessed: 18th December 2019]

Social Care is supervised by the Ministry of Labour, Solidarity and Social Security through the Social Security Institute (ISS), that has a Central Service and 18 District Centres, all under centralised decision-making governance. Most of social care provision is contracted by ISS to local and regional NGOs that deliver home care, residential care, etc.

Municipalities and local/regional organisations have limited intervention to define policy and funding within the health and care model. Nevertheless, initiatives like Ageing@Coimbra bring together all relevant actors to push forward integrated initiatives in the Region.

The NHS is mainly funded by general taxation. There are also some "health subsystems" covering certain professions that are funded on a voluntary basis by employees' contributions and/or state budget. These schemes cover about 14% of the population.

The budget for the health sector is defined annually in parliament when the general budget is approved. In 2015, 66.8% of total health expenditure funding came from government sources (direct and indirect taxes collected centrally). The remaining part is private expenditure on health including private voluntary health insurance and out-of-pocket payments.

Co-payments (fixed fees) apply to primary care and specialist consultations, hospital care, home care and emergency care. Cost-sharing also applies to pharmaceuticals and public coverage of eye care and dental care is limited. There are exemptions based on income and medical conditions.

The public component of the Social Security System covers 3 subsystems: – Solidarity; Family; and Social assistance subsystems. This latter provides social support to the most vulnerable groups (as older adults and is mostly funded by taxation).

Some social services are provided in each region through the Ministry of Social Security. However, non-profit non-public institutions for social solidarity (IPSS) are the main providers of these services. These services are licensed by ISS and most of them co-funded by the State, the IPSS and have also a client/family contribution.

In numbers, social organisations are distributed as follows:

6978 IPSS - around 161 cooperatives, 252 foundations, 85 mutual societies, 3,700 associations, 174 local associations, 117 social and parish centres, almost 220 religious institutes, 374 mercies²⁷.

Around 200.000 workers in IPSS. Social Economy represents around 3% of national Gross Value Added (GVA), 5.3% of remuneration, 6,1% of paid employment and 5.2% of total employment (Conta Satélite da Economia Social, de 2016²⁸).

Despite the centralised and siloed main framework, a set of structural reforms and quality initiatives aiming to improve efficiency and achieve better quality of care are being introduced: chronic diseases prevention programmes, restructure of primary health care services and the hospital sector, integrating services. The long-term care network is a European highlight example of integrated care nationally implemented. There are examples of targeted primary prevention and secondary prevention efforts, such as management of diabetic and hypertensive patients that are monitored at primary care. E.g., the Centro Region has the all population covered by population-based screening for breast cancer.

²⁷ SEGURANÇA SOCIAL. *Listagem IPSS* [Online]. Available from: http://www.seg-social.pt/documents/10152/13140219/Listagem_ipss/8371faa4-dea5-4c03-a47f-3446f1f4c6c3. [Accessed: 18th December 2019]

²⁸ CONTA SATÉLITE DA ECONOMIA SOCIAL (2016) [Online]. Available from: <https://www.cases.pt/contasatelitedaes/>. [Accessed: 18th December 2019]

Regarding Health and care workforce, 26.271 workers in the Centro Region Hospitals in 2017, of which 5.037 medical doctors and 9.038 nurses. In 2017, the ratio between Centro Region inhabitants and medical doctors working in the Centro Region Hospitals was 535.9. There were 6.189 working staff in the primary care units of the Centro Region of Portugal in 2012 (last available data), of which 1.690 medical doctors and 1.765 nurses²⁹.

Main statistics on chronic diseases and impairments, collected from health regional profile³⁰:

Cognitive impairment	Frailty
<ul style="list-style-type: none"> 153.000 Portuguese with dementia. In 2016, the dementia ratio was 0.8% in the Central region of the country 	<ul style="list-style-type: none"> In 2015, the old-age dependency ratio was 36.2% in the Central region of Portugal.
Multiple chronic health conditions (2016)	
<ul style="list-style-type: none"> Cancer – cancer ratio was 1% in the Central region. Diabetes - diabetes ratio was 5% in the Central region; the ratio in people with 65-74 years old was 13%; the ratio in people with +75 years old was 17%. Asthma - the asthma ratio was 4.5% in central region; the ratio in people with 65-74 years old was 5.2%; the ratio in people with +75 years old was 5.2%. High blood pressure – the high blood pressure ratio was 20.5% in central region; the ratio in people with 65-74 years old was 52%; the ratio in people with +75 years old was 49%. Chronic pain – the chronic pain ratio was 17% in central region. Rheumatic disease - the rheumatic disease ratio was 16% in central region. Osteoporosis - the osteoporosis ratio was 7% in central region. Depression - the depression ratio was 7% in central region. 	

TABLE 6: MAIN STATISTICS ON CHRONIC DISEASES AND IMPAIRMENTS

3.1.5 Housing

The field of “housing” globally addresses the following areas:

- 👉 Accessible residences.
- 👉 Available aids for infrastructure improvements.
- 👉 Support services for the ageing adults to remain in their own houses.
- 👉 Financial support to low-income collectives.

The stock house estimates suggest that, in 2018, there were around 3.6 million classic residential buildings and 6.0 million dwellings in Portugal, which represents an increase of 0.2% in both variables, vis-à-vis the previous year. In 2018 the number of building permits in Portugal increased by 17.6% over the previous year (+11.0% in 2017), corresponding to 22 223 buildings. Building permits for new construction remained predominant in 2018, representing 68.9% of total building permits (68.2% in 2017). Building requalification works increased by 11.7% over the previous year (-0.1% in 2017), corresponding to 5 187 buildings in 2018 (4 642 in 2017)³¹.

²⁹ PORDATA. SNS: *employed persons in health centers* [Online]. Available from: [https://www.pordata.pt/Municipios/SNS+pepsoal+ao+servi%27o+nos+centros+de+sa%27ade+por+tipo+de+pepsoal+ao+servi%27o+\(1999+2012\)-445](https://www.pordata.pt/Municipios/SNS+pepsoal+ao+servi%27o+nos+centros+de+sa%27ade+por+tipo+de+pepsoal+ao+servi%27o+(1999+2012)-445). [Accessed: 18th December 2019]

³⁰ SNS. Perfil Regional De Saúde Região Centro. Published in 2016. Available from: https://www.arscentro.min-saude.pt/Documents/informa%C3%A7%C3%B5es/2017/PeRS_Centro_2016.pdf. [Accessed: 18th December 2019]

³¹ INE. Estatísticas da construção e habitação. Published at 2019. Available at: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_publicacoes&PUBLICACOESpub_boui=358628647&PUBLICACOESmodo=2

Statistic data from 2018³² indicates that, between 2016-2018, the large majority of the Municipalities in Centro Region of Portugal, presented from 0 to 5.4 completed building reconstructions per 100 new buildings. In addition, around 19.5% of the Municipalities completed from 20 to 42.9 building reconstructions per every 100 new buildings, followed by around 16.9% of other Municipalities, that completed from 5.4 to 20 building reconstructions per every 100 new buildings. A small minority of the remaining Municipalities accomplished more than 42.9 building reconstructions per every 100 new buildings. These numbers evidence that there are still much more new constructions in Centro Region, when comparing to the retrofitted ones.

When it comes to the percentage of buildings in need of repair, from the 40.641 buildings that existed in 2011 in the Municipality of Coimbra, 31.8% needed repair work and 1.7% of the buildings were very degraded. This reality is also verified in the regional and national panorama³³.

From the total of classic buildings listed in the Centro Region in 2011, 41.7% are accessible to people moving in a wheelchair. This figure is slightly higher than the national one observed (40.9%), being the rate associated to the Municipality of Coimbra's (39.1%) the lowest of the three.

With regard to the proportion of classic buildings that existed in 2011 and that allowed circulation of wheelchairs to accommodation, in the Centre Region this proportion corresponded to 30.3%, a value slightly higher than the registered both in Portugal and in the Municipality of Coimbra. It should be noted that, comparing these 3 territories, the Municipality of Coimbra has the lowest proportion, corresponding to 26.4%.

Considering the above, in order to alleviate the difficulties experienced by people with reduced mobility, privilege should be given to the elimination of architectural barriers, the requalification and improvement of housing, thus improving accessibility to them.

Regarding the Buildings Ageing Index (quotient between the number of buildings built up to 1960 and the number of buildings built after 2001) in 2011, the Municipality of Coimbra recorded the approximately 184, which means that for every 100 buildings built after 2001 there were 184 buildings built up to 1960. The number of buildings built up to 1960 is significantly higher than the number of buildings built after 2001, not only in the Municipality of Coimbra, but also in the Centro Region and Portugal, however the local and regional value is slightly higher than in the country³⁴.

With regard to the construction of the Municipality of Coimbra, and in view of the high Ageing Index of Buildings (184.2) and the high percentage of buildings in need of repair work (31.8%), it is considered pertinent to continue to reinforce intervention strategies in recovery and rehabilitation of the building currently under construction.

There are no consistent public measures to facilitate funding or credit for retrofitting, especially in historic centres and areas with older buildings, where a substantial part of the ageing populations resides. Some rehabilitation is taking place in historic buildings but many times

³² INE – Statistic Portugal (2019) [online]. *Centro Region in Figures* [online]. Available from: https://www.ine.pt/ngt_server/attachfileu.jsp?look_parentBoui=418946156&att_display=n&att_download=y. [Accessed: 13th december 2019]

³³ Municipality of Coimbra (2018). *Social Diagnosis of Coimbra's Council* [online]. Available from: <https://www.cm-coimbra.pt/wp-content/uploads/2018/06/Diagno%CC%81stico-Social-2018.pdf>. [Accessed: 13th december 2019]

³⁴ Municipality of Coimbra (2018). *Social Diagnosis of Coimbra's Council* [online]. Available from: <https://www.cm-coimbra.pt/wp-content/uploads/2018/06/Diagno%CC%81stico-Social-2018.pdf>. [Accessed: 13th december 2019]

more for touristic purposes than for better conditions to residents. Gentrification has been changing many urban areas and, by provoking higher rents, it is pushing older adults, people with low resources and/or with disabilities to houses with less conditions or further away from accessible areas.

In a study carried out in three municipalities in the central region of Portugal, in which the documentary survey of the municipal management programs of these municipalities was carried out, they found a housing program that aims to improve the basic conditions of habitability, in which the issues of architectural accessibility they are considered, for example, by carrying out minor repairs inside the dwelling. Among the housing projects, we highlight housing qualification programs for the older population, such as the Housing Comfort Program for Older People (PCHI) in Castelo Branco and Guarda. They aim to improve basic living conditions and determine possible housing support solutions for the most deprived and disadvantaged households, favouring the older adults. They also prevail free services that fulfil their mission of support to the population aged 65 or over, in need or dependent, through the execution of small domestic repairs, such as “Bricosolidário” in Guarda.³⁵

Houses in rural areas are also often very degraded and people have very limited resources, thus finding themselves many times in very deprived conditions in terms of temperature (bad isolation, no heating or cooling systems installed, lack of resources for paying high electricity bills), accesses (either to the house, as inside the house and also in the villages – small passages, lack of sidewalks, stairs, etc.).

On the good side, some local and small retrofitting initiatives are now being created by municipalities and NGOs as, for example, Programa AMPHARA, develop by the Municipality of Arganil,³⁶ that provides small subsidies to transform older adults houses, namely in terms of accessibilities, technical aids, among others.

The most available support by the municipalities is: the other type of support in the elimination of barriers in the pedestrian paths (42.9%) and in the paths surrounding the housing area (38.1%) and the technical support for the elimination of barriers in the access to the built environment (38.1%). As these areas receive the most support, the financial aspect was never mentioned, in addition to the lack of financial resources being the most mentioned constraint, and essential for the decision in the allocation of support.³⁷

Also, new types of residential units are being created, trying to disrupt from standard nursing homes. One nice example is the Pinhal Autonomous Homes³⁸, a senior village, built to host still active and autonomous seniors, who have no family support and refuse to be institutionalized but can use the services of the association nearby (meals, laundry, leisure activities, etc.) and have neighbours in similar situations to relate and interact.

This is quite important as two of the biggest problems with the ageing adults is currently loneliness and difficulty to remain active. So, technology can help to increase confidence and self-esteem, the possibility of better contact with friends and family, the occupation of free time

³⁵ Bárrios, M. J., & Fernandes, A. A. (2014). A promoção do envelhecimento ativo ao nível local: Análise de programas de intervenção autárquica. *Revista Portuguesa de Saúde Pública*, 32(2), 103-108. Recuperado de <https://www.sciencedirect.com/science/article/pii/S0870902514000492>.

³⁶ MUNICIPALITY OF ARGANIL [Online]. Available from: <https://www.cm-arganil.pt>. [Accessed: 20th December 2019]

³⁷ PEREIRA, Rute Salomé da Silva et al. As autarquias e a promoção da acessibilidade arquitetónica. *Rev. Enf. Ref.* [online]. 2018, vol.serIV, n.18, pp.29-38. ISSN 0874-0283. <http://dx.doi.org/10.12707/RIV18022>.

³⁸ PINHAL AUTONOMOUS HOMES [Online]. Available from: <http://ospioneiros.pt/niceoffice/mod1/?&tp=temp001&fid=1.8&lg=PT&d n=1774&pag=1>. [Accessed: 20th December 2019]

and access to information (also consider access to health literacy). Another difficulty in the services provision is the increasing dependency ratio that leads to the need of constant presence of caregivers in home care assistance. Many times, social care supports people that live in very distant and isolated villages and that only rely on the presence of formal caregivers, sometimes only once a day. Therefore, technology can help them to increase control over their health, well-being and connection with others, helping also to increase safety and security.

The Republican National Guard (GNR) refers to 41,868 older adults living alone or isolated throughout the country in October 2019 as part of the "Senior Census" operation³⁹. According to the data, the largest number of identified older adults living alone or isolated was in Vila Real district (4,736), followed by Guarda (4,183), Faro (3,272), Viseu (3,201), Portalegre (3,147) and Bragança. (3,142). In Lisbon, 626 older adults were identified living alone or isolated and in Porto 1,026.

Caritas Coimbra supports several hundred of older adults in 18 locations in the various municipalities of the Diocese of Coimbra. The Home Support Service is a social service that consists of providing care and services to families and/or people who are at home, in a situation of physical and/or psychological dependence and who cannot ensure, temporarily or permanently, the satisfaction of their basic needs and/or the performance of the instrumental activities of daily life, nor have family support for this purpose.

Adjusted to the context of each community, it is possible to offer a set of diversified services to users, also promoting socialization with other users, employees, volunteers and people from the community.

3.1.6 ICT literacy

Society is permanently under technological, ideological, economic and social change which must be carefully analysed if we are to understand the needs of individuals, particularly the older adults who were born at a time when there were no digital technologies in your daily life and that today are faced with its solid implementation in all areas of the human behaviour. Many adults are not digital natives, were not born in a digital world, and are now urged adapt to the technological society and acquire new learnings to be better informed, have greater social participation and maintain or strengthen family ties with younger generations.

They many times feel illiterate in the face of new technologies, showing difficulty in understanding the new language and dealing with technological advances, even on basic issues like home appliances, mobile phones and ATMs.⁴⁰

Although in Portugal there have been many programs and initiatives associated with digital technologies (for example: Green Paper of the Information Society in Portugal - 1997; Connecting Portugal: National Action Plan for the Information Society - 2005/2010; Technological Plan of Education - 2005; UMIC: Agency for the Knowledge Society: 2005/2012) the Foundation for Science and Technology (FCT) which has been leading a decisive role in guiding national proposals and towards a more digital Portugal.

Evidence shows that the intensity of ICT usage is directly related to the educational attainment level and inversely related to age. In Portugal, around 2 million people are over 65 years old

³⁹ GNR. *Censos Sénior 2019* [Online]. Available from: <https://www.gnr.pt/noticias.aspx?linha=12943>. [Accessed: 20th December 2019]

⁴⁰ RAMOS, T (2014) [Online]. *A (I)Literacia Digital e as Pessoas Idosas: Os cartoons e os seus estereótipos*. Instituto Politécnico de Castelo Branco Escola Superior de Educação. Available from: https://repositorio.ipcb.pt/bitstream/10400.11/2693/1/Tese%20Teresa%20Ramos_.pdf. [Accessed: 18th December 2019]

and have a low education attainment level (19% of the population). This group is quite vulnerable in what concerns digital literacy, a problem that inclusion policies have attempted to soften over the last 15 years, concentrating on informal training actions and learning activities developed and adapted specifically for this population group. As it has been shown by national and international researchers, working with older adults seem to first require the recasting of common-sense representations about them as “unable” to learn how to use ICT or “uninterested” by these matters. This work requires a prior preparation for adaptation of content and of technological learning purposes targeting the concrete needs of the older population (FCT, 2013)⁴¹.

In 2014, the FCT launched the 'ICT and Society Network', with the main objective of promoting Digital Inclusion and Literacy of the Portuguese population, in particular of the groups most vulnerable to info-exclusion, and thus contribute to individual empowerment and to a more comprehensive and inclusive society. At the same time, FCT launched the National Strategy for Inclusion and Digital Literacy - ENILD (2015 - 2020) in order to reinforce previous objectives for the Portuguese society to be more participative and more linked and committed through the extensive and systematic appropriation of ICT by older adults, adults with low levels of education and inactive people with low professional qualifications, knowing that in 2015, in Portugal, 30% of the population had never used the Internet (FCT, 2015).

ENILD defined 3 Axes: Axis 1 - Digital Competencies (Based on DigComp 1.0); Axis 2 ICT and Society Network (Oriented to the structuring of a network for inclusion and digital literacy); Axis 3 Resources for Digital Inclusion and Digital Literacy (identification, organization and implementation of solutions that result in a set of digitally oriented resources for inclusion and digital literacy). ENILD, as already mentioned, had as its main focus the most info-excluded citizens, since in 2014, 76% of the 55-74 years old population with low education had never used the Internet and the same 73% of the population between 65 and 74 years old. In the opposite direction, young people aged 16-24 have an Internet usage rate of 98% and 97% for citizens with tertiary education.⁴²

Regarding the **usage of digital platforms** (e.g. social media platforms), Portugal presented, from November 2018 to November 2019, Facebook is the most used social media platform, with more than 72% of users, according to State Counter (2019)⁴³, although in decreasing when compared with the use of Instagram (the second more used social media platform).

According to Pordata (2019)⁴⁴, these are the percentages of individuals aged 16 and over that age using the Internet:

⁴¹ FCT (2013). *Vulnerable People & ICT in Portugal – The practice of more than 15 years* [Online]. Available from: https://www.fct.pt/dsi/docs/fct_vulnerablepeople_ict.pdf. [Accessed: 18th December 2019]

⁴² GIL, H. (2019). A Literacia Digital e as Competências Digitais para a Infoinclusão: por uma inclusão digital e social dos mais idosos [Online]. *RE@D - Revista de Educação a Distância e Elearning*. Volume 2, Número 1 Março. Available from: https://journals.uab.pt/index.php/lead_read/article/view/140/137. [Accessed: 13th December 2019]

⁴³ STATE COUNTER (2019). *Social Media Stats Portugal nov 2018 to nov 2019* [Online]. Available from: <https://gs.statcounter.com/social-media-stats/all/portugal>. [Accessed: 18th December 2019]

⁴⁴ PORDATA (2019). *Individuals aged 16 and over who use computer and Internet: by age group* [Online] Available from: <https://www.pordata.pt/Portugal/Indiv%C3%ADduos+com+16+e+mais+anos+que+utilizam+computad+or+e+Internet+em+percentagem+do+total+de+indiv%C3%ADduos+por+grupo+et%C3%A1rio-1139>. [Accessed: 18th December 2019]

Use of internet in different age groups							
Age groups	Total	16-24	25-34	35-44	45-54	55-64	65-74
2018	74,7	99,4	98,2	92,9	78,7	53,4	32,7
2019	75,3	99,5	98,0	95,1	78,4	57,3	33,1

TABLE 7: USE OF INTERNET IN DIFFERENT AGE GROUPS IN PORTUGAL

3.1.7 Governance and funding of SHAFE measures

The main funding policy instrument available for the implementation of a development strategy to the Centro Region of Portugal, between 2014 and 2020, is the Regional Operational Programme (ROP)⁴⁵. ROP Centro has available about €2,155m from EU funds: €1,751m (ERDF) and €404m (European Social Fund), that primarily intend to strengthen the competitiveness of the companies based in the region and job creation. It will also be given particular emphasis on the efficient use of resources and the social inclusion of disadvantaged people. Ten strategic priorities have been established within the programme.

Portugal2020 is the partnership agreement adopted between Portugal and the European Commission, bringing together the work of the five European Structural and Investment Funds - European Regional Development Fund, Cohesion Fund, European Social Fund, European Agricultural Fund for Rural Development and European Maritime Fund - which define the programming principles that enshrine the economic, social and territorial development policy to promote in Portugal between 2014 and 2020.

These programming principles are aligned with Intelligent, Sustainable and Inclusive Growth, continuing the EUROPE 2020 strategy. To this end, it has set the Thematic Objectives to stimulate growth and job creation, the interventions needed to achieve them, and the achievements and results expected from these financing.

Portugal 2020⁴⁶ is operationalized through 16 Operational Programs, in addition to the European Territorial Cooperation Programs in which Portugal participates alongside other Member States.

It has 4 continental thematic operational programs:

- 👉 Competitiveness and Internationalization
- 👉 Social Inclusion and Employment
- 👉 Human capital
- 👉 Sustainability and Resource Efficiency

Besides these, 7 regional programmes, such as the ROPC, are also available.

European programs are also available for the country and the Centro Region, some of them possible to be used to leverage SHAFE implementation (an indeed used already):

- 👉 H2020⁴⁷
- 👉 AAL Programme⁴⁸

⁴⁵ REGIONAL OPERATIONAL PROGRAMME [Online]. Available from: www.centro.portugal2020.pt. [Accessed: 18th December 2019]

⁴⁶ PORTUGAL2020 [Online]. Available from: <https://poseur.portugal2020.pt/en/portugal-2020/>. [Accessed: 18th December 2019]

⁴⁷ H2020 [Online]. Available from: <https://ec.europa.eu/programmes/horizon2020/en/what-work-programme>. [Accessed: 18th December 2019]

⁴⁸ AAL PROGRAMME [Online]. Available from: <http://www.aal-europe.eu/>. [Accessed: 18th December 2019]

- 👉 Interreg Atlantic Area Programme⁴⁹
- 👉 Espon⁵⁰
- 👉 Urbact⁵¹
- 👉 Interreg Europe⁵²
- 👉 Interreg Sudoe⁵³
- 👉 Erasmus+⁵⁴

In terms of Portuguese funds, there are also others that are worthy to highlight. The Portugal Social Innovation is a public initiative aimed at promoting social innovation and boosting the social investment market in Portugal. It mobilizes around EUR 150 million from the European Social Fund under the Portugal 2020 Partnership Agreement.

It channels this money to the market through 4 financing instruments to fund projects that propose alternative and innovative approaches to addressing social problems. This initiative is a pioneering experience in Europe, as Portugal is the only Member State that has earmarked part of EU funds until 2020 to experiment with new financing instruments aimed at fostering innovation and social investment. The implementation of the Portugal Social Innovation Initiative is coordinated by the Portugal Social Innovation Mission Structure (EMPIS). Portugal 2020 is a partnership agreement signed by Portugal and the European Commission, that gathers the action of 5 European Structural and Investment Funds - ERDF, Cohesion Fund, ESF, EAFRD and EMFF - in which the programming principles are set out to mark the economic, social and territorial development policy to be promoted in Portugal between 2014 and 2020. These programming principles are aligned with the Smart, Sustainable and Inclusive Growth pursued by Europa 2020 Strategy.

Portugal shall be awarded 25 thousand million euros until 2020 and for this it set out the Thematic Goals to stimulate the growth and the creation of Employment, the necessary interventions to execute them and the undertakings and the outputs expected as a result of these funding. The main goals of Portugal 2020⁵⁵ policies are:

- 👉 to promote the production of tradable goods and services.
- 👉 to increase exports.
- 👉 to transfer outputs from the scientific system to the productive fabric.
- 👉 the observance of compulsory education currently up to 18 years of age.
- 👉 to decrease early school leaving levels.
- 👉 to integrate people at risk of poverty and to combat social exclusion.

⁴⁹ INTERREG ATLANTIC AREA PROGRAMME [Online]. Available from: <https://www.atlanticarea.eu/>. [Accessed: 18th December 2019]

⁵⁰ ESPON [Online]. Available from: <https://www.espon.eu/>. [Accessed: 18th December 2019]

⁵¹ URBACT [Online]. Available from: <https://urbact.eu/>. [Accessed: 18th December 2019]

⁵² INTERREG EUROPE [Online]. Available from: <https://www.interregeurope.eu/>. [Accessed: 18th December 2019]

⁵³ INTERREG SUDOE [Online]. Available from: <https://www.interreg-sudoe.eu/prt/homepage>. [Accessed: 18th December 2019]

⁵⁴ ERASMUS + [Online]. Available from: <https://www.erasmusmais.eu/>. [Accessed: 18th December 2019]

⁵⁵ PORTUGAL 2020 [Online]. Available from: <https://www.portugal2020.pt/contet/o-que-e-o-portugal-2020>. [Accessed: 18th December 2019]

- ✎ to promote sustainable development in terms of resource use efficiency.
- ✎ to strengthen territorial cohesion, particularly in low-density cities and areas and to rationalise, modernise and empower Public Administration.

In terms of eligibility to the European Investment Funds (ERDF, Cohesion Fund, ESF, EAFRD and EMMF), the 7 regions of Portugal are sub-divided in:

- ✎ Less developed regions (GDP per capita < 75% EU average): North, Centre, Alentejo and Algarve.
- ✎ Azores - Funds Co-funding Rate: 85%
- ✎ Regions in transition (GDP per capita between 75% and 90%): Algarve Funds Co-funding Rate: 80%
- ✎ More developed regions (GDP per capita > 90%): Lisbon and Madeira Funds Co-funding Rate: 50% (Lisbon) and 85% (Madeira).

Besides these public programmes, many private funds, such as BPI Fundação La Caixa⁵⁶; Fundação Montepio – FACES⁵⁷; Fidelidade Social Award⁵⁸; Mission Continente (Sonae)⁵⁹; FMAM Award⁶⁰, among others, are also available, although with fluctuations on periodicity, specific scope (many have different annual aims) and amounts available.

⁵⁶ BPI FUNDAÇÃO LA CAIXA [Online]. Available from: <https://fundacaolacaixa.pt/pt/web/obra-social-portugal/home>

⁵⁷ FUNDAÇÃO MONTEPIO - FACES [Online]. Available from: <https://www.montepio.org/institucional/fundacao-montepio/faces-financiamento-apoio-combate-exclusao-social/>. [Accessed: 13th December 2019]

⁵⁸ FIDELIDADE SOCIAL AWARDS [Online]. Available from: <https://www.fidelidade.pt/EN/fidelidade/our-brand/our-brand/Paginas/awards.aspx>. [Accessed: 13th December 2019]

⁵⁹ MISSION CONTINENTE [Online]. Available from: <https://www.sonae.pt/en/innovation/projects/continente-mission/>. [Accessed: 13th December 2019]

⁶⁰ FMAM AWARD [Online]. Available from: <http://www.fmam.pt/premio-mam/introdu%C3%A7%C3%A3o/>. [Accessed: 13th December 2019]

3.2 SMART: ICT for BUILT and HEALTHY

3.2.1 SMART measures and their target groups

The European Agency for Special Needs and Inclusive Education refers that Information and Communication Technology (ICT) is now part of everyday life for many people. It has an impact on many aspects of society, including education, training and employment, but, is a valuable tool for people with disabilities and special needs. ICT's potential for improving quality of life, reducing social exclusion and increasing participation is internationally recognised, as are the social, economic and political barriers that inaccessible ICT can create (World Summit on the Information Society, 2010 in European Agency for Special Needs and Inclusive Education, 2013)⁶¹.

According to FCT (2013)⁶², the **Telecentre Network** is a nationwide community created in 2006 by the Knowledge Society Agency (UMIC). The network comprises several types of entities with social concerns – Local Authorities, Parish Councils, Public Libraries, Welfare Institutions, Digital Inclusion Centres, Culture and Recreation Associations, etc. – under the same purpose: to foster the widespread use of ICT among the Portuguese population (an essential requirement for the development of a Knowledge Society), in order to allow the full exercise of the citizenship in an increasingly technological and to bridge the digital divide between Portugal and the European average. The organisations involved (1,172 units in the year 2010) assign facilities where the general public can freely use computers with Internet access and/or have ICT training sessions provided by e-facilitators. To leverage this massification concern, some e-inclusion initiatives were developed within this framework and one that stood strongly attached to the telecentres was the DCB (i.e., “Diploma in ICT Basic Skills”), conceived to recognise e-skills acquired in informal and non-formal learning contexts by any citizen. The institutional diversity of this network allows a greater proximity to citizens and to their specific ICT training needs (e.g. the unemployed people, the elderly people, the children with low socioeconomic status).

The important role of **public libraries** to foster digital literacy and digital inclusion is recognised by the European Commission. In Portugal the public libraries network has a very significant territorial expression: 301 libraries distributed by 308 municipalities, which means a national coverage of 97.7%. Their natural vocation, to spread knowledge and foster literacy among all types of public have been boosted in 2004 with the “Internet Spaces” Initiative, which allowed libraries to be enhanced with IT infrastructures. In the existing 301 municipal libraries, around 20% of the reading rooms have been equipped with assistive technologies, most of them for the visually impaired.

Some Municipalities develop **social inclusion programmes with ICT**, providing access to Internet and computers to people living in small and very small villages. Such good practice may be illustrated by the programme developed by the Municipality of Aguiar da Beira where villages and small towns over the territory are regularly visited by a van equipped with nine computers with free Internet access (called “New Technologies Mobile Unit”), whose staff also provide technical help to parish councils in maintaining their wireless network along with ICT training sessions (fostering thus informal training and certification of basic ICT skills in remote areas). This project was born from a partnership between the Municipality and the community

⁶¹ EUROPEAN AGENCY FOR SPECIAL NEEDS AND INCLUSIVE EDUCATION (2013). [Online] Available from: <https://www.european-agency.org/resources/publications/ict-inclusion-developments-and-opportunities-european-countries>. [Accessed: 10th December 2019]

⁶² FCT (2013). *Vulnerable People & ICT in Portugal – The practice of more than 15 years* [Online]. Available from: https://www.fct.pt/dsi/docs/fctvulnerablepeople_ict.pdf. [Accessed: 18th December 2019]

group “Santa Casa da Misericórdia de Aguiar da Beira” and aims to raise awareness among elderly people towards the e-skills acquisition (FCT, 2013)⁶³.

Born in 2001, the “**Diploma in ICT Basic Skills**” (DCB) is a lifelong learning initiative conceived as a tool to fight info-exclusion, enhancing citizenship and promoting social cohesion, through the recognition of e-skills developed in informal and non-formal learning frameworks. The exam for the DCB’s award can be requested by citizens of any age in accredited centres (by FCT) available nationwide, which aims to assess three main basic e-skills:

- 👉 To write, print and save a text file.
- 👉 To research information in the Internet.
- 👉 To receive and send an e-mail.

So far, 671995 diplomas have been issued by: Institutions of Higher and Secondary Education, Public Libraries, Welfare Institutions, NGOs, Municipalities, e-Inclusion Centres (Choices Programme). Most of these centres also belong to the Telecentre Network and so it’s not unusual to have e-inclusion local programs that integrate ICT training sessions and the certification given by the DCB, but that this relies on each centre’s strategy. The dissemination of this initiative is currently made at a local and municipal level through popular communication channels such as cultural agendas. The level of digital skills recognition required by DCB has shown to be more attractive to people with low formal qualifications, the elderly or otherwise very young students from 1st to 2nd cycle of education (FCT, 2013).

Next are presented some examples of smart measures regarding specific target groups like: (1) older persons (2) special education (3) adults in a vulnerability situation.

a) Older Persons

The National Institute of Statistic (INE, 2018)⁶⁴ points that Demographic ageing in Portugal continues to worsen: compared to 2017, the population under 15 years old decreased to 1 407 566 (16 330 people less) and the population aged 65 and over increased to 2 244 225 persons (plus 30 951), representing respectively 13.7% and 21.8% of the total population. The older population (age 85 and over) increased to 310,274 people (plus 12,736). In the future, the trends of population reduction and demographic aging continue. Portugal could lose population by 2080, from the current 10.3 million to 7.9 million residents, down from 10 million in 2033. The young population could fall below the 1.4 million thresholds as early as 2019 (1 393 513) and the threshold of 1 million in 2074 (995 647). The number of older people will rise from 2.2 in 2018 to 2.8 million in 2080.

According to Gonçalves & Gil (2017)⁶⁵, in recent decades, societies have endured a major challenge: the aging of the population. In this context, it is important to analyse and promote actions with the older adults’ population for this can be an integral and active part of the digital society, because increasingly the exercise of civic rights and duties to be carried out through

⁶³ FCT (2013). *Vulnerable People & ICT in Portugal – The practice of more than 15 years* [Online]. Available from: https://www.fct.pt/dsi/docs/fct_vulnerablepeople_ict.pdf. [Accessed: 18th December 2019]

⁶⁴ INE (2018). Reduction of resident population in 2018 lower than 2017 – 2018. [Online] Available from: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_inst_publicacoes. [Accessed: 9th december 2019]

⁶⁵ GONÇAVES, V. & GIL, R. (2017). Digital technologies – Apps – and the cognitive skills of older adults - Results of an investigation at USALBI (Universidade Senior Abicastroense). *Proceedings of the 12th Iberian Conference on Information Systems and Technologies (CISTI)*. Lisbon: Minutes of International Conference

digital platforms. At present, the digital society implies that all citizens are equipped with digital skills, in this particular case, given that the older adults population is referred to as computer exclusion population, it is urgent to create conditions to promote their digital inclusion that will enable them to true social inclusion thus providing active aging. Given the physiological and cognitive decline associated with aging is important to promote initiatives to prevent situations that could increase dementia among the older adults. In particular, there are already a number of digital applications (APPs) that aim to stimulation and cognitive training. Cognitive training APPs are aiming at increasing cognitive valences, such as memory, language, mental agility, reasoning, velocity, flexibility, coordination, the attention, etc.

On a European level, to respond to the market opportunities and societal challenges of Silver Economy, ICT4Silver⁶⁶ aims to disseminate the generic key technologies (GKT) from Information and Communication Technologies (KGT ICT) through the construction of a Meta Cluster and the establishment of a transnational network of demonstration platforms.

In Portugal, the national cluster TICE.PT⁶⁷ has included in its strategy the branches of e-health and the economy of the older adults. The TICE HEALTHY national project has enabled the development of prototypes of ICT products, combining sensors and actuators, in the field of medicine and rehabilitation, or applications for the monitoring of neurodegenerative diseases. The IPCA has a strong R&D area related to design to improve the quality of life of the older adults' population. The ICTs for Health and Welfare are part of the national RIS3, supported in the region Centre for an innovation platform for technologies for the service of quality of life and for the tenth largest data centre in the world and in the North region through a network of ICT actors and active aging around the Health Cluster of Portugal. The concertation platform TICE.PT ensures and promotes the interfaces between the academic world, represented by universities and institutes R&D, the business world, represented by the affiliates and through networks, represented by their associations. The Portuguese Government formally recognised the National Portuguese ICT Cluster TICE.PT, Site of Information Technologies, Communication and Electronics, in August 2009, within the framework of Collective Efficiency Strategies of NSRF. The TICE.PT aims to promote and leverage networking strategies for the sector. Network between companies and R&D centres, in order to induce a renewal active in national economic context, producing positive effects on national offering, enhanced by innovation and knowledge, creating export capacity and added value in domestic products.

b) Special education

According to the European Agency for Special Needs and Inclusion Educations (2018)⁶⁸, since 1990, Portugal has been improving the conditions for pupils with special educational needs (SEN) to access mainstream education and to benefit from quality learning.

Nowadays, inclusive school basic principles – based upon humanistic beliefs concerned with human rights, equity and social justice – are unquestionable. Teachers, parents and politicians recognise that traditional, formal models can lead to segregation and discrimination, making social and educational inclusion difficult for people with disabilities. However, in order to maintain and develop quality education for these pupils it is important not only to preserve the

⁶⁶ ICT4SILVER [Online]. Available from: <https://www.ict4silver.eu/silver-economy/>. [Accessed: 6th December 2019]

⁶⁷ TICE [Online] Available from: <https://www.tice.pt/en/quem-somos>. [Accessed: 6th December 2019]

⁶⁸ EUROPEAN AGENCY FOR SPECIAL NEEDS AND INCLUSION EDUCATIONS (2018). *Country information for Portugal - Systems of support and specialist provision* [Online]. Available from: <https://www.european-agency.org/country-information/portugal/systems-of-support-and-specialist-provision>. [Accessed in 3rd December 2019]

availability of specialised human resources and specific tools, but also to implement major changes in school organisation and in pedagogical practice.

This is not a direct process and although inclusive education principles are considered unquestionable, there are some weaknesses in how they are put into practice. The concept of SEN applies to every child or young person showing any learning difficulty at any time during their academic life. Due to its very comprehensive nature, it has created some problems in schools during the detection of needs and in the evaluation process. In effect, as it based on value principles, it can have different meanings in different contexts, allowing some pupils to be considered as pupils with SEN even if they do not show any considerable problem. Other pupils who really have special needs are sometimes not cared for appropriately.

As stipulated in the Education Act (Law No. 46/86, 14 October)⁶⁹, special education aims to facilitate socio-educational recuperation and integration for individuals with SEN caused by physical or intellectual disability. The following objectives, which are part of the general education system, are particularly important in special education:

- 👉 Developing physical and intellectual potential.
- 👉 Assistance in acquiring emotional stability.
- 👉 Developing communication possibilities.
- 👉 Reducing limitations caused by disability.
- 👉 Support for family, school and social inclusion.
- 👉 Developing independence at all levels.
- 👉 Preparing for adequate vocational training and integration into working life.

Decree-Law No. 3/2008, 7 January⁷⁰ defines the specialised support given to pupils with permanent SEN and is implemented via the following measures:

- 👉 Personalised pedagogical support.
- 👉 Individual curriculum adjustment.
- 👉 Adjustment to the enrolment process.
- 👉 Adjustment to the assessment process.
- 👉 Individual specific curriculum.

According to the same regulation, the specific types of education for learners who are blind, partially sighted, deaf and those with multiple disabilities and autism include:

- 👉 Special schools for bilingual education of deaf learners and for the education of learners who are blind or partially sighted.
- 👉 Structured teaching units for learners with autism and specialised support units for learners with multiple disabilities and congenital deafness and blindness.

As already mentioned, special schools have begun a re-orientation process for Resource Centres for Inclusion (RCIs). In partnership with the community, the RCIs support the inclusion

⁶⁹ DIÁRIO DA REPÚBLICA PORTUGUESA [Online]. Available from: https://dre.pt/web/guest/pesquisa/-/search/222418/details/normal?p_p_auth=D688OvBC. [Accessed: 3rd December 2019]

⁷⁰ DIÁRIO DA REPÚBLICA ELETRÓNICO [Online]. Available from: <https://data.dre.pt/eli/dec-lei/3/2008/01/07/p/dre/pt/html>. [Accessed: 5th December 2019]

of children and young people with disabilities by facilitating access to education, training, work, leisure, social participation and an autonomous life, while promoting the full potential of the individual. The RCIs work in partnership with school clusters.

The creation of a national network of **ICT Resource Centres for Special Education (CRTIC)**⁷¹ is the result of an inclusion policy for students with special needs, in the long term, in mainstream education. 25 Resource Centres make the network based in School Grouping. The purpose of the ICT Resource Centres for Special Education is to evaluate these students in order to adapt the technologies to support their specific needs, informing/educating teachers, professionals, education assistants and families about the problems associated with the different domains of disability or disability. Each Centre has a range of action and support for other school groupings at district level (approx.). The network covers the entire country with 7 Centres in the North Zone, 6 in the Central Zone, 7 in the Lisbon and Tagus Valley, 4 in the Alentejo and 1 in the Algarve. There is a CRTIC in Coimbra⁷², which covers several schools from the district and, has a specific organizational resource supporting learning and inclusion, the aim is to:

- ✎ Evaluate students with specific needs to adapt assistive technologies.
- ✎ Participate in the planning and monitoring of educational intervention.
- ✎ Intervene in the educational community (parents, assistant teachers, others), training/informing, disseminating materials and content.
- ✎ Create partnerships to improve the dynamics of the Centre.

It has different techniques and activities that aim to develop skills necessary for learning to read and write, such as “Read with 28 words” or “pictographic writing” and communication equipment, like the “Go Talk +” and the “iTalk2”.

c) Adults in a vulnerable situation

Letters for life⁷³ is a community intervention national project that promotes literacy, empowerment and social inclusion through the promotion of literacy workshops with adults. It started in 2015 with partnership between the Coimbra Superior School of Education (ESEC) and the Municipality of Coimbra. The project also grew, with a partnership between the ICreate Association, the Municipality of Vila Nova de Poiares and the Parish Councils. Involved participants and employees (teachers, students and volunteers) with specializations in adult education, socio-educational animation, social and psychological gerontology, all with training in adult literacy promoted by ESEC. There are 120 participants, organized into 9 heterogeneous groups with different levels of literacy, between 20 and 95 years old, mostly women, Roma, immigrants, non-institutionalized and institutionalized older adults, some with early dementia and special educational needs.

The main goal is to be an example of non-formal education that provides learning experiences, in unconventional educational contexts (homes, associations, Chambers and Parish Councils) aiming at respond to adult motivations, needs and interests in learning to read and write and

⁷¹ DIRECTORATE-GENERAL FOR EDUCATION. *ICT Resource Centers for Special Education (CRTIC)*. [Online] Available from: <https://www.dge.mec.pt/centros-de-recursos-tic-para-educacao-especial-crtic>. [Accessed: 5th december 2019]

⁷² COIMBRA SUL (2014/2015). *ICT Resource Centers for Special Education (CRTIC) – Coimbra*. [Online] Available from: <http://www.coimbrasul.pt/index.php/o-crtic>. [Accessed: 5th December 2019]

⁷³ LETTERS FOR LIFE [Online]. Available from: <https://www.esec.pt/investigar-transferir/transferecia-de-conhecimento/letras-pra-vida>. [Accessed: 3rd December 2019]

to use information and communication technologies, as much as they know about the school of life.

Inside these main areas it is possible to highlight another three points. For Digital Literacy Skills improvement, the government of Portugal announced the investment of 23 million euros to support “**INCoDE.2030**”, a new programme to improve the digital literacy and skills of the population. The initiative is divided into five areas, which include: inclusion, education, qualifications, specializations, and research. It is focused on providing different groups of the population with access to technology infrastructure and knowledge that are vital for their personal growth and work opportunities. As part of INCoDE.2030, the government will allocate EUR 8 million to three initiatives: Creative Communities for Digital Inclusion, Girls and Women in IT, and providing general access to online public services. An additional 6 million euros will be allocated to increasing access to digital skills infrastructure and training in schools. The initiative corresponds with a growing effort by governments worldwide to increase digital literacy among their respective populations⁷⁴.

In the same way, the **ICT and Society Network**⁷⁵, coordinated by FCT, has as its mission to promote the Digital Inclusion and Literacy of the Portuguese population, especially the groups most vulnerable to info-exclusion, and thus contribute to individual empowerment and a more comprehensive and inclusive society.

Its initiatives seek to facilitate any citizen, regardless of age and economic and social condition, the acquisition or development of e-skills to exercise their citizenship right consciously. Thus, by bringing generations closer together, it is helping to reduce the digital divide in general and the intergenerational digital gap.

Since 2014 and as a sponsor of the ICT and Society Network, FCT has also instituted the Inclusion and Digital Literacy Award, which aims to distinguish highly meritorious projects in the areas of digital inclusion and literacy, and which present themselves as models of good practice.

In Digital inclusion in education, UNESCO and the European Union now recognize digital competence as one of the key competences for lifelong learning. Following this, there have been some training programs key to lifelong learning, which encourage the use of these competences as guidelines for guiding education policies in various countries towards full participation in the Information Society. In this context, there are some strategies and initiatives of the European Union (EU) by its Member States (MS) in order to increase digital skills in education, and in turn promoting inclusion and equality, allowing the cultivation of mutual respect and incorporation of fundamental values in an open and democratic.

3.2.2 Challenges in implementation and gaps between availability and usage

- 👉 Info-exclusion of the most isolated and vulnerable publics.
- 👉 Scarce digital literacy of the older and of vulnerable population.
- 👉 Difficulties in paying for internet access and purchasing electronic devices.

⁷⁴ DIGITAL INCLUSION NEWSLOG (2019). *The government of Portugal launched an initiative to increase digital literacy skills nationwide* [Online] Available from: <http://digitalinclusionnewslog.itu.int/2019/01/04/the-government-of-portugal-launched-an-initiative-to-increase-digital-literacy-skills-nationwide/>. [Accessed: 3rd December 2019]

⁷⁵ FCT (2019). **ICT and Society Network** [Online] Available from: <https://www.fct.pt/dsi/inclusaoacessibilidadeliteraciadigitais/redeticsociedade.phtml.pt>. [Accessed: 8th December 2019]

- ✎ Difficulties in implementing ICT solutions developed in project in current practice / services after their completion.

3.2.3 Available implementation support offers by stakeholders

In the following pages, two examples of ongoing projects that contribute to the implementation of good practices on ICT related to active and healthy ageing are presented.

Within a strict cooperation with the Ageing@Coimbra consortium, the Regional Authority of the Centro Region (CCDR-C) – responsible stakeholder - has been promoting an annual prize to recognize **Good Practices in Active and Healthy Ageing in Centro Region**, among public and private organizations. It distinguishes 3 main categories:

- ✎ Knowledge+ (good practices that boost research and technologies in AHA).
- ✎ Health+ (good practices that contribute to improve and adjust health and social care to older adults).
- ✎ Life+ (good practices that promote healthier lifestyles, with or without resource to new technology use).

After two previous editions (in 2017 and 2018), this award, aiming at improving the dissemination and acknowledgement of projects and initiatives that promote active and healthy ageing in the region, is this year already on its third edition, recognizing that a wider visibility of the existing good practices will potentiate a better adherence of the citizens, allowing to turn them into reference and inspiration fonts for other relevant actors (including policy decision makers) and territories.

Also, there is some Age-friendly initiatives for smart homes and assisted living. Although most of them are still in piloting phase, they already have a high level of technology readiness that allows to present them as potential solutions.

The DAPAS (Deploying AAL Packages at Scale) project delivers an innovative solution, which is based on the needs of older adults and their relatives. The project will bring together successful outputs of previous AAL projects, like Emma, DALIA, zocaalo, kwido and RelaxedCare, developed from different companies in different countries. These innovative solutions are combined to one product that can be distributed on a larger scale, to improve quality of life.

First, DAPAS integrated differentiated service packages that increase security, support activities of daily living and facilitate communication. Secondly, DAPAS built up the organizational and technical structures and framework around the packages that allow for a distribution and plug & play installation in a bigger scale. Thirdly, DAPAS is currently implementing and evaluating the impact of the packages on users and the installation and distribution process in three countries – Portugal, Luxembourg and Austria – with varying culture and languages.

It aims to:

- ✎ Combine and adjust existing resources in projects and products (DALIA, Emma, RelaxedCare) whose success has been previously proven and form AAL support packages in this project.
- ✎ Create organizational and technical structures for an easy and large-scale distribution of DAPAS support packages.

- ✎ Evaluate the process of configuring and distributing a multinational and multilingual AAL solution (a process not covered in most AAL projects so far), validating the approach developed in the DAPAS project and applying the learning in its business strategy.
- ✎ Evaluate the impact and acceptance of AAL packages by users to apply the learning in their business strategy.
- ✎ Demonstrate the benefits of using a solution that provides AAL packages to end users through assessment, including relevant measures in the study.

3.2.4 Funding opportunities for implementation support

The main funding instruments available have already been thoroughly described in sections 3.1.6 and 3.4.4.

3.2.5 Example/s of good practice in implementation support

ReHab (2019)⁷⁶, Coimbra, Centro Region, Portugal

Objectives

ReHab is implementing a multidimensional kit of innovative technologies and traditional materials to promote cognitive stimulation and functional rehabilitation, whether individual and collectively, at home, through remote interaction. The target audience to this project are older persons living at home or using ageing assistance services (home support, day-care centre). The main beneficiaries are people over 65 in the city of Coimbra that are supported by Caritas home care services and its clients in CRSI day care and residential units.

Key facts

With the increase in average life expectancy, we must look to the future, preventing and controlling the most common cognitive and physical decline in older citizens. The older population faces daily the consequences of the most common diseases in Portugal in this age group: Alzheimer's, Cataracts, Parkinson's, Osteoporosis, Diabetes, Cardiovascular, Cancer, Deafness and Depression. Portugal is the 4th OECD country with more people with dementia per 1000 inhabitants, according to the "Health at a Glance 2017" Report⁷⁷. Another major concern in the country is the feeling of loneliness, which, although transversal to all ages, prevails more in the older adults, related to widowhood, poor accessibility to health care, distance from urban centres and distance from the family. According to data collected by the GNR (Republican National Guard) in the Senior Censuses 2017⁷⁸, there are 45.516 older people living alone or in isolation in Portugal.

Specifically, in the area of senior population, Caritas Coimbra offers 13 day centres, 18 home support services, 5 residential structures, 2 continuing care units, 1 medical and rehabilitation clinic and 1 senior colony, with the support of around 3500 older adults in these services. In the demographic region supported by Caritas de Coimbra, serious difficulties in the area of aging are identified, such as insufficient social support equipment; older people living alone; increased dependence. For this reason, Caritas has been working to combat cognitive and

⁷⁶ ReHab (2019). [Online] Available from: <https://caritascoimbra.pt/project/rehab/>. [Accessed: 2nd December 2019]

⁷⁷ OECD (2017). *Health at a Glance 2017: OECD Indicators* [Online]. OECD Publishing, Paris. Available from: https://doi.org/10.1787/health_glance-2017-en. [Accessed: 9th December 2019]

⁷⁸ GNR (2018). *Senior Census Operation 2017 – Results*. [Online] Available from: <https://www.gnr.pt/comunicado.aspx?linha=4206>. [Accessed 9th december 2019]

functional decline in an attempt to contribute to an improvement in the quality of life of these people, extending their autonomy.

One of the key answers today, namely for Ageing in Place, is the Home Support Service. This is a social service, which consists of providing care and services to families and / or people who are at home, in a situation of physical and / or mental dependence and who cannot temporarily or permanently meet their basic needs or performing the instrumental activities of daily living, nor have family support for the purpose.

The main challenges encountered in this area are:

- 👉 enhancing the active participation of older citizens in the community.
- 👉 combat cognitive and motor decline.
- 👉 extend the autonomy of older people, irrespective of their socio-economic conditions.
- 👉 promote digital literacy in the ageing population.

Either for prevention or rehabilitation, people need cognitive and functional training on a daily basis. However, in home care, it is not feasible to go to all houses every day to perform such long activities and the remote interaction can bring people closer.

Caritas Coimbra is the main organization in charge of this good practice. Besides Caritas Coimbra as an end-user institution, also Banco BPI is involved, through BPI Seniors Program, as financing partner, and Pedro Nunes Institute and Fraunhofer AICOS, as partners.

To achieve the abovementioned aims, a range of activities have been developed with home care service users, institutionalized users, residential, and day care facilities, such as:

- 👉 Digital literacy workshop for home care users.
- 👉 Cognitive stimulation and functional rehabilitation at home.
- 👉 Cognitive stimulation group sessions for institutionalized clients.
- 👉 Weekly digital literacy workshops for institutionalized users.
- 👉 Physical rehabilitation sessions for institutionalized users.

In Rehab, for the sessions of cognitive stimulation and functional rehabilitation 15 home care service users were recruited, who, after an initial diagnosis to define the individual plan of cognitive and functional intervention, received at their home the multidimensional KIT. Users should develop activities twice a week, autonomously, with remote support from the caregiver with digital platforms at the beginning of each session. The implementation of the ReHab project is giving Caritas de Coimbra the opportunity to test an alternative solution for improving social care delivery to the community that it supports by improving the resources available.

In practice, what was observed was that users have an interest in the project and want to participate, even developed their technological skills and got used to the use of technology. However, some problems were identified, which led to some readjustment and mitigation actions.

It was found that the technologies used need refinements because they do not respond at all to some users' needs, namely:

- 👉 Need to keep up with users' cognitive deficit, avoiding very fast and unexplained games, which leads to non-usability.

- 👉 Should allow remote service with simple questions that should be quickly resolved, e.g. ex. Game sound has not diminished to allow the participant to hear the animator through Skype.

Implementation

The project works on cognitive stimulation and functional rehabilitation individually and in a group, in an assisted environment and at home, making available a multidimensional kit of innovative technologies and traditional materials. The used instruments range from geriatric games to cognitive training games, available on a tablet, through interaction with an avatar.

Healthier older persons, active and capable of facing the challenges of aging, are the main objective of the Caritas Coimbra – ReHab project. Caritas caregivers provide remote support at the beginning of each session through internet connection and Skype service. Digital literacy sessions are also being promoted for the beneficiaries of the project.

Thus, the summary of Rehab's actions is:

- 👉 Mobilization and recruitment of clients from day-care and home support responses, preferably living alone.
- 👉 Cognitive stimulation and functional rehabilitation of older adults' patients, through the provision of a multidimensional kit of didactic and technological instruments, with the changes promoted by the technical partners, so that it is possible to adapt to the needs of users.
- 👉 Cognitive stimulation sessions and functional rehabilitation at home, performed remotely through the use of technology.
- 👉 Improved response and meeting the needs of these users, through the inclusion of technologies such as the Internet of Things (IoT) and artificial intelligence.

Results

Feedback received is positive as a change in the way in which cognitive and functional stimulation activities are seen to be viewed - not just for entertainment reasons, but also because they are now recognized as essential to maintaining their autonomy and independence and the daily routines, for as long as possible.

All those whose family members use technology in their daily routine tend to be those who are most interested in learning from this project, especially about how to use digital platforms. For example, knowing that they can make calls to their distant relatives, just as they receive calls from the Caritas caregiver, is a benefit that they want to consolidate so that they can do it themselves, at other times. On the other hand, participants with a less participatory informal care network tend to be more resistant to learning how to use KIT materials, especially technological ones. However, they recognize the importance of this intervention, considering their participation in the project as an opportunity to socialize and to approach the social institution that accompanies it, as a synonym of security.

Participants already assume these activities as essential for the cognitive stimulation and permanence of their functional capacities, even more than for the occupation of their free time. The view of the need for cognitive and functional stimulation with advancing age has changed for many of the beneficiaries, leading to greater participation in these activities. There is an effective improvement in their levels of self-esteem and active participation in the communities in which they operate.



FIGURE 2: REHAB IMPLEMENTATION

3.3 HEALTHY

3.3.1 HEALTHY measures and their target groups

The public healthcare services are organised in primary healthcare (health centres groups - ACeS), secondary and tertiary care (hospitals) and the long-term care network.

ACeS are constituted by different primary health care units, and their mission is to ensure the provision of primary health care to the population of a given geographical area. Their functional units include personalized health care units and family health units, community care units (different activities that include home and palliative care), shared assistance units' example in the areas of nutrition, mental health, oral health).

Hospitals provide secondary and tertiary health care assuring inpatient and outpatient services (e.g. consultations, one-day surgery, day hospital, home hospitalisation), and emergency/urgent services. The long-term network was established in 2006 by the Ministries of Labor and Social Solidarity, and Health is designed to provide rehabilitation, adaptation and social reintegration to the elderly and dependent. It also assures palliative care. The network is composed of different types of inpatient units and home-based services.

3.3.2 Challenges in implementation and gaps between availability and usage

- 👉 Loneliness and lack of family or community support
- 👉 Difficulty to remain active and have good access to services and leisure
- 👉 Difficulties in sharing information between different structures on the health and care systems and with community/caregivers.
- 👉 Lack of income for the older adults or low skilled adults to adopt technology – wi-fi, equipment
- 👉 Public Administration cannot reach and offer quality services to the increasing number of citizens in need.

In 2014, a survey was developed covering 1,068 nurses from 5 hospitals in the region. This study revealed that: 1) nurses perception about caring for older adults are predominantly negative; 2) there is insufficient support of hospital leaders to promote a favourable geriatric nursing practice environment (GNPE); 3) the knowledge gap and negative attitudes of nurses about the four geriatric syndromes (i.e. pressure ulcers, sleep disturbance, physical restraint and incontinence); and 4) insufficient family support, discontinuity of care and lack of time to caring for older adults as the main obstacles in caring for hospitalized older adults.

Also, at the hospital level, in more differentiated hospitals, such as the CHUC, 70% of medical admissions and 73% of days of medical hospitalisations belong to patients over 65 years of age. Their hospitalisations are prolonged, showing adverse health outcomes, namely functional and cognitive decline and high risk of adverse events. Sousa-Pinto et al. (2013) show that 5.3% of patients over 65 are readmitted to hospital in less than 30 days, revealing that the discontinuity of care between the hospital and the community has a more pronounced effect on the older population.

The progressive alignment of the medical community with the technological trends in health can translate into better management of the public health service, reduction of waiting time, use of new electronic relationship channels such as discussion forums, knowledge sharing, direct medical / patient communication, the monitoring of the situation and history of the citizens served and the effective control of the application of public resources.

Also, with the data generated by the systems, it is possible to work on strategies for promoting a more humanized assistance, with assertiveness in the diagnosis and focused on the citizen and caregivers.

Better and personalised services of transport to the health services, especially from people in low-density territories are key to be able to live independently. Community based solutions of transport-on-demand are one of the most sustainable and interesting initiatives in this area.

Good accessibilities and public infrastructures prepared for people of all ages, with inclusive design implementation also favour the close engagement between citizens and services and therefore facilitates preventive measures, promoting good health.

Social and community participation

To increase confidence and self-esteem, the possibility of better contact with friends and family, the occupation of free time and access to information (also considering here health literacy and digital literacy) are essential factors to increase the wellbeing of people of all ages, especially those in need of special care and support to remain independent and ageing in place.

Social care / formal and informal caregivers

One major constraint of independent living is the increasing dependency ratio, that leads to the need of constant presence of caregivers in home care assistance. Many times, people live in isolated villages, very distant from urban centres and all the presence they have during the day is of formal caregivers, for a few hours a day.

Technology can help them to increase control over their health, well-being and connection with others, helping also to increase safety and security, e.g. on accident prevention and health status monitoring.

On the other hand, good accessibilities on the houses and streets and transport services between these isolated areas and urban centres can facilitate immensely the mobility of people, thus facilitating their permanency in their homes.

3.3.3 Available implementation support offers by stakeholders

The Portuguese Health System and its players have undergone in the past few years, an important evolution in the area of communication and digital transformation of its services. There are many examples, of either national or regional initiatives to promote the quality and safety of the information shared between health professionals, care structures and citizens.

National wide, the Electronic Prescription of Medicine, and Complementary Diagnosis and Therapeutic Means⁷⁹, the National Network of Integrated Continuous Care, the SClinico platform that allows records from clinicians and the nurse staff to be uniform and available in the national network of Hospitals and Primary Care Units⁸⁰, the Sonho – CSP platform⁸¹, dedicated to the Administrative Needs of the Primary Care Network, are some examples of the many initiatives and resources that have been developed by the National Care System (NCS).

⁷⁹ SNS (2019). PEM|Electronics Prescription [Online]. Available from: [https://spms.minsaude.pt/2019/04/pem/#googtrans\(pt%7Cen\)](https://spms.minsaude.pt/2019/04/pem/#googtrans(pt%7Cen)). [Accessed: 12th December 2019]

⁸⁰ SNS (2019). SClinico Hospital [Online] Available from: <https://www.spms.min-saude.pt/2019/01/sclinico-hospitalar/>. [Accessed: 12th December 2019]

⁸¹ SNS (2019). SONHO-CSP [Online]. Available from: <https://spms.min-saude.pt/2019/01/sonho/>. [Accessed: 12th December 2019]

Moreover, the Electronic Health Record system – Registo de Saúde Electrónico (RSE)⁸² gathers critical health information of the NCS users. The patient's clinical data is collected into this digital platform, accessible to patients through a specific Area of the platform (citizen's area). The security and confidentiality are assured by the high security standards of this platform.

There is a national strategy in the NCS, to implement a document dematerialization, optimizing the processes workflows, and reducing the need for paper in each of these processes guaranteeing the digital interoperability between different services.

In the Centro Region of Portugal, several stakeholders are dedicated to shortening the communication gap between health system providers and the citizens and among themselves.

The Figueira da Foz Hospital as developed a digital platform that allows patients to schedule medical and treatment appointments at a distance, avoiding a trip to the hospital for this matter. It also allows the Hospital and the Primary Care Units to share clinical information about patients who have been in the hospital. It is estimated that this platform could reach and impact 112 300 patients in this area⁸³.

This same hospital has a project for the Chronic Obstructive Pulmonary Disease (COPD) patients, to promote the non-pharmacological approach in this disease. It involves the Hospital, the Primary Care Units, the municipalities and the Nursing School of the Aveiro University. A specific protocol for COPD patients was created, allowing an improvement in the detection of patients and its specific needs, as well as a better communication and access from these patients to health services either in the Hospital or in the Primary Care Units⁸⁴.

CHUC has a remote telemonitoring project for COPD patients. This project enables many of these patients to self-monitor their vital signs from home or wherever they are and transmit that information to their clinicians as effortlessly as slipping on a wristband. This technology will allow a better control of the disease, has the preliminary results show a 50 percent reduction in hospital and ER admissions⁸⁵.

Other interesting initiatives in this area are:

“Telescreening in dermatology” enables primary healthcare to complement dermatology consultations with lesions' photographs, leading to 40% reductions in unnecessary hospital admissions.

‘Tele-Via Verde AVC’ allows physicians from the CHUC neurology department to observe remotely the patients with suspected stroke admitted to other hospitals in the Centro Region, and their CT scan.

“Retmarker” developed by the Association for Innovation and Biomedical Research on Light and Image, is a Diabetic Retinopathy (DR) biomarker software implemented in DR Screening Programs in Portugal, with the support of the Health Administration of the Centre Region (ARS-Centro), and has screened a total of 117.748 diabetic patients in the Centre Region.

⁸² SNS (2019). *Electronic Health Record system* [Online]. Available from: <https://servicos.min-saude.pt/utente/>. [Accessed: 12th December 2019]

⁸³ REGIONAL HEALTH ADMINISTRATION OF THE CENTER (2019) [Online]. Available from: <http://www.arscentro.minsaude.pt/Noticias/Paginas/1aRegiaoSaudeDigital.aspx>. [Accessed: 12th December 2019]

⁸⁴ SNS (2019). *Figueira Respira* [Online]. Available from: <https://www.sns.gov.pt/noticias/2016/09/27/figueira-respira/>. [Accessed: 12th December 2019]

⁸⁵ CHUC (2019). *Remote Tele monitoring for Chronic Respiratory Illness Gains Ground in Portugal* [Online]. Available from: https://hope-care.pt/wpcontent/uploads/2015/12/CaseStudy-Tactio_HC-CHUC_v5.pdf. [Accessed: 12th December 2019]

“10 Thousand Lives” enables direct support to the senior citizen and offers a collaborative model for health and social care professionals based on teleassistance and telehealth. Running in three municipalities, remote monitoring resulting from the cooperation of various community entities enables the following services: emergency care; GPS location; health reminders and medication management; health-related self-assessments and alerts in case of abnormal values. Health and Social care professionals thereby assure a permanent monitoring of the health status of the senior citizen, allowing for preventive actions and interventions.

“The E-GNR: Teleassistance Project for Vulnerable People” provides an electronic device of support that allows the citizen to receive permanent assistance while remaining in their familiar environment, thereby reducing the negative effects of isolation and solitude situations.

“Help2care” allows informal caregivers (IC) to access the good practices while caring for their family member. Flowcharts with explanations allow IC to solve questions emerging throughout the caring process without requiring a visit to the emergency department. The back-office web application for health professionals enables a) training of IC, b) communication between the hospital and the primary health care and c) monitoring of citizens and IC. The IC public portal assembles all the materials contributing to the enhancement of the ICs’ literacy.

“Caring for you”⁸⁶ entails personalized social and care services planned in relation to the senior citizen manifested needs, aimed to a) prevent and/or delay institutionalization, b) prevent solitude and isolation and c) promote social inclusion. Specifically concerning teleassistance, continuously remote monitoring aims to foster confidence, tranquillity and quality of life; b) allows the individual to remain in the comfort of their home; and c) ensures autonomy in daily activities. The Private Institution of Social Solidarity (CASPAE) in partnership with other community entities develops the program.

“Cyber_Sénior”⁸⁷ enables seniors to use new technologies efficiently through certified training actions towards the enhancement of technological literacy for the coming use of teleassistance. It allows monitoring the global health status and follow-up the senior citizen in contexts of social isolation and lack of family support. The initiative was launched in Abiul, where the partnership network is very strong.

3.3.4 Funding opportunities for implementation support

The main funding instruments available have already been thoroughly described in sections 3.1.6 and 3.4.4.

⁸⁶ Caring for you (2019) [Online]. Available from: <http://cuidar-te.pt/>. [Accessed: 15th December 2019]

⁸⁷ CYBER_SENIOR (2019) [Online]. Available from: <http://cyber-senior.pt/>. [Accessed: 15th December 2019]

3.3.5 Example/s of good practice in implementation support

Unidade Integrada para o Envelhecimento Saudável e Ativo (UnIESA), Coimbra



FIGURE 3: CARE PATHWAY UNIESA

Objectives and Key facts

Realising that the current model of care was not adequate for the ageing population, a group of health and social care providers led by CHUC have started to study how to improve the quality of care, developing an integrated patient pathway designed explicitly to patients over 65 years of age with multimorbidity, identified by any provider. This pathway integrates healthcare centre groups, a specialised unit for active ageing at the Coimbra University Hospital (which includes a geriatric assessment consultation, an acute care unit, a day hospital, and consultations or inpatient units in specific subspecialties), the long-term network and social services. It aims to reduce the burden of care (polypharmacy and multiple contacts with the health system) and emergency/acute care. It aims to improve the patient's quality of life by sharing decisions based on what is essential to the patient in terms of treatments, health priorities, lifestyle and goals.

Although the clinical course starts in a situation of organic deterioration, the synergies and resources created by the pathway allow the development of an upstream response through the integration of care between providers. When the patient needs to be hospitalised, a previously designed care plan is implemented by a dedicated team, reducing the average length of stay to less than six days, avoiding loss of autonomy and reducing the prolonged stays and unplanned readmissions. Since day one, discharged is planned in coordination with the family and informal caregivers, primary care and social services, including previous home visiting for assessing home based conditions. It is possible to use remote monitoring tools, distance physiotherapy services, healthcare and social home services, or to follow the patient at the day hospital and outpatient clinic. Also, the specialised hospital ageing unit is used as a reference for pre and postgraduate training in ageing and the use of innovative approaches and the optimisation of a living lab with the Ageing@Coimbra partners.

It is in implementation phase, co-funded by PT2020⁸⁸ and will be enlarging its services and target users in the next few years, aiming at integration in current services.

⁸⁸ PORTUGAL2020 [Online]. Available from: <https://poseur.portugal2020.pt/en/portugal-2020/>. [Accessed: 1st December 2019]

3.4 BUILT: Housing, public spaces, buildings and mobility

3.4.1 BUILT measures and their target groups

The concept of sustainable development has been a component of policies all around the world for some time. This has been systematically integrated into planning instruments, particularly in the field of urban mobility. During the same period, the Healthy Cities movement emerged, extending the concept of health from the absence of disease to a complete physical, mental, and social status of well-being.

“On one hand, there is already a solid conceptual discussion and empirical evidence of the relationship between urban mobility and transport and health, and it is often tied to sustainable development, which is at the heart of several policies of various sectors from the global to the local level. It is also very important that this relationship is translated into policies, also from the global to the local level, and its instruments, so that these plans can promote real positive impacts and thus maximize their potential in all policies beyond those focused on urban mobility in accordance with intersectoral collaboration principles” (Louro, Costa & Costa, 2019).⁸⁹

Locally, “sustainable communities” and “eco-neighbourhoods” have arisen (Barton, 1999 in Louro, Costa & Costa, 2019); they are usually defined as “communities that meet the diverse needs of existing and future residents, their children, and other users, contribute to a high quality of life, and provide opportunity and choice. They achieve this in ways that make effective use of natural resources, enhance the environment, promote social cohesion and inclusion, and strengthen economic prosperity” (Marques, Fumega & Louro, 2012 in Louro, Costa & Costa, 2019).

In this context, using the Lisbon Metropolitan Area (LMA), Portugal, as the study area, Louro, Costa & Costa (2019) studied if the sustainable urban mobility policies are contributing to healthy cities and if Urban mobility planning and public health instruments were compared with the discourses and practices of those responsible for the implementation of urban mobility policies and Healthy Cities projects. The results revealed that a large number of responses proposed in the mobility planning instruments are related to the principles of healthy cities. Also, while municipal agents tend not to consider the inclusion of those principles, they instead incorporate the concepts of sustainable development. Nevertheless, they found that both approaches overlap the policy directions of healthy cities. On the other hand, public health policies and Healthy Cities projects presented a scarce number of references to its interventions in the urban mobility domain and mainly focused on the promotion of soft modes. It is concluded that, in the case of the observed municipalities of the LMA, the healthy cities framework is greatly benefited by the inclusion of sustainable development principles in all policies, especially those for urban mobility.

“Rehabilitation is a medium or long term urban revitalizing or regenerating process. It is above all a political act aimed at improving components of the urban space and improving whole the population’s well-being and quality of life. (...) Rehabilitation therefore forms part of urban project / urban development plan, requiring approach involving all urban policies.” (Council of Europe, 2005 in Silva, 2019⁹⁰)

⁸⁹ LOURO, A., COSTA, N. & COSTA, E (2019). *Sustainable Urban Mobility Policies as a Path to Healthy Cities—The Case Study of LMA, Portugal* [Online]. Available from: <https://www.mdpi.com/journal/sustainability>. [Accessed: 1st December 2019]

⁹⁰ SILVA, M. (2015). *Contemporary interventions in public spaces and buildings Patrimonial, social and urban effects*. Thesis to obtain the Master of Science Degree in Architecture, Lisbon. [Online] Available from:

Oeiras without Barriers⁹¹

This project aims to eliminate architectural barriers, so that elderly people or people with reduced mobility can live their home as they deserve: in all its fullness. This initiative is the result of a protocol between the municipality and the Manuel António da Mota Foundation of the Mota-Engil Group and aims to carry out adaptation works in private homes of low-income families whose families include people with restricted mobility. These adaptation works allow the elimination of architectural barriers inside the homes, providing greater comfort and quality of life for their beneficiaries.

Technical Assistance Information Centres⁹²

An Information Centre on Technical Assistance is a core of competence able to develop activities for the dissemination of information in the field of technical assistance, as well as to provide individualized professional support to the person with disabilities, their families and the technicians in charge of those who are at the moment facing the R. Andrich - Advice on technical assistance 6 perspectives of autonomy, or improvement of the quality of life, which may benefit from the use of technical assistance. It can be an integral part of a rehabilitation service, or a service with its own existence.

To the Technical Assistance Information Centres linked to the Database, SIVA offers the opportunity to participate in a Scientific Collaboration Network, with a view to this: - permanent updating in terms of technology for rehabilitation and autonomy - improvement of work methodologies in advising on technical aids - exchange of experiences. This proposal is open to centres that present themselves as public entities or private non-profit entities, and that use the Database within the scope of their own information service, or within that of their rehabilitation operational unit.

A typical Technical Assistance Information Centre is born inside and is an integral part of the organisation of a rehabilitation service, using the technical resources and logistical structures already present there.

What distinguishes the Technical Assistance Information Centres is the model of relationship with the user. In the case of Centres integrated in a rehabilitation service, the tendency is to establish a true service for the user in relation to all the problems inherent to rehabilitation, and the capacity to face the choice of technical aids in a coherent and integrated way in the rehabilitation model is maximised. The Centres with their own structure, unless there are specific agreements with rehabilitation services, have the user as a direct interlocutor and, if on the one hand they can exercise much broader and specialised competences, their integration in the rehabilitation path is much more dependent on the will of the user and on the availability of the rehabilitation structures that deal with them.

The technical solutions catalogue - Energy efficiency in housing 2019⁹³

According to data from the National Institute of Statistics, more than 1 million buildings are in need of repair. These guides will help the owners to implement the energy efficiency solutions suggested in the Energy Certificates of their homes. These guides contain aspects to be taken

<https://fenix.tecnico.ulisboa.pt/downloadFile/1126295043834646/Extended%20Abstract%20Marta%20Duarte%20Silva%20N.67132.pdf>. [Accessed: 2nd December 2019]

⁹¹ OEIRAS WITHOUT BARRIERS (2018) [Online]. Available from: <http://www.cm-oeiras.pt/pt/projetooeirasembarreirasbeneficioumaisumafamilia>. [Accessed: 18th December 2019]

⁹² ANDRICH, R. (2017). *Aconselhamento de ajudas técnicas 2017*. [Online]. Available from: http://www.inr.pt/documents/11309/217178/aconselhamento_de_ajudas_tecnicas.pdf/415529c2-b2db-4a4e-889e-1a181bb8a49b. [Accessed: 18th December 2019]

⁹³ ENERGY EFFICIENCY IN HOUSING (2019). Available from: <https://www.sce.pt/10-solucoes-de-eficiencia-energetica/>. [Accessed: 18th December 2019]

into account in budget requests before moving towards an energy efficient project, as well as in the care in its monitoring, operation and maintenance, among other good practices.

Each guide addresses an option for improvement, explaining the advantages and considerations in deciding to implement it: what to do before moving on to the site, request for budgeting, monitoring of the site, operation and maintenance care, among others.

Through these free guides, you will be able to identify the aspects to be taken into account before moving on to a home improvement project, namely:

- 👉 opaque building envelope
- 👉 window intervention
- 👉 sanitary hot water (aqs)
- 👉 space heating
- 👉 ambient cooling
- 👉 ventilation
- 👉 intervention in lighting systems
- 👉 energy consumption management systems
- 👉 intervention in lifts
- 👉 solar thermal systems
- 👉 photovoltaic systems 12 refrigeration

Manual of Good Practices - Prevention of Falls in the Elderly⁹⁴

This Manual was conceived with the purpose of keeping people safe and independent in their own homes and offer possible solutions, through specific recommendations for the prevention of falls in the elderly.

The Manual is divided into four parts:

- 👉 Identification of risk factors
- 👉 Prevention of falls
- 👉 Checklist for home security
- 👉 Types of mobility aids.

The manual is intended for the elderly, formal and informal careers, health professionals and family members, with the purpose of informing, raising awareness and training these segments of society, in order to promote safety and prevent falls at home. The strategy involves capacity building and the promotion of knowledge to deal with risks. The Manual of Good Practices includes a checklist to help prevent falls, which is also considered an innovative factor in that it helps the elderly person to identify their main risk factors for falling, in a simple and objective way.

⁹⁴ THE MANUAL OF GOOD PRACTICES - PREVENTION OF FALLS IN THE ELDERLY (2019) [Online]. Available from: <https://caritascoimbra.pt/project/manual-de-boas-praticas-prevencao-de-quedas-em-idosos/>. [Accessed: 18th December 2019]

This work was carried out with the support of the GrowMeUp project, given that the topic under analysis is a subject that is highly valued by potential users of the robot and deserves much attention from the project consortium.

This document is a compilation of innovative and sustainable initiatives on active and healthy ageing, promoted by actors from the Centre Region, who applied for the 2017 edition of the "Good Practice Award on Active and Healthy Ageing in the Centre Region".

The Cities Project⁹⁵

The Cities Project has been assumed since its inception as an action research Project aimed at identifying factors that may contribute to the improvement of the quality of the in particular the health of the older adults' Portuguese population. It was designed according to a pragmatic strategy, based on concrete actions and allowing the involvement of not only from the older population as central beneficiaries but also from a whole audience that could and could compete for the defined objective. That is, by throughout the process, local and central political solidarity and similar institutions, universities and other academic institutions, journalists and independent professionals working directly or in the vicinity of the issues to aging. During the Project a national invitation was issued to all public or private institutions. private or non-profit organizations that have implemented and / or developed products, services or other solutions that can significantly improve the quality of life and well-being of older people. The central objective of the initiative was to give visibility and generate multiplier effect of practices that make municipalities and other spaces more specific (housing, transport, etc.), more friends of the older adults. They received 124 practices the eight areas defined in the WHO concept: public buildings and open spaces (2), transport (9), housing (14), social participation (34), respect and social inclusion (28), social participation and employment (2), communication and information (10), and community support and health services (25). A summary of these practices, within what the limited space allowed us, is presented in each area under the heading "What is practiced in the municipalities".

For example, to respond to accessibility problems, mainly felt by older residents, the Palmela City Council has created an integrated service for response that includes decentralized fixed attendance through a Mobile, online answering and telephone answering. The Mobile Service Vehicle, available since January 2010, has the functions of "Mobile Shop Citizen", with access to various services (Directorate General for the Administration of Justice; Mobility and Land Transport; Citizen's Portal; Social Security Institute; Institute of Registries and Notaries, ARS; ADSE and CGA). This service also allows you to resolve municipal affairs, namely those related to urbanism, water, publicity and occupation of public spaces; commercial establishments; street sale; mopeds licenses and agricultural vehicles; meal vouchers and school transports; registration of Community citizens; licensing and surveys; presentation of opinions, suggestions or complaints; disclosure of cultural, sporting, tourist and leisure offer.

Another example is the Tortosendo Inclusivo Project, implemented by the Tortosendo Parish Council (Covilhã) will raise awareness and different groups of the population on issues related to accessibility in construction. 2,000 people from different groups should directly benefit from the Project, namely: teachers and other actors in the education system (educating through awareness raising, children, young people in the 1st and 2nd cycle of education and teachers, in order to alert them to the need and importance of a village free of moving and fixed obstacles; administration bodies public awareness (through the diagnosis of physical accessibility which the typologies barriers of the territory. Alert and train local administration technicians for the

⁹⁵ LIFE ASSOCIATION - INTERGENERATIONAL APPRECIATION AND ACTIVE DEVELOPMENT (2012). *CITIES: Action-Research Project for WHO Global Friendly Cities Project Presentation and Identification of Practices and Services in Portugal*. Lisbon: Cidades

need for affordable buildings); civil society (building access improvements public and private transportation, public transport, village equipment networks, pedestrian and roads); companies, business associations and other employers (needs to be alerted to the physical accessibility barriers of the project territory, that, in future constructions and projections, they include elements that facilitate physical accessibility).

Sustainable Mobility Project, Municipality of Oliveira de Frades (Centre Region)⁹⁶

Sustainable Mobility Project aims to develop/consolidate Sustainable Mobility Plans for 40 Municipalities selected under the project, aiming at the continuous improvement of travel conditions, the reduction of impacts on the environment, and the increase of citizens' quality of life, meeting the major Community and national strategic guidelines in this area, in a logic of sustainability.

The project recommends technical and scientific support to the selected municipalities, in the development / consolidation of said Sustainable Mobility Plans, through the creation of a University Centres / Departments Network (RCU). This Network, which integrates 15 University Centres / Departments, ensures the sharing and exchange of experiences and knowledge between Municipalities and between University Centres / Departments and Municipalities, providing them with technical capacity for the future, ensuring a harmonized approach and sustained response to common mobility problems.

The project also foresees the elaboration of a Good Practice Manual for Sustainable Mobility, which will integrate successful national and international experiences, including the best proposals that may be formulated in the scope of the same. It is intended to be a technical and pragmatic document, allowing all Portuguese municipalities to act more effectively in the context of sustainable mobility.

The development and implementation of the project also involves four entities, the Ministry of the Environment, Spatial Planning and Energy (MAOTE), the Ministry of Public Works, Transport and Communications (MOPTC) and the Ministry of Internal Administration (MAI), which constitute the Environment and Transport Working Group (GTAT) which ensures project monitoring in its various phases. The Portuguese Environment Agency (APA) has signed a protocol with the Centre for Urban and Regional Systems (CESUR) of the Higher Technical Institute (IST) for technical and scientific support in the implementation of the Project. The project was also supported by the National Association of Portuguese Municipalities (ANMP).

In this context, a methodological approach was developed focusing on the identification of concrete problems of the municipality of Oliveira de Frades in the triple territorial aspect (mobility component), socio-economic mobility) and institutional (agent components), seeking to contribute in a pedagogical and integrated way to sustainable mobility.

The agents of the project are the City Council, the interlocutor since the beginning of the project, and the executive of the Parish Councils. Many social agents are connected for the social network. The program of the social network is a model of organization and working in partnership that the City Council implemented in March 2004. This network is based on "forum for articulation and congregation of efforts based on free membership by municipalities and public or private entities for non-profit making with a view to eradicating or poverty and exclusion and the promotion of social development".

⁹⁶ SUSTAINABLE MOBILITY PROJECT (2006) [Online] Available from: <http://mobilidade.apambiente.pt/documentos/planos/diagnostico/oliveirafrades.pdf>. [Accessed: 3rd December 2019]

It is important to realize that the intervention in the development of the municipality, namely in the social domain, focuses essentially on the issue of the older adults, an intervention aspect raised by the municipal executive, which can be an opportunity for the municipality, considering:

- 👉 the potentialities that the phenomenon entails conditions for 'active aging'.
- 👉 optimizing individual capacities.
- 👉 promoting the quality of life of each older adult.
- 👉 stimulating the urban experience of Oliveira de Frades.

To this end, logic will be pursued according to the following dimensions: Health, Training, Occupational Activities, Security and ICT. For example, there is the Integrated Support Program Older adults (PAII) that provides a technician physical education, which establishes a program of physical exercise and family awareness for the care to be provided to old people; Fight against project the poor; REHABITA - Recovery Support Housing; SOLARH Program - Program of Solidarity and Support Recovery Housing and Equipped spaces with computers and Internet.

Coimbra Urban Transportation Services | Coimbra City - Centro Region of Portugal⁹⁷

The organisations in the region, which are involved in the development and implementation of the good practice, are:

- 👉 Portuguese Electric Vehicle Association.
- 👉 Mobility and Transport Institute.
- 👉 Viseu City Council.

This good practice has proved already some important utility and results, since its first implementation took place several years ago. It however still withholds potential for new collaborations and for regional, national or European escalation. Current interaction with other municipalities on this practice is already implemented, namely with: City Hall of Bragança; Portalegre City Council and City Hall of Viana do Castelo.

Within this (auto) sustainable driven perspective, Coimbra Urban Transportation Services (SMTUC) are also involved in the CIVITAS Plus project, with the aim of providing the city with better and cleaner transport. Before this, no other Portuguese city has ever been involved in the previous Civitas I and II.

Blue Line is a Social Inclusion project for the more vulnerable population, that consists on the creation of an ecological transport, able to circulate (not only but also) through the Historical Centre of Coimbra, and to establish a connection in the low and high areas of the city, going through the medieval core. Facilitating the mobility of all the people with mobility difficulties, namely older adults, people with impairments, children pregnant women, among others, it allows their participation and involvement in social, cultural, spiritual, civic affairs, among others. It also allows the target population to have their autonomy in managing their daily lives, as it is prepared to be used by citizens with any kind of special mobility needs.

⁹⁷ COIMBRA URBAN TRANSPORTATION SERVICES (2019). [Online] Available from: <http://www.smtuc.pt/en/servicos/linha-azul/>. [Accessed: 5th December 2019]

This line has no stops, so the buses stop at a simple signal to the driver, just as they leave the user wherever they want. Because they are quiet, they are popularly called “slippers” and are a great opportunity to get to know the historic core of the city.

The city of Coimbra has a Historic Centre mainly inhabited by an ageing or vulnerable population, largely resident in high area of the city, who usually struggles with great mobility issues, considering their age and health-related limitations, as well as their lack of financial resources for other solutions, such as the ownership of private cars. These solutions, of course, also had the ecologic shortcomings and the lack of parking spaces. All of these conditions led to the need of a sustainable public and collective solution for mobility adjusted to all citizens' needs.

One of the important aspects for the population to maintain their independence and autonomy is their ability to move around the urban space in order to participate in different daily social tasks and participate in the active life of their own community. It is within this scope of action and social concern that the Blue Line emerged in 2003.

“Mobility is the most studied and most relevant physical ability affecting quality of life with strong prognostic value for disability and survival. Natural selection has built the “engine” of mobility with great robustness, redundancy, and functional reserve. Efficient patterns of mobility can be acquired during development even by children affected by severe impairments. Analogously, age-associated impairments in mobility-related physiological systems are compensated and overt limitations of mobility only occur when the severity can no longer be compensated. Mobility loss in older persons usually results from multiple impairments in the central nervous system, muscles, joints, and energetic and sensory physiological systems. Early preclinical changes in these physiological systems that precede mobility loss have been poorly studied. Peak performance, rate of decline, compensatory behaviours, or subclinical deterioration of physiological resources may cumulatively influence both timing of mobility loss and chances of recovery, but their role as risk factors has not been adequately characterized. Understanding the natural history of these early changes and intervening on them would likely be the most effective strategy to reduce the burden of disability in the population. For example, young women with low bone peak mass could be counselled to start strength resistance exercise to reduce their high risk of developing osteoporosis and fracture later in life. Expanding this approach to other physiological domains requires collecting and interpreting data from life course epidemiological studies, establishing normative measures of mobility, physical function, and physical activity, and connecting them with life course trajectories of the mobility-relevant physiological domains.”⁹⁸

This practice reached its main objectives by:

- 👉 Improving the mobility of populations living in the historic area, taking into account the specificity of population residing in the geographical area covered by the project, namely the population older.
- 👉 Making of Alta an attractive centre for new residents, rejuvenating its active population encouraging their fixation.
- 👉 Mitigating physical barriers that discourage older people with mobility problems to leave home and participate in community life.

⁹⁸ FERRUCCI, L. ET AL (2016). Age-Related Change in Mobility: Perspectives From Life Course Epidemiology and Geroscience. *The Journals of Gerontology Series A: Biological Sciences and Medical Sciences*. [Online] Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4978365/>. [Accessed: 9th December 2019]

- ✎ Improving the quality of life through the use of passenger-friendly vehicles with reduced mobility and environmentally friendly, thus preserving the Historic Centre.
- ✎ Improving the management of public roads, with traffic and parking regularization car, making the access of private vehicles to the historical zone, except for the resident population.

The main stakeholders of this practice are the City Council of Coimbra, as also the Portuguese Electric Vehicle Association and Mobility and Transport Institute. The main beneficiaries are residents of the historic centre of the city, mainly those who usually struggle with mobility issues, considering their specific conditions (e.g. Pregnancy), age and health-related limitations.

As a social inclusion project, the Blue Line initiative is aimed at the most vulnerable groups (living in areas with low rents, with no private cars, etc.), and also to the ageing population and people with mobility difficulties, namely due to disabilities or chronic diseases. Facilitating mobility allows citizen participation and involvement in social, cultural, spiritual, civic affairs, among others. It also allows the target population to have their autonomy in managing their daily lives. Concerning gender, there are data confirming that the majority of the transported passengers were women. The Blue Line bus was partially funded (85%) by DGTT/IMT, the public institute that manages national transports and mobility.

Guidelines were also defined for the choice of the fleet, including the incorporation of clean vehicles, as indeed the urban buses serving the historic area of Coimbra, the “Pantufinhas”, which fleet is made up of electric vehicles and thus supported by IMTT.

The implementation has been developed as described above and the ongoing evaluation process is being developed by directly involving the passengers, either related to the service itself as in the way it is delivered. The main evaluation items, concerning the cost of the service, satisfaction and features is better detailed in the information provided under Challenges and Lessons learned. “Pantufinhas” makes an average service of 60.000 trips/year. Funding to buy the bus (167.185 euros per vehicle) by IMTT; resources are also needed to ensure driver and maintenance. This initiative was implemented in 2003 and is running since then. The main challenges and barriers that Blue Line project aimed at overcoming are related to the need of:

- ✎ Preserving the historical centre of the city.
- ✎ Promoting accessibilities (considering older or impaired people’s mobility difficulties or limitations).
- ✎ Improving social inclusion opportunities in the urban territory.
- ✎ Enabling vehicles circulation through narrow roads.
- ✎ Promoting sustainable and environment-friendly ways to solve these demands.

As for the lessons learned, the end-users satisfaction towards the utilization of the Blue Line bus has been empiric and statistically proved over time, with the majority of passengers classifying as good the conception, image, safety and noise level of the bus, while on the other hand considering its comfort/space and ventilation levels could be further improved.

Additionally, there are also some identified disadvantages, regarding the Blue Line minibus:

- ✎ It is unsuitable for mass passenger transport.
- ✎ It has limited energetic autonomy (demands frequent batteries charging).

- 👉 High weight of lead batteries (2X750 Kg), with consequent implications in the vehicle's energy consumption.
- 👉 Battery replacement costs (lifetime - 3 years).

This practice has already been escalated in its own region, as the Blue Line was in the meantime extended to 2.4 km and will probably continue to be enlarged. Blue Line started with 3, but there are already 7 units running in the field, throughout Coimbra.

These minibuses operate on the so-called Blue Line, which connects distinct areas of the city, with previous hard accesses and transportation resources. This line (1) facilitated the mobility of the high city area resident population, mostly older adults or people with reduced mobility; (2) took public transport to areas that could not be served by other type of vehicle; (3) contributed to the preservation of environmental conditions through an environmentally friendly vehicle; (4) allowed to sustain the measures taken with the municipality itself to restrict and condition motorway access to the historic areas; and (5) facilitated the traffic management as the preservation of urban heritage.

Environmentally wise, the Blue Line minibus definitely contributes to the reduction of environmental impacts, as it is small, silent and free of fumes from combustion products. Additionally, it is also reliable and lifetime durable (due to its simple and economic maintenance, as its “eternal” engines duration is only conditioned by the bodywork). Its ability to induce measures leading to urban planning as to escape eventual traffic disturbances are also benefits.

On a **social level**, this transportation alternative brought concrete and valuable solutions to the mobility possibilities within Coimbra city. By being route flexible and well adapted to traffic in narrow urban areas, particularly in historic areas, it is able to reach previously isolated and inaccessible places (even for a light car), constituting, in many cases, the only way to get a public passenger transport line to an aging population with great mobility problems, residing in the upper part of the city. In this inclusion perspective, being wheelchair accessible and significantly stocking for small size is a plus.

Regarding the **health impact**, we must acknowledge the improvement of the opportunities for older or territorially isolated people to circulate within the city, not only for social participation purposes, but also for health purposes (e.g., medical appointments, pharmacy visits, clinical tests or exams, etc.). On the other hand, also the mobility capacity itself improves the probability of walking, moving and staying physically active, while actively circulating through the town.

This good practice can surely contribute to the growth of employment and job creation (bus drivers, management and maintenance workers, exploitation of this type of vehicle and its specific kind of batteries), as it is much likely to grow and escalate itself. As it also improves mobility of residents, it allows for better access to the market, either as workers or also as consumers.

In recent years, and in order to maintain or increase urban mobility, the Municipality has developed infrastructures and implemented several measures, namely:

- 👉 Driving simulator for training public transport drivers (buses and trolleys).
- 👉 Mobility Info Centre, which provides information to residents and tourists and allows the sale of tickets and services by regional road operators and national rail service in one place.

- ✎ Demonstration of the local production of hydroelectric energy for the city trolleys and electric minibuses.
- ✎ Electronic ticketing system, which enables greater integration and interoperability of the entire public transport fleet.

GPS/GPRS operations support system, which provides transport operators with up-to-date information on the positioning of their vehicle fleet.

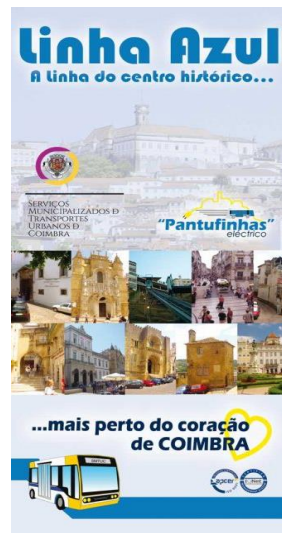


FIGURE 4: "PANTUFINHAS"

3.4.2 Challenges in implementation and gaps between availability and usage

a) ICT/Transports

Regarding the access to (new) technologies (transports, communication/ICT networks, etc.), a certain asymmetry still exists due to the vulnerability of some communities and deprived families. Also, the operative structures of public institutions and private representative bodies of local people interests are often different. Additional, in some regions, physical distance is not yet counterbalanced with technological proximity. At the urban level, public spaces are admittedly multigenerational spaces, whether green spaces, sports, shopping centres and even a simple pedestrian walk. Here travels the child, the young, the adult and the older adults.

b) Housing

Regarding the theme of "Housing", the partners of the Local Social Action Commission of Coimbra (CLAS) recognize 4 problems, of which 3 are related to the area of social housing, namely:

- ✎ Low Satisfaction Rate due to the high number of requests for social housing.
- ✎ Response deficit in social housing addressed to population groups in situations of social vulnerability.
- ✎ Absence of sublease of social housing in the private market.
- ✎ Housing degradation.

The low Satisfaction Rate due to the high number of requests for social housing is a problem identified as a priority for intervention in the Municipality of Coimbra.

One of the main reasons for requests for social housing in the Municipality of Coimbra are, fundamentally, situations of economic deprivation, combined with existing social vulnerabilities, the lack of housing conditions and overcrowding. State budget restrictions prevented the continued implementation of policies aimed at the construction of social housing, which proved to be a key instrument to meet the housing needs of households in a situation of serious socio-economic vulnerability. In addition, the demand from socially vulnerable population groups, namely homeless people, migrants, refugees, victims of violence, among others, is also identified as one of the causes for the low rate of satisfaction of social housing requests. Consequently, it is considered that this problem leads to the maintenance of degraded and unhealthy housing conditions, and they are often overcrowded, resulting in a lack of privacy, common spaces and spaces for children and young people to study and play.

Social isolation, namely of people with reduced mobility since they are "forced" to stay for a long period in housing without conditions of accessibility. In the Municipality of Coimbra, from 2001 to 2011, there was an increase in the Population Ageing Index, and there are currently 161 older adults for every 100 young people in the Municipality. On the other hand, it is believed that the aging of housing owners, combined with greater vulnerability to situations of physical and mental dependence and the socioeconomic difficulties they experience, limit the possibility of carrying out repair work on their properties, often leaving them to be "phased out". The existence of degraded housing, in unhealthy situations or without the proper conditions of habitability, has a wide range of implications, not only in terms of landscape, making the physical environment less pleasant, but also in terms of public and individual health, both of the owners as well as the tenants and the neighbourhood. It should also be noted that the costs of repairing houses in an advanced state of degradation are significantly higher compared to the works necessary for the usual maintenance of habitability conditions. It should also be noted that, when within the family there is no possibility of accommodating family members living in run-down dwellings, the waiting list for social housing is increasing.

3.4.3 Available implementation support offers by stakeholders

Regarding the adaptation of housing, buildings and public spaces, there were some measures being taken. The Urban Rehabilitation Societies (SRU) were set up in order to promote the institutionalized cooperation between public and private sectors towards urban regeneration, for providing affordable housing for low- and middle-income families in Lisbon and Porto⁹⁹.

The result of this policy can be witnessed today in the historic centres of Lisbon and Porto, where problems of demographic ageing and degradation of vacant buildings are very obvious. In this context, which has obtained for several decades now, it is worth questioning the orientation of rehabilitation policy interventions. What and for whom are we rehabilitating? What is the underlying rationale behind the transformation in the historic centres, namely of those under the leadership of the SRUs? How have SRUs incorporated concerns with housing affordability in their practices?

- 👉 Housing not adapted to older people or people with disabilities (in historic centres and low-density areas).
- 👉 Lack of support for particular housing adaptation (accessibility and comfort).
- 👉 Lack of roads and public access adapted to reduced mobility.

⁹⁹ BRANCO, R. & ALVES, S. Affordable housing and urban regeneration in Portugal: a troubled tryst? [Online]. Available from: https://repositorio.ul.pt/bitstream/10451/19983/1/ICS_SAlves_Affordable.pdf. [Accessed 10th December 2019]

- 👉 Public transport not adapted to chronic and / or disabling conditions

Rethinking Urban Inclusion: Spaces, Mobilizations, Interventions

The international conference, **Rethinking Urban Inclusion: Spaces, Mobilizations, Interventions**¹⁰⁰ was held 28th to 30th June 2012 in Coimbra, Portugal. The conference was the major event of the Cities Are Us series of events, which constituted the last step of a two year collaboration between the Centre for Social Studies (CES) at the University of Coimbra and the United Cities and Local Governments' (UCLG) Committee on Social Inclusion, Participatory Democracy and Human Rights (CISDP). The joint CES/UCLG project "Observatory of Inclusive Cities" (2010-2011), creating the second phase of the UCLG Observatory on Social Inclusion, had collected a series of innovative participatory and inclusionary practices from around the globe to inform and stimulate an international debate on the issues that emerged within the project's cases. The 2012 events aimed to extend this work and create a dialogue among the academic community, social movements and political institutions to help rethink some pivotal concepts related to the emergence of inequalities in urban territories.

Caritas Coimbra and AFEdemy Ltd, are coordinating one of the three **Thematic Networks for 2018**¹⁰¹, under the theme Smart Healthy Age-Friendly Environments (SHAPE), in close cooperation with main partners, such as the European Innovation Partnership on Active and Healthy Ageing (EIP-AHA), European Innovation Partnership on Smart Cities and Communities (EIP-SCC), Reference Sites Collaborative Network, European Covenant on Demographic Change, Eurocities, Utrecht University (as former partner of the European Framework for Age-Friendly Housing), European Centre Social Welfare Policy, European Health Telematics Association (EHTEL) and ECHAlliance.

SHAPE aims to facilitate the creation of healthy and friendly environments for all ages through the use of new technologies, towards the production of a comprehensive and participatory joint statement. In more concrete terms, it is intended to highlight the importance of People and Places in the creation of digital solutions for eHealth and mHealth, with better quality but still accessible to all. Main aim is to value the Person as a central element of the whole process of digitization.

This Thematic Network aims to create a high-level political alignment of different networks and initiatives for age-related themes. It is aligned with the EU's Health Priorities in creating synergies that will increase quality, innovation and sustainability for the implementation of better health and care systems, economic growth and sustainable health, in line also with the objectives of the Blueprint on Digital Transformation of Health and Care.

"Generative places smart approaches happy people"

The conference took place in Oporto in September 2015 and resulted from a joint venture between the research centre CITTA and the AESOP's Thematic Group on Public Spaces and Urban Cultures. The main theme and title of the conference **"Generative Places, Smart Approaches, Happy People"**¹⁰² proposed a reflection on an ambitious and wide scoped

¹⁰⁰ CES (2013). *Rethinking Urban Inclusion: Spaces, Mobilizations, Interventions* [Online]. Available from: https://www.ces.uc.pt/publicacoes/cescontexto/ficheiros/cescontexto_debates_ii.pdf. [Accessed: 30th November 2019]

¹⁰¹ CARITAS COIMBRA (2018). *Thematic Network 2018 – Smart Healthy Age-friendly Environments*. [Online] Available from: <https://en.caritascoimbra.pt/wp-content/uploads/sites/3/2018/10/Framing-Paper-SHAPE.pdf>. [Accessed: 30th December 2019]




¹⁰² GENERATIVE PLACES, SMART APPROACHES, HAPPY PEOPLE (2015) [Online]. Available from: <https://citta-conference.fe.up.pt/pdf/generating-places-smart-approaches-happy-people.pdf>. [Accessed: 10th December 2019]

triangle in which seems to converge timeless and contemporary edge cutting planning issues, such as planning for inspiring and friendly places, planning with people for better equipped and happier communities, and innovative approaches and methodologies to design and jointly implement locally based and socially responsive policies and initiatives. The idea that the use of technological or smart driven approaches in planning processes can, firstly, facilitate political discourse and participation by strengthening the link between citizens and governors, and secondly, better respond to people needs and improve the quality of life of citizens, has been around in different contexts and dimensions. Several projects, applications and approaches are making evident that we are forced to live and use technology in our daily activities and inevitably in the city arena. Technology affects our behaviours and the way we move and live in urban areas at various levels.

3.4.4 Funding opportunities for implementation support

RECRIA¹⁰³ - Special Regime for Co-participation in the Recovery of Rented Property

Within the legal framework of Decree-Law 329-C/2000 of 22 December, the RECRIA Programme aims to finance the execution of conservation and improvement works that allow for the recovery of dwellings and degraded properties, through the granting of incentives by the State and the municipalities. The beneficiaries are owners, property owners, tenants and Municipalities have access to the benefits of this programme, if, under the terms of articles 15 and 16 of the RAU, they replace the property owners in carrying out the works. Work on dwellings and common parts of buildings in which at least one fire rented under a lease agreement prior to 1 January 1980 and whose rent has been subject to extraordinary correction under Law no. 46/85, of 20 September, where it is carried out, may be co-participated by RECRIA:

-  Ordinary maintenance works.
-  Extraordinary conservation works.
-  Improvement works, which fall within the scope of general or local law and become necessary for the granting of a license for use.

The works to be carried out under RECRIA benefit from non-repayable contributions, which vary according to the value of the works and rents, with 60% being the responsibility of the Housing and Urban Rehabilitation Institute (IHRU) and 40% of the Municipality.

Financing may also be granted, in the form of a loan, to the owners of the properties to be recovered up to the amount corresponding to the part of the value of the works not reimbursed. The owners and municipalities at an interest rate lower than 8%, granted by the IHRU, whenever the credit institutions do not offer better conditions, in the form of a loan, payable in monthly instalments, within a maximum period of eight years, may request the financing of the value of the works not reimbursed. The Municipality, without prejudice to advances of up to 20% of the value of the works, to be repaid during their completion, releases loan amounts upon assessment of the progress of the works.

The incentives referred to above cannot be cumulated with any other subsidies, co-payments or bonuses granted by the Administration, with the exception of those granted under the Solidarity and Housing Recovery Support Programme (SOLARH), so that in the event of accumulation there will be a proportional reduction.

¹⁰³ RECRIA [Online]. Available from: <https://directhit.blogs.com/reabilitacaourbana/recria.html>. [Accessed: 17th December 2019]

Application of the VAT rate of 6% to the total cost of the work in buildings recovered with the support of the State.

REHABITA¹⁰⁴,

The Support Regime for Housing Recovery in Ancient Urban Areas (REHABITA), established by Decree-Law no. 105/96, of 31 July, consists of an extension of the RECRIA Programme and aims to financially support municipal councils in the recovery of old urban areas, being granted through the signing of collaboration agreements between the IHRU, the Municipal Councils and other authorized credit institutions.

This programme thus aims to support the execution of conservation, improvement or reconstruction works of residential buildings and the actions of temporary or definitive re-housing, within the scope of municipal operations for the rehabilitation of historic urban centres that are declared as critical areas for urban recovery and reconversion, under the terms of Article 248 of the Portuguese Constitution. These areas are classified as critical areas for the recovery and conversion of historic urban centres, under the terms of Article 41 of Decree-Law no. 794/76, of 5 November, and that have approved detailed plans or urbanistic regulations and recognised urban centres under the terms of no. 2 and 3 of Article I of Decree-Law no. 426/89, of 6 December, relating to Precautionary Measures against Fire Risk.

To the works integrated in REHABITA co-financed by RECRIA, is added a 10% non-refundable contribution, supported by IHRU and the municipalities involved, in the same way as RECRIA. When the works are aimed at adapting to the provisions of the regime on Precautionary Measures against Fire Risks, the limit provided for in no. 4 of art. 6 of RECRIA is increased by 10%. As in RECRIA, when the municipal council replaces property owners or owners in carrying out the works, it may resort to subsidized loans under Decree-Law 110/85, of 17 April, to finance the value of the works not reimbursed. The works co-financed by REHABITA under the terms of RECRIA, intended for temporary re-housing or for the preparation of projects or supervision, have an additional percentage, non-refundable, of 10%, to be borne by IHRU and by the municipality in the proportion established by RECRIA, provided that it is included in the candidature's forecast, and the payment can only be authorized against the issue of the respective receipt.

In situations in which the rehabilitation and urban renewal operations involve the construction or acquisition of dwellings for temporary or permanent re-housing of households, the municipality will have to grant them under a supported rent regime and subject them to the non-transferability regime foreseen in the PER (Special Rehousing Programme). The PER was a programme created with a view to the eradication of tents in the Lisbon and Porto Metropolitan Areas, Decree-Law no. 163/93, of 7 May. With the objective of rapidly re-housing decent dwellings for families living in tents, the possibility was created for each municipality to promote the construction of necessary dwellings, both for rent and for purchase. The PER allows the purchase in the Town Council's enterprises or in the real estate market in general, provided that the values are in line with the current ordinance followed by the IHRU".

For the construction or acquisition of these dwellings, the municipality may obtain a contribution of up to 40% in non-repayable funds, granted by the IHRU and a subsidized financing of up to 40%, directly from the IHRU or through credit institutions.

¹⁰⁴ REHABITA [Online]. Available from: <https://directhit.blogs.com/reabilitacaourbana/rehabita.html>. [Accessed: 17th December 2019]

IFRRU 2020¹⁰⁵ - Financial Instrument for Rehabilitation and Urban Revitalization

When in Portugal, due to the insufficient level of investment in urban regeneration, around 1 million buildings need to be repaired, in all regions, where construction continues to be the most frequent, where 28% of primary energy consumption is in the residential and services sector, it was necessary to create a financial instrument, with public policy objectives in terms of urban regeneration and a combined form of energy efficiency, that could respond to all stakeholders who want to invest in that they cannot find financing in the market for their project.

IFRRU 2020 is a financial instrument that mobilizes the appropriations approved by the Regional Operational Programmes (ROPs) of the Mainland and the Autonomous Regions, and the thematic programme Sustainability and Resource Efficiency Operational Programme (PO SEUR) of PORTUGAL 2020, with the objectives of revitalizing the cities, supporting the physical revitalization of the space dedicated to disadvantaged communities and supporting energy efficiency in housing.

In addition to these appropriations, there are those from European financial institutions: the European Investment Bank (EIB) and the Council of Europe Development Bank (CEB). Through a tender procedure, the financial management entities that provide the financial products (loans or guarantees) through which the urban regeneration operations are financed were selected - Santander Totta, Banco BPI and Millennium BCP. IFRRU 2020 thus has a financing capacity of 1,400 million euros, generating an investment of around 2,000 million euros. IFRRU 2020 provides loans on more favourable terms than those of the market, for the comprehensive rehabilitation of buildings, intended for housing or other activities, including the most appropriate integrated solutions for energy efficiency in the context of this rehabilitation.

In a single funding application, the applicant can submit its investment project as a whole, bringing together the urban regeneration and energy efficiency components.

Given the strategic importance of urban spaces for territorial cohesion and competitiveness, it is important to focus on urban qualification and the reconversion of deactivated industrial spaces, in order to promote the creation of new development dynamics that contribute to the settlement of the population and the creation of wealth and employment. In turn, when urban regeneration operations are implemented, integrated actions that provide greater energy efficiency will also be supported, whether through the adoption of passive systems, the use of more efficient equipment or the production of energy for self-consumption. In disadvantaged communities, it is also important to promote physical regeneration, combined with initiatives that contribute to economic stimulation and job creation, as key elements for social inclusion and the fight against poverty. IFRRU 2020 thus aims to facilitate access to finance for promoters of investments in the area of urban regeneration, improving the financing conditions, appropriate to the circumstances and specificities of projects, and diversifying the offer of financing solutions under more favourable conditions than those available on the market. It is up to each municipality to define the territory in which the interventions to be supported will take place, with a view to focusing support and planning interventions in an articulated manner between public and private investments.

IFRRU 2020 is thus a lever for the sustainability of cities and for the improvement of people's quality of life, creating new opportunities for economic and social development in urban centres.

¹⁰⁵ IFRRU 2020 [Online]. Available from: <https://ifrru.ihru.pt/>. [Accessed: 17th December 2019]

3.4.5 Example/s of good practice in implementation support

Autonomous Pinewood Houses (2011)¹⁰⁶, Águeda, Centre Region, Portugal

Objectives

The “Autonomous Pinewood Houses” are a senior village, built to host still active and autonomous seniors, who have no family support and refuse to be institutionalized but can use the services of the association nearby (meals, laundry, leisure activities, etc.) and have neighbours in similar situations to relate and interact.

This project, implemented in 2011, was built in response to the need of housing older people, who are still autonomous, but suffering from loneliness, and who refuse to institutionalize in traditional social responses, but clearly need backing support to achieve a more active and healthy aging.

Key facts

The background supporting the development of this good practice consists on the challenges concerning the access of the older people to adapted residences, as also to information, support services for ageing adults and funding available for (in this case, external) infrastructure improvement. On this way, the purpose is to allow them to remain independent and active in their own houses, for as long as possible.

“Autonomous Pinewood Houses” is a collection of eight aligned prebuilt wooden houses, all with balcony and pine forest sight, which are implemented in a green area, located at the back of “The Pioneers” Association headquarters, in Mourisca do Vouga, Águeda.

The accommodated older people can choose to live alone in a house, as a couple or to share the same house with someone else (known or not known), against a monthly fee (ranging from 130 euros to 800, depending on their income).

The main stakeholders of this practice are the service providers from several intervention areas (socio-cultural animation; laundry service and housing hygiene; medical office, nursing and physiotherapy; psychosocial and psychological monitoring, among others), that through the promoter institution, aim at responding to older people’s most relevant interests and needs. Voluntary actions (whether from lodged older people, or from external people) are also welcome.

The main beneficiaries of these supporting services are, therefore, the ageing adults, who are still autonomous, but suffer from loneliness, and who refuse to institutionalize in traditional social responses, but clearly need backing support to achieve a more active and healthy aging; and of course their relatives and caregivers who can then be sure they are safe and happy.

At this moment the houses are all occupied (with nearly 20 older people) and the waiting list is quite long.

This initiative also includes the creation of a picnic park, a playground and a pedestrian path that facilitates and promotes the users’ mobility and socialization, thus providing room for snacks, for walks and so on. In this way, this practice provides the possibility for older citizens to stay in their residential environments, although not in their original homes (especially in low-income situations), while improving their quality of life, contributing to the stabilization or retardation of the aging process, and preventing their abandonment, isolation and social

¹⁰⁶ AUTONOMOUS PINEWOOD HOUSES (2011) [Online]. Available from: <http://ospioneiros.pt/niceoffice/mod1/?&tp=temp001&fid=1.8&lq=PT&dn=1774&pag=1>. [Accessed: 10th December 2019]

exclusion. On the other hand, it also contributes to streamlining the organization's existing services and resources, making them usable and profitable for the community and thus promoting its sustainability.

Implementation

Older people who adhere to this concept, maintain complete privacy and autonomy, are free to come and go as they please, to receive friends and family on the days and times they want. They can however benefit from services provided by the organization, in several intervention areas (socio-cultural animation; laundry service and housing hygiene; medical office, nursing and physiotherapy; psychosocial and psychological monitoring, among others), in response to their most relevant interests and needs, with all due respect for their individual rhythm and will. Services are available until 20:00, but there is also some prevention support available during the night-time, if needed.

The funding amount is related to the amount necessary to build the houses and, if necessary, to buy the land where it is settled and provide the correct infrastructures (garden for example). However, the most direct business model for this would be for an organisation which already has the infrastructure and free land and that only needs to invest (eventually with the support of public funding) between 10 and 25 thousand euros per house. Current expenses shall be covered by the rent paid by the tenants.

As for the human resources required, there are several professionals from the association involved (socio-cultural animation; laundry service and housing hygiene; medical office, nursing and physiotherapy; psychosocial and psychological monitoring, among others), apart from the management and administrative ones, as there is also room for volunteers (whether external ones, or even from the lodged older people). These can be the already existing workers of a social care organisation that can be then better used by including these activities.

Results

The most valuable benefits obtained are the positive impact of the project among its target group, in terms of a better quality of life, an active and autonomous aging process, a greater socialization network and more sustainable services to these older adults. The business model is viable, and autonomy is encouraged.

Tenants report they feel happier, safer and more secure than if they lived alone in their original houses and find this as a much better alternative than a nursing home, which they did not want as they are autonomous still.

Although we are not aware of any transfer activity at this point, we sincerely acknowledge the high replication potential of this project initiative.

The main aspects of this practice that are potentially interesting for other regions to learn from are mainly related to the positive impact of the project among its target group, in terms of a better quality of life, an active and autonomous aging process, a greater socialization network and more sustainable services to these older adults. The business model is viable, and autonomy is encouraged. The main challenges are connected to the lack of incorporation, by the Social Affairs Ministry, of such practices in national legislation. This makes this activity not legal as a social service and does not allow any funding as such, nor its scaling and expansion. At this moment, the houses are all occupied (with nearly 20 older people) and the waiting list is quite long.



FIGURE 5: *AUTONOMOUS PINWOOD HOUSES*

3.5 BUSINESS: Business opportunities and planning

3.5.1 Silver economy market and potential areas for starting a SHAFE business

Twenty-first century demography creates imperative for policy reform and cultural change. According to World Economic Forum, in 2012, the proportion of people over 65 years old was 10%, but it is expected this ratio increase to 22% in 2050. In OECD countries, the ratio is projected to 35% in 2030¹⁰⁷.

The SUDOE territory will have the largest proportion of people over 60 in the world by 2050, with 40% of the population over 60. This ageing effect will be further accentuated by the fact that the southwestern European regions are witnessing a significant influx of retirees attracted by the quality of life.¹⁰⁸

In Portugal, the worsening of the demographic ageing continues, which will only tend to stabilize in about 40 years. Between 2015 and 2080, according to the central projection scenario: the number of elderlies will rise from 2.1 to 2.8 million. Given the decline in the young population, along with the increase in the older adults' population, the rate of ageing will pass from 147 to 317 seniors per 100 young people by 2080.¹⁰⁹

The European working-age population will fall as its ageing population grows and this reduction within the normal active age range, along with the increase in the senior sections of populations are making governments (including France, Portugal and Spain) realise that in order to maintain an active economy, the senior age range must remain part of the economic activity¹¹⁰.

Specifically, in Portugal, the working age population will decrease from 6.7 to 3.8 million people. The sustainability index (ratio between the number of people aged 15-64 and the number of people aged 65 and over) could decline sharply as the population in active age, along with the increase in the older adults' population. This rate will rise from 315 to 137 people of active for every 100 seniors between 2015 and 2080.¹¹¹

This change impacts directly the economy, once these proportions are fiscally unsustainable and the productivity are decreased, and the public spending are increased. Portugal is predicted to record a variation of 3.4 percentage points of gross domestic product (GDP) in

¹⁰⁷ GLOBAL COALITION ON AGING. The Silver Economy as a Pathway for Growth Insights from the OECD-GCOA Expert Consultation [Online]. 26 June 2014. Available from: <https://www.oecd.org/sti/the-silver-economy-as-a-pathway-to-growth.pdf>. [Accessed: 13th December 2019]

¹⁰⁸ ICT4SILVER SILVER ECONOMY [Online]. Available from: <https://www.ict4silver.eu/silver-economy/?lang=pt-pt>. [Accessed: 13th December 2019]

¹⁰⁹ INE. *Projeções de População Residente em Portugal* [Online]. Published in: March 29, 2017. Available from:

https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=277695619&DESTAQUESmodo=2&xlang=pt. [Accessed: 13th December 2019]

¹¹⁰ SILVER SUDOE. *The Silver Economy in southwest Europe* [Online]. Available from: <http://4.interreg-sudoe.eu/contenido-dinamico/libreria-ficheros/310619FB-AFB6-AA98-B00D-5D03559BB329.pdf>. [Accessed: 13th December 2019]

¹¹¹ INE (2019). *Projeções de População Residente em Portugal* [Online]. Published at: March 29, 2017. Available from: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=277695619&DESTAQUESmodo=2&xlang=pt. [Accessed: 13th December 2019]

public expenditure related to ageing in the period 2007-2060, and an increase of 2.1 percentage point of GDP in public pension expenditure between 2007 and 2060.¹¹²

The following table shows the percentage of expenditure in Portugal by age in areas like domestic, personal care, financial help, mobility, health care and leisure.¹¹³

Age group	Domestic	Personal Care	Financial help	Mobility	Health Care	Leisure
55-64	17,75%	10,19%	19,89%	13,66%	16,16%	23,26%
65-74	15,62%	12,96%	21,51%	13,86%	19,84%	21,19%
75-84	24,24%	22,96%	29,30%	25,74%	23,20%	22,74%
85 and +	42,39%	53,89%	29,30%	46,73%	40,80%	32,82%

TABLE 8: PERCENTAGE OF EXPENDITURE IN PORTUGAL BY AGE IN DIFFERENT AREAS

This demographic change, the expenditure and costs on older adults and the necessity to provide services to them is the opportunity to generate new jobs and to drive the growth of the Silver Economy. The Silver Economy is the name which is used actually to define the Senior market or economy of ageing, with the main idea to adapting not only businesses to Seniors but, above all, developing places that are adapted to a greater number of generations with expectations that can vary^{114,115}.

In this sense, the main idea is to create new ways to fully integrated the older people in the society, create opportunities for older people to continue working and to promote solidarity between generations. In Portugal, a series of initiatives and projects have been developed, with the aim of encouraging greater participation and integration of older people in society.

a) Volunteering

Volunteering is an opportunity for intergenerational activities, enabling older generations to continue to work and contribute to the community by transmit their knowledge and the experience they have gained from life. Also, may be an economy force.

Senior volunteering becomes a challenge at a time when the retirement age population is increasing. With the exit from the job market, the older people are challenged and feel the need to create new social relationships outside of work. In this sense, volunteering makes it possible to maintain an occupation and, in some cases, a new perspective on life.¹¹⁶

The National Council for Volunteering Promotion has no information about the economic value of volunteering in Portugal because of the recent development of volunteering in the country. The public perception within Portugal is that Portugal has a —weak civil society sector.

¹¹² SILVERSUDOE. The Silver Economy in southwest Europe. Available from: <http://4.interreg-sudoe.eu/contenido-dinamico/libreria-ficheros/310619FB-AFB6-AA98-B00D-5D03559BB329.pdf>. [Accessed: 13th December 2019]

¹¹³ SILVERSUDOE. The Silver Economy in southwest Europe. Available in: <http://4.interreg-sudoe.eu/contenido-dinamico/libreria-ficheros/310619FB-AFB6-AA98-B00D-5D03559BB329.pdf>. [Accessed: 13th December 2019]

¹¹⁴ SILVERSUDOE (2019). *The Silver Economy in southwest Europe* [Online]. Available from: <http://4.interreg-sudoe.eu/contenido-dinamico/libreria-ficheros/310619FB-AFB6-AA98-B00D-5D03559BB329.pdf>. [Accessed: 16th December 2019]

¹¹⁵ GLOBAL AGING TIMES. *What is Silver Economy* [Online]. Available from: <http://www.globalagingtimes.com/aging/what-is-silver-economy>. [Accessed: 16th December 2019]

¹¹⁶ SERAPIONE, M. & FERREIRA, S. & LIMA, T. (2013). *Voluntariado em Portugal. Contextos, atores e práticas*. Edição: Fundação Eugénio de Almeida [Online]. Available from: <https://www.fea.pt/files/4ccea4af8cf11eafa6d070b5d51b684ca65024cb.pdf>. [Accessed: 16th December 2019]

However, Portugal's civil society sector is a significant economic force: It had expenditures as of 2002 that represented 4.2 percent of the nation's gross domestic product (GDP); It engages the energies of nearly a quarter of a million full-time equivalent workers, two thirds (70 percent) in paid positions and the remainder as volunteers; Non-profit organisations thus employ more people in Portugal than a number of sizable industries, such as utilities and transportation.¹¹⁷

In order to protect the volunteering, the Portuguese Volunteer Confederation (CPV)'s main purpose is to represent all volunteers and volunteer organisations in Portugal, regardless of their areas of specialisation, and contribute to defend their rights and interests, through various kinds of activities. In addition, CPV wants to preserve and renew the identity of volunteer work, strengthen the quality of volunteers' work, and highlight and increase the role of volunteer work in the Portuguese society¹¹⁸.

b) Universities of the third age (U3As)

The Universities of the third age (U3As) is a growing sector in promoting an active ageing. The U3As has begun in Portugal in 1970, initially with a non-formal education. After the creation of RUTIS¹¹⁹ (standing for in English - Universities of the Third Age Network Association) has passed to a more formal education at tertiary education institutions. At the end of 2016, the Portuguese government gave its official and legal recognition¹²⁰ to the Senior Universities and RUTIS through a resolution of the Council of Ministers, acknowledging RUTIS as "a fundamental partner for the development of active aging and social economy policies".¹²¹

Portuguese Senior Universities follow the model English, non-profit organizations where teachers volunteer and do not have formal certification. According to a study of about 4,000 professors from 190 existing senior universities in Portugal, 82% of teachers are volunteers, 51% are employed, 45% are retired and 4% are unemployed. Universities are attended by 30,000 students, mostly women among the 60 and 70 years. The Network of Senior Universities Association (RUTIS) was one of the members of the AEV-2011 National Monitoring Commission in Portugal.¹²²

c) Tourism and seeking for a better quality of life

Since the 1990s, in line with the development and expansion of tourism, Portugal has been the destination of a growing number of retired older adults people from northern Europe who seek the country's coastal areas, especially the Algarve, as part of the so-called "International migration of retired people".

¹¹⁷ GHK (2010). *Study on Volunteering in the European Union – Country Report Portugal*. [Online]. Available from: <http://ec.europa.eu/citizenship/eyv2011/doc/National%20report%20PT.pdf>. [Accessed: 17th December 2019]

¹¹⁸ CONFEDERAÇÃO PORTUGUESA DO VOLUNTARIADO. General Information [Online]. Available from: <https://www.europeanvolunteercentre.org/cpv>. [Accessed: 17th December 2019]

¹¹⁹ RUTIS. Quem somos [Online]. Available from: <http://www.rutis.pt/paginas/1/quem-somos/#historial>. [Accessed: 17th December 2019]

¹²⁰ SERAPIONE, M.; FERREIRA, S.; LIMA, T. (2013). *Voluntariado em Portugal. Contextos, atores e práticas*. Edição: Fundação Eugénio de Almeida [Online]. Available from: <https://www.fea.pt/files/4ccea4af8cf11eafa6d070b5d51b684ca65024cb.pdf>. [Accessed: 17th December 2019]

¹²¹ LARSSON, L. (2018). *RUTIS – Universities of the Third Age Network Association in Portugal* [Online]. CENTRE FOR PUBLIC IMPAC. Available from: <https://www.centreforpublicimpact.org/case-study/rutis-portugal/>. [Accessed: 17th December 2019]

¹²² SERAPIONE, M.; FERREIRA, S.; LIMA, T. (2013). *Voluntariado em Portugal. Contextos, atores e práticas*. Edição: Fundação Eugénio de Almeida [Online]. Available from: <https://www.fea.pt/files/4ccea4af8cf11eafa6d070b5d51b684ca65024cb.pdf>. [Accessed: 17th December 2019]

In 2009, during fiscal and economic turmoil, the Portuguese government issued a Decree law formalizing the status of non-habitual resident (RNH). This was intended to facilitate the installation of foreign investors and pensioners. The agreement provided for a tax exemption on pensions for a period of 10 years, if they live at least 183 days a year in Portugal. In 2012, the government persisted and announced the simplification of obtaining NHR status from 2013 onwards. It is now enough to prove that you have not been a tax resident in Portugal in the last five years to qualify for the status. Taxation in Portugal for foreigners proved to be very attractive and government expectations were very ambitious. The aim was, for example, to accommodate 20,000 French between 2014 and 2016.¹²³

The number of permanent immigrants with 65 or more years old in 2008 was about 1524 individuals, that number increased and in 2018 it was 2.243. It is about 5.20% of the total number of immigrants¹²⁴, the European ones comes from British, French, Nordics countries and Italy.

Seeing this vague of immigrants some companies are investing in travel agencies to provides assistance and information for citizens wishing to relocate to the country.¹²⁵ Or also an investment on residential tourism.

National resorts will invest about € 1200 million over the next five years, into residential tourism units, which are consolidated through hotels and other infrastructure¹²⁶. The residential tourism in Portugal are already the best of the Europe. In the macro category criteria, Portugal gets 63.4 points followed by Cyprus (62.3), Spain (57) and Turkey (56.4). Portugal best performers are in the “Tax Regime and Incentives” categories - especially in the Acquisition Costs criterion -, “World Governance” - which includes such criteria as Political Stability, Regulatory Quality, or Corruption Control - and “Ease of Business”. - including: Business Initiation, Building Permits, Payment of Tax Liabilities, and Contract Compliance, and an unemployment rate below the average of the countries analysed.¹²⁷

3.5.2 Main regulations for starting a business

As will be mentioned in interviews with experts, to start a business it is essential to know its profitability - through the evaluation of its technical and economic viability. Transforming an idea into a viable business implies structuring and organizing the Business Plan.

IAPMEI - Agência para a Competitividade e Inovação, I.P.¹²⁸ provides support to small and medium-sized enterprises and innovation. In this regard, and in order to reinforce the competitiveness of the Portuguese economy, it developed the Entrepreneur Manual which

¹²³ GERVAIS, E. (2017). *Portugal joga a carta da silver economy* [Online]. Available from: <http://www.lejournalinternational.info/pt/portugal-joue-carte-de-silver-economy/>. [Accessed: 18th December 2019]

¹²⁴ PORDATA (2019). *Permanent immigrants: total and by age group* [Online]. Available from: <https://www.pordata.pt/en/Portugal/Permanent+immigrants+total+and+by+age+group-3255-292160>. [Accessed: 18th December 2019]

¹²⁵ DINHEIRO VIVO (2016). *Italianos “descobrem” Algarve para viver* [Online]. Available from: <https://www.dinheirovivo.pt/economia/dos-britanicos-franceses-italianos-descobrem-algarve-viver/>. [Accessed: 18th December 2019]

¹²⁶ EXPRESSO (2019). *Portugal alvo de investimento de €1200 milhões em resorts* [Online]. Available from: <https://expresso.pt/economia/2019-11-24-Portugal-alvo-de-investimento-de-1200-milhoes-em-resorts>. [Accessed: 18th December 2019]

¹²⁷ O JORNAL ECONÓMICO (2018). *Turismo residencial português é o melhor da Europa* [Online]. Available from: <https://jornaleconomico.sapo.pt/noticias/turismo-residencial-portugues-e-o-melhor-da-europa-318607>. [Accessed: 18th December 2019]

¹²⁸ IAPMEI. Manual do Empreendedor. [Online]. Available from: [https://www.iapmei.pt/PRODUTOS-E-SERVICOS/Empreendedorismo-Inovacao/Empreendedorismo-\(1\)/DOCS_Emp/ManualEmpreendedor_sd.aspx](https://www.iapmei.pt/PRODUTOS-E-SERVICOS/Empreendedorismo-Inovacao/Empreendedorismo-(1)/DOCS_Emp/ManualEmpreendedor_sd.aspx). [Accessed: 19th December 2019]

guides those who want to open their own company. According to IAPMEI, between the idea's validation and the Business Plan there is an intermediate step - the Business Model, in which "questions about the relationships to be created with customers and partners are defined, sources of revenue and costs are estimated and the strategy to be used to achieve the defined objectives is established." Subsequently, the Business Plan is developed, which will be the basis for managing the business. This document must include "a summary, an objective, the key-factors identification for the project success, market and financial analyses that properly support the idea to be developed".

IAPMEI advises the entrepreneur to go to Loja do Cidadão (Citizen's Bureau) to set up the company, but makes it clear that it is also possible to do so at a Commercial Registry offices, at the headquarters of the National Register of Legal Persons (RNPC) or on the Internet through the Citizen's Portal. At the beginning, it should be defined the legal form of the company, considering its complexity - in terms of its functioning, structure, share capital and responsibilities and legal obligations. If the company is made up of only one person, it has the legal forms: Empresário em Nome Individual (Sole proprietorship) and Sociedade Unipessoal por Quotas (single-member limited company). If it is constituted by more than one person, it has the legal forms: Sociedade por Quotas (limited company), Sociedade Anónima (public limited company) and, less usual, Estabelecimento Individual de Responsabilidade Limitada (individual limited liability establishment), Sociedades em Nome Coletivo (collective company), Sociedades em Comandita (command company) and Cooperativa (cooperative). It is important to remember that starting a business requires an initial investment, which includes: "Location, Physical conditions, Equipment, Tools, Furniture and Initial stock of material". If it is necessary to hire Human Resources, this action cannot be underestimated, because people represent the "main asset of the company". The investment can be made by the entrepreneur himself, by the partners or through funding.

In Portugal, the state offers a quick and non-bureaucratic way for opening a new business by following a few steps which must be completed with the Commercial Register Offices and their respective Formalities Centres for Companies. The incorporation process starts by choosing a name for the business from a list of pre-approved names or referring to the list that will be provided at the service office. The selected name will only be reserved when the founder starts the process. The law provides that any entrepreneur interested in forming a company must present documents proving his identity, capacity and powers of attorney to act¹²⁹.

Most relevant Legislation about this Area in Portugal is¹³⁰:

- 👉 Commercial Code ("Código Comercial", dated 1888);
- 👉 the Portuguese Companies Code ("Código das Sociedades Comerciais", Decree law no. 262/86, dated September 2 – as further amendments);
- 👉 the Portuguese Securities Code ("Código dos Valores Mobiliários", Decree law no. 486/99 dated November 13, as further amendments).

Also, the Civil Code and Portuguese Constitution may have some guidelines about this subject.

Other several laws and regulations regarding business¹³¹:

- 👉 Agency agreement - decree law n. 178/86 of July 3.

¹²⁹ LEXIDY (2019). *Open a Business in Portugal* [Online]. Published in November 25. Available from: <http://www.lawyers-portugal.com/open-a-business-in-portugal>. [Accessed: 19th December 2019]

¹³⁰ ILP ADVOGADOS. *The Essential Corporate Law in Portugal* [Online]. Available from: <https://www.ilpabogados.com/en/corporate-law-in-portugal-1/>. [Accessed: 19th December 2019]

¹³¹ All the legislation may be found in: http://www.pgdlisboa.pt/leis/lei_main.php

- 👉 Commercial transactions - decree law n. 62/2013, of May 10.
- 👉 Restrictive individual practices of trade - decree law n. 166/2013, of December 27.
- 👉 Road transport of goods - decree law n. 257/2007.
- 👉 General regime of credit institutions and financial company - decree law 298/92, 31/12.
- 👉 Consumer credit agreements - decree law n. 133/2009, of June 02.
- 👉 Financial lease - decree law n. 149/95, of June 24.
- 👉 Financial guarantee agreements - decree law n. 105/2004, of May 8.
- 👉 Merchant - decree-law n. 75/2017
- 👉 Uniform law on letters and uniform check law - decree law n. 23 721 of 29 March 1934.
- 👉 Regime of check without provision - decree law n. 454/91, of December 28.
- 👉 Extract of invoice – decree law n. 198/2012, of August 24.
- 👉 Additional group of companies - decree law n. 36/2000, of 14 March.
- 👉 Additional company group regulation - decree law n. 430/73 of August 25.
- 👉 European economic interest grouping - decree law n. 148/90 of May 9.
- 👉 Consortium and association in participation - decree law n. 231/81, of July 28.
- 👉 Individual establishment of limited liability - decree law n. 248/86, August 25.
- 👉 Capital credit conversion - law n. 7/2018, of March 02
- 👉 Immediate constitution of companies - decree law n. 111/2005, of July 08.
- 👉 Online corporate building - decree law n. 125/2006, of June 29.
- 👉 Cross-border mergers - law n. 19/2009 of May 12.
- 👉 Legal framework of holding companies - decree-law n. 495/88 – Diário da República 301/1988, supplement 6, series i 1988-12-30
- 👉 Dissolution and liquidation of trade authorities - decree law 76-a / 2006, of March 29.
- 👉 Commercial registration code - decree law n. 403/86, of 03 December.
- 👉 National registration of collective people - decree law n. 129/98, of 13 May
- 👉 Labor code - law no. 99/2003 of August 27.
- 👉 Regulation n. 985/2009, of September 4, that created Entrepreneurship and Self-Employment Support Program – PAECPE.

3.5.3 Support offers and stakeholders for starting a business

a. Support offers

According to Doing Business 2018 published by the World Bank, Portugal is the 29th easiest country to open a business in the world and the 17th within the Europe, among 190 countries analysed.

Financial Incentives	Attractive Loans	Venture Capital	Fiscal Incentives
In the context of the European framework Program 2014/2020, Portugal has a financial framework to support investment of EUR 21 billion, which favours a smart growth, based on knowledge, innovation and internationalization of its economy, an inclusive growth, which focuses on human resources development and job creation, and sustainable growth based on the rational use of energy resources	Portugal offers, in partnership with its financial system, mechanisms to meet the financing needs of all companies. Through Capitalizar Credit Line and Support Line for the Upgrading of the Tourism Offering credit 1.7 M€ is available to companies at reasonable costs and with long reimbursement periods	The capitalization of Portuguese companies is a strategic priority for the Portuguese Government. In this context, the Government launched new venture capital instruments	A Fiscal System that Favours Investment. Portugal has increased its competitiveness in Tax Incentives for Productive Investment. Tax incentives for the development of the sectors considered strategic for the Portuguese economy, such as Tourism and that contribute for the reduction of the regional disparities, induce the creation of jobs,

TABLE 9: INCENTIVES - GENERAL FRAMEWORK

In Portugal, starting a business takes 5 days and 6 procedures Registering a property takes just 1 day and 1 process. In the sheet above it is possible to see the general framework of Portugal Government incentives to start a business.¹³²




The Portugal employment centre provides a support to creation of the own business. As part of the Entrepreneurship and Self-Employment Support Program, which consists of providing support to small-for-profit start-up projects, including cooperatives, through access to secured credit and interest rate subsidies granted by banking institutions.¹³³

The Central Region Entrepreneurial Award 50+ aims to promote entrepreneurship and senior entrepreneurship, to publicly acknowledge entrepreneurs who have built an entrepreneurial career at a later stage in their lives, and to raise public awareness of the importance of senior entrepreneurship and entrepreneurship. to support the creation of incentives to stimulate this form of entrepreneurship.

b. Stakeholders

As main stakeholders are possible to highlight the business incubators. The incubators provide business support to organizations in their early stages of life. They provide a workspace, business, accounting, financial and legal advice, as well as a great sharing environment among entrepreneurs, in exchange for a very competitive monthly fee. If you have a home-based business, incubators have also been providing virtual support, including advice and management assistance.¹³⁴

Company incubators in Portugal:

-  Incubadora de Empresas da Universidade de Aveiro (IEUA)
-  Madan Parque
-  Startup Lisboa

¹³² TURISMO DE PORTUGAL. Portugal an investment destination in tourism. Available from: https://www.turismodeportugal.pt/pt/quem_somos/Organizacao/information-hub-mne/Documents/Investment_Destination-PT-May2018.pdf. [Accessed: 19th December 2019]

¹³³ IEFP (2019). *Empreendedorismo* [Online]. Available from: <https://www.iefp.pt/empreendedorismo>. [Accessed: 19th December 2019]

¹³⁴ PME (2019). *Incubadoras De Empresas Em Portugal* [Online]. Available from: <https://pme.pt/incubadoras-empresas-portugal/>. [Accessed: 19th December 2019]

- ✎ IPN Incubadora
- ✎ OPEN
- ✎ Ninhos ANJE
- ✎ Incubadora D. Dinis
- ✎ In.cubo
- ✎ Sanjotec
- ✎ Inova Gaia
- ✎ DNA Cascais
- ✎ AITEC Empresário Digital
- ✎ CACE
- ✎ Rede de Incubadoras de Empresas da Região Centro (RIERC)
- ✎ Instituto Empresarial do Minho
- ✎ Centro de Incubação e Desenvolvimento Lispolis
- ✎ PROMONET – Associação Promotora de Novas Empresas e Tecnologias
- ✎ Universidade de Trás-os-Montes e Alto Douro – GAIVA
- ✎ Avepark
- ✎ Biocant
- ✎ FeiraPark
- ✎ Iparque
- ✎ IPN – Instituto Pedro Nunes
- ✎ Madeira Tecnopólo
- ✎ Parkubis
- ✎ ParquInvest
- ✎ PortusPark
- ✎ TecParques
- ✎ TagusPark
- ✎ UPTEC
- ✎ Incubadoras Lisboa

One of the biggest incubators of Portugal is in Coimbra. In IPN's business incubator, companies have, in their early years, conditions that facilitate access to the scientific and technological system and an environment that provides the widening of knowledge in matters such as quality, management, marketing and contact with national and international markets. The Incubator provides support during the nascent phase of new innovative and / or technology-based business projects and advanced services. Priority projects are spin-offs arising from the University of Coimbra and start-ups that ensure a strong connection to the

university environment, whether through students, teachers or research projects in laboratories, as well as projects from the private sector and R&D in consortium. with the industry.¹³⁵

3.5.4 Available training concepts

- 👉 Coimbra Business School¹³⁶
- 👉 MBA to executives¹³⁷
- 👉 Porto Business School¹³⁸
- 👉 Silver Starters - IPN¹³⁹

3.5.5 Example/s of good training practice

Silver Starters /Empreendedorismo 5.0¹⁴⁰, Europe

Objectives

Blended course to for seniors that wish to develop their own start-up in healthy living and active ageing. Uniquely, the course offers adaptative learning journeys based on the seniors' own learning targets and level of prior knowledge. The course will provide entrepreneurship and business skills to seniors around Europe that wish to stay active and have a business idea.

IPN will implement the course in Portugal starting in 2020.

The Silver Starters initiative has two target groups:

- 👉 People over 50 who are unemployed.
- 👉 Retired people who want to go back to work again.

People over 50 who are unemployed were concerned about their future. The most experienced entrepreneurs are the fastest growing group, the course therefore offers them an opportunity to reduce the risk of financial and age vulnerability that may result in employment disadvantages.

Key facts

Most start-up courses are aimed at young entrepreneurs. Given the growing life expectancy, seniors are increasingly considering a second career and wanting to create start-ups, which is proven to be an asset to well-being and health.

¹³⁵ IPN. *Incubadora de Empresas* [Online]. Available from: <https://www.ipn.pt/incubadora>. [Accessed: 19th December 2019]

¹³⁶ COIMBRA BUSINESS SCHOOL. [Online]. Available from: <https://cbse.iscac.pt/posgraduacao/area/GestaoAdministra%C3%A7%C3%A3o>. [Accessed: 19th December 2019]

¹³⁷ MBA TO EXECUTIVES [Online]. Available from: https://www.uc.pt/feuc/eea/diplomas/MBA_Exec. [Accessed: 19th December 2019]

¹³⁸ PORTO BUSINESS SCHOOL [Online]. Available from: <https://www.pbs.up.pt/>. [Accessed: 19th December 2019]

¹³⁹ IPN. *Silver Starters* [Online]. Available from: <https://www.ipn.pt/projecto/106>. [Accessed: 19th December 2019]

¹⁴⁰ EIT HEALTH. *Silver Starters* [Online]. Available from: <https://www.eithealth.eu/silver>. [Accessed: 19th December 2019]

The training is part of a project financed by EIT Health and the project consortium is Naples University, Leyden Academy on Vitality and Ageing, Medical University of Lodz and Instituto Pedro Nunes.

The course has the support of peers, coaches and experts.

Implementation

The blended course will have 8 weeks, with 1-day sessions on site that are planned to happen in 3 different moments of the course. The online content is composed by an adaptative online platform and mentoring meetings. Being mainly online, doesn't demand that the learners are the same area and allow us to target seniors across the country.

The training uses existing approaches, such as the lean start-up method, and adjusts them to meet the preferences of seniors.

The Silver Starters programme innovates education by offering individual, adaptive learning journeys based on knowledge level and learning targets. The programme enables differentiation and problem-based learning, important educational preferences of adult learners. It provides hands-on information that allows seniors to take a practical approach and to integrate their past experience.¹⁴¹

Results

The course is aiming for 80 participants generating 6 start-ups in the next years. The course is still going on and will be a Portuguese course available in 2020.

¹⁴¹ EIT HEALTH. *Silver Starters* [Online]. Available from: <https://www.eithealth.eu/silver>. [Accessed: 20th December 2019]

4 Recommendations for training packages

4.1 Needs of the end-users and role of facilitators

For the Hands-on-SHAPE project, as referred in the beginning of the document, two types of stakeholders' consultations were performed.

Interviews with experts

Interviews were conducted with 2 experts from each domain - SMART, HEALTHY, BUILT and BUSINESS - who could add value to the project. The information collected will allow the development of materials for training outcomes.

In order to achieve a broader approach, the sample was composed of 5 women and 3 men from different areas of intervention, namely universities, research centres, laboratories, technological institutes, health and engineering entities. All experts participated in this questionnaire voluntarily and anonymously, answering questions in person or by phone and they all received the summary for cross-check, as some replied with further inputs by email.

The experts participating in this interview revealed that what currently exists, often does not reach the community due to lack of communication. Throughout the collection of information, it was clear that there is a wide range of interesting projects and products that are effectively capable of making society more inclusive. The problem is that after being developed, they are not transmitted to the population and, therefore, don't reach the market. The cause of this obstacle was unanimous among the participants, who argue that there is a big gap in communication.

This "is a social defect, what is done is often not relevant because it doesn't reach the community. It doesn't reach the population that actually needs it and it's retained at levels that already have a certain degree of knowledge."

Focus group with stakeholders

The focus groups outcomes revealed that one difficulty that often exists is accessing to Internet by these people who will be the potential community facilitators. Communications operators don't currently have social tariffs that allow them to pay for the internet and therefore they would have difficulty on accessing online training modules.

One stakeholder participating in the meeting considers that there are public places that facilitate access to internet if users really have interest in internet service, so it was concluded that the most relevant content for these community facilitators should be content with which they identify, or that reflects situations that they have already gone through at the family level. For example, if they have already had to support an older relative at home or accompanied a relative with mobility problems to health services, then it is easy to understand the difficulties.

Participating stakeholders consider that there should be an intermediary, with an influential role in the community that attracts them to this type of training, such as a former President of a local organization like Parish Council and that there must be a place, like the Parish Council facilities or the Primary Care Centre, where they can meet and discuss the themes.

The contents of the training modules should be presented to the facilitators with little written text, with information presented in a very visual way and with many practical examples. When the training is finished, there should be a follow-up of these community facilitators, supervising the practical implementation of the acquired knowledge.

Regarding products that could support older citizens to stay longer at home, tele-assistance products were mentioned, which often, due to the experience of these stakeholders, already exist, but the cases of need are not properly communicated and the beliefs and lack of awareness of the older citizens and their families do not allow them to use.

Among all the participants in the focus group, it was concluded that what is needed mainly for older citizens to stay longer in their homes, with an active life and with some participation in the community, is a group of “professional” volunteers, well trained and well prepared to visit older people in their own homes. These professional volunteers could work remotely over the phone (calling people to see if they are doing well), teaching people in their homes to use technology, go for a walk, just chat, use the internet, go shopping, accompany the doctor, hairdresser, etc.

Needs of the end-users and role of facilitators

Through these consultations, it was realized that there is a very visible gap between the availability of SHAFE solutions and the use by their end users. As a result, the work developed is no longer relevant because in the end it does not reach the community. All experts considered that one of the main contributions to this factor is the lack of digital literacy that characterizes the social or age groups that would typically benefit from this typology of solutions. Although there are platforms that provide information, older generations do not seek it, at least because many of these people do not have access to the internet or don't know how to search for it or what to search for.

One of the BUSINESS experts noted the existence of weaknesses in terms of monitoring. According to him, the end users are afraid to interact with the technologies - because they are not part of their reality and therefore it is something strange to them - and the caregivers themselves, either due to lack of time or lack of knowledge or also fear, often create some obstacles. Thus, the expert considers that it is relevant to invest in training and qualification both end users and formal and informal caregivers, addressing the lack of information and the fears caused by it.

One of the specialists in the SMART area and the two from HEALTHY consider that there is still a lot of illiteracy in health, implying that people then don't know the types of products they can purchase. Due to the lack of knowledge of existing products, the companies that produce them often end up not doing it on a large scale because they believe there are no buyers for it. They believe that there must be a greater interconnection between companies, academies or research centres, policy makers and civil society. A solution must be found to transmit knowledge to the community in general, creating clear lines of information - both for the end user, for those who develop and sell the solution and for the doctor (who will be able to advise the best solution).

The lack of communication was reported by most respondents. A BUILT specialist also pointed out that there is a need for integration and urban proximity, and interaction between the younger and older people is essential for the socialization process.

In the BUSINESS area, an expert noted that everybody is going to be an old citizen. Therefore, this perspective that those who are not yet beneficiaries will become beneficiaries in a nearer or more distant future, instils a certain responsibility in the whole society to contribute to the creation of a healthy and inclusive environment.

One of the experts considered 3 categories of fundamental needs, namely: “Basic needs and health literacy in order to understand how to preserve health through hygiene, both of their bodies and their homes (Health & Built); Technological and digital literacy needs, such as the adoption of equipment to help them monitor their health status and the use of social networks

and games as a way to keep them active socially and intellectually (Smart); and Training needs on how they can enhance their skills in potential businesses and how to structure it (Business).”

It is important to be able to understand the added value of investing time and effort in learning new methodologies for organizing home spaces, new ways of monitoring physical condition and health status and new methods of being able to have an active participation in society.

All these tools are essential to prevent premature ageing and encourage active participation in society, with the training of these target groups playing a fundamental role. In addition, what is spent to prevent is compensatory when compared to what is spent on treatment. In one of the interviews carried out, the example of the Diabetic Footwear product was given, where it was realized that the costs for an adapted insole would be much lower than a subsequent placement of a prosthesis, treatment and adaptation of the patient.

4.2 Strategies to attract and address potential SHAFE facilitators

The fact that there is a gap in the strategy of getting products to end users presents an opportunity that can be explored by those who want to create their own company.

One of the BUSINESS specialists also pointed out that everything related to the environment will be a good bet, given that it is an issue in emergency, and also considered it a priority to invest in the area of mental health. As one of the interviewees in the SMART area said, to create a company, it is necessary to first prepare a business plan, structuring what is intended with the business and its profitability. An offer of SHAFE services that responds to this need, providing tools and helping capable people, will be an asset for the entrepreneur.

The BUILT experts highlighted the idea of a circular economy, so that "the tendency is not to throw away products as if they are disposable, but to recover and reuse them". This concept opens a huge space for entrepreneurs. People could be trained to modernize what already exists, opening services to the public that are needed and that often do not exist or the community does not know where to look for them, such as: sewing services, cooking recipes, electricity and plumbing tasks, furniture arrangements, fixing blinds or even domestic appliances. In Lisbon, there is a monthly event called “Repair Café”, where people with knowledge of various trades teach how to repair the damaged material people take there or fix it themselves.

This type of service could be provided in a shared space such as the municipal market, with clothes sewing stand, a small arrangement stand, a cooking stand, etc. A kind of co-work for people with low education, with skills that allow them to have a job. Other examples are walking dogs and feeding them, watering plants and other small household chores. Rehabilitation of ancient arts with modern technology (such as shoemakers). Cross the rehabilitation of old markets with gourmet restaurants. Cross lead typography with new design dynamics. Cross technologies with the artisanal part in order to make the artistic part more profitable. Reuse old utensils with new engines. From a circular economy perspective, products should not be thrown away, but reused / modernized what already exists - providing people with this knowledge and craft and opening up services to the public that they need and often do not exist or do not know where to find them.

To implement the practical part, the facilitators must also have knowledge of the various lines of funding. For example, a SMART specialist presented the Support Program for Entrepreneurship and the Creation of Own Employment (Programa de Apoio ao Empreendedorismo e à Criação do Próprio Emprego - PAECPE), of the Institute of Employment and Professional Training (Instituto do Emprego e Formação Profissional - IEFP), which supports individuals who find themselves in a situation of involuntary unemployment

through the creation of their own business - with secured credit and interest rate subsidies - or their own employment. From 45 years of age, there is a greater difficulty to re-enter the job market after a situation of unemployment, making this age group a group predisposed to absorb SHAPE solutions that support the structuring, preparation and development of initiatives such as PAECPE. In an area of the silver economy, the Operational Program for Social Inclusion and Employment (POISE) provides modular training to enrich the curricular skills of individuals and to eliminate some intellectual shortcomings that can positively impact the entrepreneurial spirit.

The BUSINESS experts also referred SI2E (Sistemas de Incentivos ao Emprego e Empreendedorismo) - Incentive Systems for Employment and Entrepreneurship, considering that this “may be the most appropriate funding for the SHAPE user because it does not value innovative or technological skills, but only the business impact on the region's economy for job creation and employability”.

The remaining interviewees gave other examples, such as Centro 2020, PT 2020 and Banks looking to invest in new products and Microcredit for lower funding. There are foundations that open calls, such as Fundação Gulbenkian, Fundação EDP or BPI Capacitar. A BUSINESS specialist also recalled the social innovation incubators in the central region, which have programs capable of meeting these needs. The CCDRC was also indicated for being available to understand which entities can support or the existing funding programs.

4.3 Appropriate training contents and methods

Content: Motivate facilitators to ask users what they need - listen to people and consider very well what is possible to do, filtering what is aspiration and what is a real need. Several experts mentioned the importance of addressing health literacy and digital literacy. It was also suggested that facilitators have knowledge about preventing climate change, to share information on how people should protect themselves from temperature spikes and how the home should be ventilated, as there is a great influence of this factor on risk groups as people with dementia, addiction problems or risky illnesses. To transmit knowledge and notions about what the circular economy is and how older products and processes can be recovered and modernized. They also considered it important to focus on communicational and pedagogical strategies.

One of the experts pointed out that one of the training topics should be related to the validation of SHAPE solutions - co-creation and validation of solutions and market validation. Training directed to caregivers. Realize if they are able to learn and if they really want to learn. Openness to insert people into the community.

It is important that the trainers are interested and that the characterization of the target groups and the message to be defined in advance. In addition, they must have notions of the behavioural area, such as communication, personalized service, emotional intelligence, conflict management, team management, among others.

Methods: At the most personal level there must be a motivating element, encouraging the implementation of the concepts. Include emotional components and that people identify with the themes with a useful use. People must be empowered for social difference. “In this type of target, other types of monitoring other than personal and face-to-face during an initial learning phase are unthinkable.” People must be empowered for social difference. Individual training, inside people's homes, will be a very effective framework to make the benefits of implementing SHAPE solutions visible to its users. However, it will also be interesting to develop group dynamics. Many of the experts highlighted the importance of the practical aspect, arguing that training works better and becomes more effective with examples - looking for practical

situations to try to solve them. It will be essential to use an accessible language and, if possible, with the absence of technical terms to convey the good practices that will ensure a healthy lifestyle. The "new technologies must be introduced in a friendly and fun way, to arouse curiosity, interaction and the desire to use".

4.4 Strategies to sustain the training outcomes

It is easier to train people with greater proximity to the target group (example: family doctor who then passes on the information).

It must be realized to what extent an action in public space is a measure to facilitate and fill people's needs. Sometimes what seems like a solution for everyone is an embarrassment for others. There must be training actions for the public space to be inclusive. Public space cannot please everyone, but it must be for everyone.

It is important to train people in the community, cafes, grocery stores, schools, etc.

The target audience cannot be excluded. This requires combating digital illiteracy in the older population. First, it is necessary to prepare this population to accept the new and the technological in a friendly way and deconstruct the myth that "machines" are "enemies". Achieving this, the door is open to enter the service / product, but always accompanied by training to use it. This is the role of facilitators. Implement the service / product and train / monitor the end user.

Health centres and family doctors are a great way to facilitate information. The City Council must also be a vehicle for dissemination and monitoring to communities that need SHAFE products or services.

SUMMARY OF CONCLUSIONS

AREA: SMART	
Key Points	Main Findings
Lack of communication strategy	<ul style="list-style-type: none"> Many SHAFE projects never reach the market because after being developed, they are not transmitted to the population. There must be greater interconnection between companies, academies or research centres, policy makers and civil society. Create clear lines of information - for the end user, for those who develop and sell the solution and for the doctor.
Digital literacy and support to caregivers	<ul style="list-style-type: none"> Many SHAFE projects never reach the market because after being developed, they are not transmitted to the population. There must be greater interconnection between companies, academies or research centres, policy makers and civil society. Create clear lines of information - for the end user, for those who develop and sell the solution and for the doctor.

TABLE 10: CONCLUSIONS - SMART

AREA: HEALTHY	
Key Points	Main Findings
Health literacy	<ul style="list-style-type: none"> End users are unaware of existing products and therefore do not purchase them. Developers/companies do not release products at large scale because they believe there are no buyers for them. Basic needs and health literacy are most needed, e.g. in order to understand how to have a proper personal hygiene, home cleaning and disease prevention, in small daily tasks. Share information on how people should protect themselves from temperature spikes - a big influence of this factor on risk groups.
Climate change	

TABLE 11: CONCLUSIONS – HEALTHY

AREA: BUILT	
Key Points	Main Findings
Social isolation	<ul style="list-style-type: none"> Most nursing homes and day care centres are now being located outside urban centres, which does not facilitate integration with urban solutions and proximity to family relationships. The cities design and urban planning should facilitate greater interaction between younger and older people. Improve awareness of the added value of investing time and effort in learning new methodologies for organizing home spaces, new ways of monitoring physical condition and health status and new methods of active participating in society;
Home adaptations and prevention	

TABLE 12: CONCLUSIONS – BUILT

AREA: BUSINESS	
Key Points	Main Findings
Business knowledge	<ul style="list-style-type: none"> Training needs on potential business solutions and how to structure them. Older people, or those with low education, have some difficulty in developing a Business Plan - there may be an offer of SHAFE services in this area to provide support to entrepreneurs Empower people to recover and modernize traditional products, and then provide them to the public. Rehabilitation of ancient arts with modern technology. For 45+, there is a huge difficulty to re-enter the job market after a situation of unemployment – but it has a positive impact on the economy and can markets or expand the silver economy. Facilitators should be aware of the various lines of funding. The social innovation incubators offer programs connected with this theme, but maybe oriented for a different target audience. CCDRC helps to understand which entities can support or the existing funding programs, although SHAFE facilitators could maybe need an extra support to clearly understand this.
Circular economy	
Silver Economy	
Funding	

TABLE 13: CONCLUSIONS – BUSINESS

TRAINING

Suggested Contents:

- Digital literacy
- Health literacy
- Mental health
- Environment
- Prevention of climate change
- Circular economy, how to recover and modernize older products and processes
- Communicational and learning strategies
- Better development of public/urban space
- New technologies
- Co-creation of solutions and market validation

Suggested Contents:

- Define in advance the characterization of the target groups and the message
- Train people with greater proximity to the target group
- Use accessible language and, if possible, with no technical terms
- Make sure that facilitators are open to listening to people and knowing their needs, considering what is possible to do and filtering what is aspiration and what is a real need
- Understand if people are able to learn and if they really want to learn
- There must be a motivating element at the personal level, to encourage the implementation of the concepts
- Include emotional components and that people identify with the themes with a real use
- Have targeted training for caregivers
- Empower people in the community, cafes, grocery stores, schools, etc.
- Personal and face-to-face monitoring, in an initial learning phase
- Individual training, per household, inside people's homes, to make the benefits of implementing SHAFE solutions visible to its users
- Group dynamics
- Practical aspect - training works better and becomes more effective with examples
- New technologies must be introduced in a friendly and funny way, arousing curiosity, interaction and the willingness to use.

TABLE 14: CONCLUSIONS - TRAINING

5 Quotes of experts and stakeholders

👏👏 Prevention of dementia. In this case, people must be surrounded, but there is a problem that all nursing homes are located outside the city. There is a need for urban integration and proximity. The concept of “City Goddess” must be thought and considered. 👏👏

Architect

👏👏 Realize to what extent an action in public space is a measure to facilitate and fill people's needs. Sometimes what seems like a solution for everyone is an embarrassment for others. There must be training actions for the public space to be inclusive. Public space cannot please everyone, but it must be for everyone. 👏👏

Architect

👏👏 Heat has an extremely harmful effect on people with severe mental disorders. From a prevention perspective, it is even necessary to draw attention to this issue. People with dementia should avoid hot places. 👏👏

Civil engineer

👏👏 From a circular economy perspective, we shouldn't throw products away, but try to fix them. Attempts should be made to recover what is damaged - from sewing arrangements, to a shoemaker, etc. so that the tendency is not to throw the products away as if they were disposable, but to recover and reuse them. Nowadays it is easier, and often much cheaper, to buy new products when the ones we have are damaged. 👏👏

Civil engineer

👏👏 Advice can make a difference when choosing the most appropriate product/service, as well as information about potential financial support for it. 👏👏

Project Manager and Financial Controller

👏👏 Create clear lines of information - both for those who develop and market, as for the doctor (potentially s/he will be able to advise the solution), as for the end user - what are the mechanisms to support the commercialization/acquisition of these goods. 👏👏

Project Manager and Financial Controller

👏👏 There should be someone in institutions and organizations, for example, who could capture and filter information and transmit knowledge to people who actually have some kind of need. 👏👏

Full Professor, Health Area

👏👏 Facilitators must see the project as an opportunity for personal growth. 👏👏

Full Professor, Health Area

👏👏 What is produced, often information produced, does not translate into products used by people. This information does not reach who should use it. 👏👏

Full Professor, Health Area

👏👏 Understand the difference between what is spent on prevention versus what is spent on primary, secondary and tertiary treatment. 👏👏

Full Professor, Health Area

👏👏 The existence of a network of people dedicated to advising and monitoring SHAPE users will be essential to ensure the reach of smart and healthy environments. 👏👏

Innovation Expert, Smart Area

👏👏 Being able to explain each of the modules in which they operate with clarity and in an accessible language will be essential to be able to implement the best practices that are intended to promote in order to ensure healthy, more technological, comfortable or entrepreneurial lifestyles. 👏👏

Innovation Expert, Smart Area

👏👏 In this type of target public, it is unthinkable to have any other type of monitoring, other than personal and face-to-face during a first learning phase. 👏👏

Full Professor, Smart Area

👏👏 It is imperative that the full potential of ICTs, as well as their impacts, can be reached by trainers. At the same time, it is equally important to know how to move at different levels of knowledge in order to get the message across clearly and effectively. 👏👏

Full Professor, Smart Area

👏👏 First of all, it is necessary to prepare this population to accept the new and the technological in a friendly way and deconstruct the myth that "machines" are "enemies". Achieving this, the door is open for the service/product to enter, but always accompanied by training to use it. This is the role of facilitators. Implement the service/product and train/monitor the end user. 👏👏

Full Professor, Smart Area

👏 There is a lack of investment in training and qualification for all [within the framework of new technologies], for formal and informal caregivers and for everyone as beneficiaries. 👏

Innovation Expert, Business Area

👏 This perspective of You being a future beneficiary and of You being able to help the other, must be highly motivated, and if the Person is involved in the process it is a path that can have many advantages. But always with a lot of information, with people experimenting and getting to know the whole process. 👏

Innovation Expert, Business Area

👏 If everything is elaborated in a simpler language, both the most educated and the least educated people have access, and everyone will be able to use it. 👏

Innovation Expert, Business Area

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