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University of Southern Denmark (SDU)

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Acronyms

REACT	Rural eHealth Facilitators Project
WHO	World Health Organization

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1. How this need analysis report emerged

1.1. The REACT Project

Digitalisation has been touted as one of the major solutions for welfare state challenges for decades due to the potential to provide less cost-extensive and more sustainable social and healthcare services to citizens (Hu & Bai, 2014). The COVID-19 pandemic that arrived in Europe in early 2020, with its hastily introduced lockdowns and social distancing measures, has turned the tables on digitalising public welfare services overnight, eliminating face-to-face encounters in favour of online variants. In this way, the pandemic catalysed digitalisation, boosting uptake and experiences with digital solutions. However, the challenges of this development also showed that some countries, local communities, and citizens were better prepared than others to handle the digital solutions of socially distanced pandemic life, leading to risks of inequality, less social cohesion, and exclusion for vulnerable citizens, particularly in rural areas. Reasons for this are manifold and range from a lack of access to technological hardware to a lack of digital competencies or motivation. These patterns have been coined "digital exclusion" by the research literature (*e.g.*, Martin et *al.*, 2016), arguing that "dividing lines of digital exclusion are closely aligned to those associated with social exclusion, for example, income, age, ethnic minority, location and disability" (Watling, 2012, p. 126).

The World Health Organization (WHO, 2005), at its 58th World Health Assembly in May 2005, adopted the Resolution WHA58.28 to establish an eHealth strategy for WHO, where the aim of eHealth is defined as "the cost-effective and secure use of ICT in support of health and health-related fields, including healthcare services, health surveillance, health education, knowledge and research" (WHO, 2005, p.121). In a systematic review, Sen and collaborators (2022) emphasise that using digital technology for social well-being reduces, for instance, older adults' social isolation, addresses cognitive, visual, and hearing needs, and increases their digital use self-efficacy. They further state that mobile technology-based applications help families stay connected, link older adults to healthcare resources, and encourage physical and mental well-being. Moreover, if implemented in a way sensitive to the social context, digital elements in person-related care can strengthen services and even relations between providers and citizens (Schneider-Kamp & Fersch, 2021).

What is eHealth?

> eHealth is today's tool for substantial productivity gains while providing tomorrow's instrument for restructured, citizen-centred health systems and, at the same time, respecting the diversity of Europe's multi-cultural, multi-lingual healthcare traditions. Many examples of successful eHealth developments include health information networks, electronic health records, telemedicine services, wearables and portable monitoring systems, and health portals (Commission of the European Communities, 2004, p.4).

Socio-economically disadvantaged groups, such as older adults, lower-educated citizens, ethnic minorities, and citizens with disabilities, tend to have limited capacity to access Information and Communication Technologies (ICT) and elementary digital competencies (Armitage & Nellums, 2020). Digital inclusion is not limited to the first level of the digital divide (*i.e.,* closing the gap in accessing the Internet in itself) but also to the second level (*i.e.,* a certain level of digital skills and motivation to use digital technologies) and third level of the digital divide (*i.e.,* to improve personal well-being) in terms of the degree to which e-inclusion improve well-being for individuals, community and society (Ragnedda, Ruiu & Addeo, 2022). Older citizens in rural areas are particularly at risk of digital exclusion because they may have limited access to technology and digital infrastructures and low skills (Choi et *al.*, 2013).

Within this background, the project ERASMUS+ "Rural eHealth Facilitators" (REACT project; KA220-ADU-2D9650FE) intends to produce guidelines to help regional and local health and social care providers reach the digitally vulnerable persons and older citizens in rural areas sustainably and cost-effectively (Fersch, et al, 2021). This project involves teams from four countries: Denmark, France, Portugal, and The Netherlands.

What question does the REACT project want to answer?

> How can regional and local health and social care providers reach vulnerable and older citizens in rural areas sustainably and cost-effectively, ensuring that these citizens (at risk of social exclusion) can access high-quality offers?

The project's overall objective is to contribute to implementing the European Social Pillar by focusing on how to avoid the social exclusion of citizens living in rural areas. These citizens meet challenges in benefitting from different health and social care offers from regional and local health and social care providers, either because they need access to information technologies or more digital skills.

What is the specific objective of the REACT project?

> To develop, test, and propose a "Rural eHealth Facilitator" concept, including training programmes that can assist regional and local health and social care providers in better reaching digitally-excluded vulnerable and older citizens living in rural areas.

In this sense, the three most relevant priorities were defined according to the project's objectives.

What are the three most relevant priorities of the REACT project?

> 1. Addressing digital transformation through the development of digital readiness, resilience and capacity;
> 2. Co-creating and promoting learning opportunities among all citizens and generations;
> 3. Co-creating common values, civic engagement and participation.

Therefore, the REACT project aims to address directly the first horizontal priority, "Addressing digital transformation through the development of readiness, resilience and capacity", with the development of the Rural eHealth facilitators concept. For this, the project provides the tools to help vulnerable and older citizens in rural areas develop digital capacities to become included in eHealth offerings. Indeed, the underlying concept is centred on educating volunteers to inspire and support vulnerable people to develop necessary digital skills and motivate them to do so. Thus, the project also responds directly to the second priority, "Co-creating and promoting learning opportunities for all citizens", and the third priority, "Common values, civic engagement and participation", by developing tools that aim at promoting digital skills and inclusion among a group of vulnerable citizens at risk of digital exclusion.

In short, the REACT project contributes to the objectives of the European Pillar of Social Rights, specifically in terms of inclusion and social protection (Commission of the European Communities, 2004). The REACT concept aims to enable access to digital health and social care services to vulnerable and older adults and, thus, the objective of guaranteeing access to high-quality care for everybody.

What does The Rural eHealth Facilitators concept consist of?

1

Aspects of the strategic development concept for local collaboration with rural eHealth Facilitators

- Strategic development and decision-making framework supporting the regional and local health and social care providers to develop and plan the intervention.
- How to recruit and work with volunteers (creating contact, setting up the collaboration, etc.).
- What and where are the differences between professionals and volunteers?
- How to acknowledge volunteer work.
- How to train and collaborate with rural eHealth facilitators.

2

Training material to qualify professionals in using the concept and train the volunteers

3

Training material to qualify volunteers to work as rural eHealth facilitators

- Digital welfare solutions; what is it, and how can citizens benefit from them?
- Pedagogical principles that are important when volunteering in this area.
- Ethical issues (awareness about limitations of the volunteer's role, respect, etc.)
- How to take care of yourself when you work as a volunteer.

4

An assessment and evaluation frame to evaluate the collaboration with rural eHealth facilitators.

To develop the rural eHealth facilitator concept, a six-phase co-designed intervention project is implemented and evaluated as an international multiple case study.

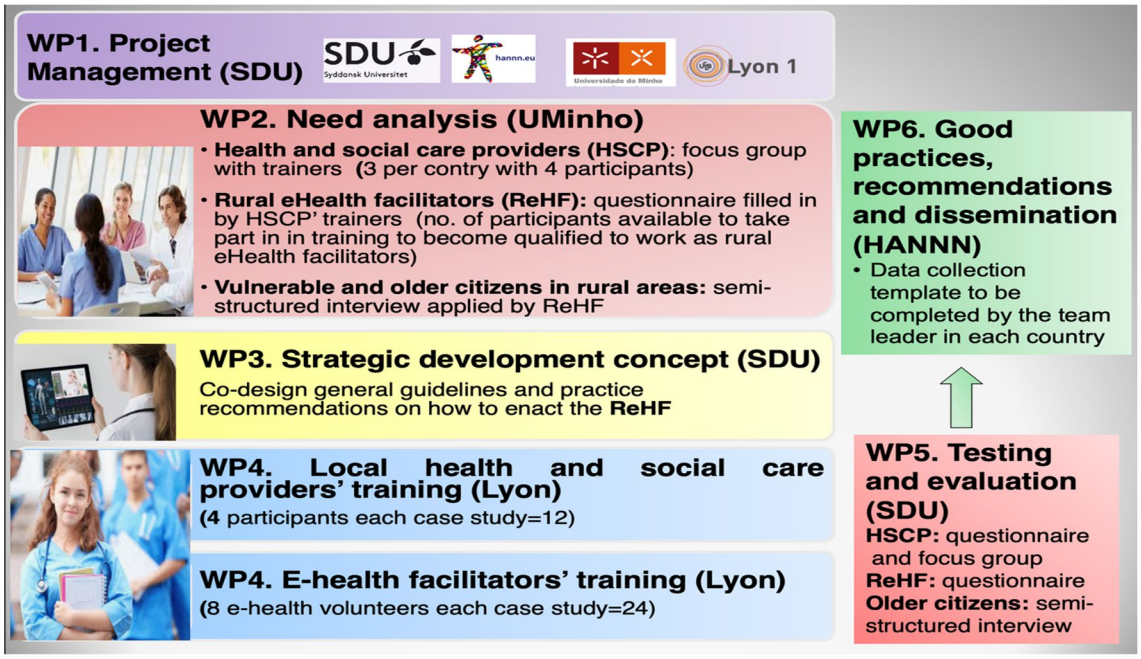
The Rural eHealth Facilitators project is implemented in Denmark at the Danish-Centre for Rural Research (CLF), which is part of the University of Southern Denmark (SDU).

In France, the project is developed in the "Parcours, Santé, Systémique" (P2S) at UR 4129 research unit at the University Claude Bernard Lyon 1 (UCBL).

In Portugal, the project is managed by the Research Centre on Child Studies (CIEC-UMinho) of the Institute of Education at the University of Minho (UMinho) in the country's Northern region.

Finally, in The Netherlands, it is carried out by the Healthy Ageing Network Northern Netherlands (HANNN), a network organisation located in the Northern-Eastern part of the Netherlands, consisting of the Fryslân, Drenthe and Groningen provinces.

What is this co-designed intervention and research project?



The project is composed of four work packages. The "project management" (WP1) is coordinated by SDU, which supervises the whole project.

The "Need analysis" (WP2), led by UMinho, collects information about health needs and social care providers, eHealth facilitators, and vulnerable and older citizens in rural areas.

Both the "strategic development concept" (WP3), led by SDU, and "local health and social care providers' training" (WP4), led by UCBL, address the third project priority, *"Co-creating common values, civic engagement and participation"*. Furthermore, the training material for professionals and volunteers produced in this project directly contributes to the first project's priority, "*Addressing digital transformation through the development of readiness, resilience and capacity*". Many aspects of all deliverables, especially the training material for the volunteers, contribute to the second project's priority, "Co-creating and promoting learning opportunities for all citizens".

The WP5 "testing and evaluation" is led by SDU and is responsible for coordinating the application of questionnaires and focus group interviews with older rural citizens.

Finally, the WP6, led by HANNN, puts together the project's main outcomes and recommendations for the future.

To implement the REACT project, each country initially made access agreements with three local or regional health and/or social care providers or other relevant institutions, constituting at least three case studies involving about four professionals and eight eHealth volunteers in the second part of the intervention.

Need analysis objectives

To understand in detail what the groups' needs are, a three-step need analysis was led by the University of Minho team to attain the following objectives:

1. To characterise the regional and local health and social care providers' needs to recruit and work with volunteers, to acknowledge volunteer work and to train and collaborate with rural eHealth facilitators;

2. To identify the perceptions of the regional and local health and social care providers regarding the expressed needs, challenges and desires of vulnerable and older citizens in rural areas;
3. To characterise the rural eHealth facilitators' needs to be engaged as volunteers to assist regional and local health and social care providers to reach better digitally excluded vulnerable and old citizens living in rural areas, to provide and apply tools to help rural vulnerable and older citizens develop their digital skills, and to participate in a training to qualify them to work as rural eHealth facilitators.

An output of the above first and second steps is this report on "Need of Health and Social Care Providers to Promote Collaboration with Rural eHealth Facilitators". It provides information on the contents, skills and training methods and techniques that need to be considered when co-creating the curricula for the training course for health and social care providers.

Data to reach the third objective of the need analysis will be collected in each country during the implementation of the "Health and Social Care Providers' Training Course" after the volunteers' engagement in the project by the trainees. These data will be disseminated in a second European Need Analysis Report.

In summary, the REACT project takes a needs-driven approach. This bottom-up process enables volunteers to inspire and motivate vulnerable people to develop their digital skills, promoting civic engagement.

1.2. Case studies

Denmark

In Denmark, the REACT team involved three physio and occupational therapists (case study 1) and three home care workers (case study 2).

Case study 1. Rehabilitation and training at Haderslev municipality

Photo 1

Haderslev Municipality (Photo 1) is a town and municipality on the Jutland peninsula's East coast in the Southern Denmark Region. The municipality covers 701.98 km^2 and has a population of 55,353 inhabitants (in 2023).

The rehabilitation and training service unit is a local institution that is part of public service provision in Haderslev municipality.

This organisation provides outpatient rehabilitation services like training, typically to patients from hospitals or chronically ill patients who need physio/ergotherapy. The REACT Danish team asked the Head of the Health and Prevention Department in the municipality whether they would like to participate. The virtual screen training service with physiotherapists was chosen for the REACT project.

The focus group was carried out with three physio or occupational therapists. One physiotherapist has been in the health department for 10 years and is the coordinator of some chronic-patient exercises; she has also been a training physiotherapist and has worked closely with volunteers in various patient organisations; another occupational therapist, since 2005, has been working intensely at the municipality with chronicle patients in classes, such as patient education for diabetics and chronic obstructive pulmonary disease (COPD), having experience in initial health interviews, in managing people on different programmes according to their needs, and has been involved from the very beginning in developing the screen (digital) training

programme run by the organisation; and a third training occupational therapist who has been working in the municipality for 15 years, being in charge of information technology (IT), and she is the one who goes out to the citizens and sets up and teaches them how to use the tablet.

The REACT project and its progression were discussed in the focus group interview with these three physio or occupational therapists. However, the interviewees decided they did not need the help of the REACT project, which the Head of the Health and Prevention unit later confirmed. Facing their decision, in the later stages of the project implementation, a second study case was included that involved app-based services for general practitioners based in a village in the municipality.

Case study 2. Home care at Nordfyn municipality

Photo 2

Nordfyn Municipality ("Nordfyns Kommune") (Photo 2) is a commune on the North coast of the island of Funen in the Southern Denmark Region. The municipality covers an area of 452.30 km2 with a total population of 29,726 inhabitants (in 2023).

This municipal home care service is a local institution providing care services to vulnerable (older) people in their homes. It is part of the public service provision in Nordfyn Municipality, which includes practical help such as cleaning but mainly personal care (washing, getting dressed, etc.). The municipality is about to introduce a new concept into homecare and care services, named e-district. This concept includes the introduction of digital elements into home care. Video calls will replace some visits, and citizens will be talked to before and after their showers, among other digital activities. In this new initiative, they wished to have the REACT project involved to make it a success.

The focus group took place with three home care workers who have experience with older adults and the use of eHealth and welfare: one social care assistant who graduated in 2001 and has been in this service since 2009; another graduated social care assistant in 2017 who has been at the home care for almost two years; and a third trained assistant who has been in this service since 2021. This case study followed a top-down approach, as the management decided to introduce an e-district and included the REACT project.

France

The French team involved three universities in the REACT project with professionals from health and educational areas: two nurses specialised in sexual health and two in dental surgeons (case study 1); and two teacher-researchers, two hospital practitioners, and two teachers in health training (case study 2); and five teacher-researchers in the educational sciences (case study 3).

Case study 1. Université of Marseille

Photo 3

The University of Aix-Marseille is a multidisciplinary university in an urban area in the South of France. The Marseille metropolitan area (Photo 3) has a population of over 1.6 million inhabitants (in 2023), including many immigrants who remain in a precarious social situation, such as low language skills and low income.

The collaboration of dentists and nurses with the REACT project resulted from previous collaborative research work. It aimed to study mobile applications in oral health and social networks like TikTok. Participation in the REACT project enabled them to develop new skills to target vulnerable populations for whom no training had been put in place.

Case study 2. University of Lorraine

The University of Lorraine is a multidisciplinary university located in North-Eastern France. It has 51 campus sites in eleven towns. For example, the Nancy conurbation (Photo 4) is home to 28,5000 people (in 2023).

Photo 4

The six trainers who agreed to participate in the REACT project are teacher-researchers, hospital practitioners, or teachers in health training departments and institutes (the Maieutic Department of the Faculty of Medicine, Nursing Care Training Institute, and Institute of Physical Therapy Training).

They all take part in a teaching programme known as "health service for health students". This course aims to train students ("future health professionals") to acquire skills and carry out primary prevention and health promotion behaviours among a wide range of audiences: children, adolescents, young adults, old adults and/or people with multiple vulnerabilities.

Their participation in the REACT project was an extension of previous collaborations on other research projects. The trainers saw the REACT project as an opportunity to research the digital field, which some had already begun to explore, and others are planning to do. Some, for example, have set up a telemedicine programme in Residential facilities for dependent older adults for long-term care unit follow-up and rehabilitation care to enable them to benefit from dental consultations, which was previously impossible without implementing very complicated logistics.

The REACT project enables them to help the geographically and territorially furthest people from the healthcare system to gain easier access to preventive and curative healthcare services.

Case study 3. University of Lyon 1, Saint Etienne site

The Saint Etienne site of the University of Lyon 1 is in the South-Eastern part of France. Saint Etienne city (Photo 5) has a population of around 375,000 inhabitants (in 2023).

Photo 5

The five people who agreed to participate in the REACT project are teacher-researchers in the educational sciences.

They have been helping the students set up preventive actions for schoolchildren in disadvantaged areas. However, they would like to develop a new theme and set up preventive actions targeting older, vulnerable populations with little or no access to digital tools. The idea is to enable these vulnerable populations to make the right choices regarding digital solutions. It is their first collaboration with the REACT team.

Portugal

The REACT project Portuguese team involved five case studies with professionals from Health and Educational areas: five nurse trainers in the context of initial training and supervision of clinical internships (case studies 1, 2 and 3); one educational science professional responsible for a Senior University; and a group of seven seniors (case study 4); and, finally, one psychologist and two teachers of a Teachers' Social Solidarity Association (case study 5).

Case study 1. Local Health Unit - Braga Hospital

Photo 13

Braga (Photo 13) is a Portuguese city in the Northern region of Portugal. The District of Braga has 848 185 inhabitants, of whom 123 680 inhabitants (16.0%) are aged 65 or over (2022). Braga Hospital provides healthcare to around 1.2 million people in the districts of Braga and Viana do Castelo.

Hospital de Braga's mission is to provide excellent healthcare through a practice characterized by quality, competence, rigour, efficiency, and differentiation. It strengthens the principle of humanization and involvement with the community and simultaneously promotes its professionals' personal and technical appreciation. The hospital encourages graduate and postgraduate education and promotes research, in close collaboration with university institutions, namely the University of Minho, in the various aspects of health sciences.

For this REACT project, the focus group of professionals from Braga Hospital included three nurse trainers in the context of initial training and supervision of clinical internships: two specialist nurses, a postgraduate in rehabilitation nursing, and the head nurse of the orthopaedics and physical medicine and rehabilitation service. The highest motivation for these professionals to participate in the REACT project was to create a sustainable group of volunteers that would allow additional surveillance of old adults when the family is unable to provide it because they are either far away or at work, to reduce the older adults' s isolation and help them to be able to manage medication better and know how to ask for help when they need it. To train rural eHealth volunteers within REACT, they offered the possibility of working with their students in initial nursing training or with the Association of Informal Caregivers and Friends of Braga, which one of these participants is promoting.

Case study 2. The Higher Institute of Health of Alto Ave

Photo 14

The Higher Institute of Health – ISAVE (Photo 14) is part of a private entity that aims to train health professionals with technical and scientific knowledge and a rich exchange of experiences. This is reflected in the level of professionalism and humanization of health responses.

Currently, ISAVE offers bachelor's degrees (Nursing, Physiotherapy, Dietetics and Nutrition), courses for higher professional technicians (Gerontology, Family and Community Service, Thermalism and Well-being, Civil Protection and Relief, Support in Integrated Continuing Care, Aesthetics, Cosmetics and Well-being, Healthy Eating) and postgraduate training and specialized training (Emergency and Catastrophe, Musculoskeletal Physiotherapy, Health Communication, Palliative Care, Management of Health Units). To develop the training, there are a range of protocols with reference institutions that allow students to carry out internships and professional qualifications in a practical context.

For this REACT project, the Director of the Nursing Course was interviewed. Her main motivation for participating in the REACT project was to involve nursing students in promoting the physical and mental well-being of older adults using eHealth.

Case study 3. Higher Health School of Santarém Polytechnic Institute

Photo 15

Santarém (Photo 15) is a city in the central region of Portugal. The Municipality of Santarém has 58,671 inhabitants, from whom 15,398 (26.0%) are aged 65 or over (2021).

The Santarém Polytechnic Institute is a public polytechnic higher education institution with five different schools serving society aimed at disseminating knowledge. Its Health High School provides a bachelor's degree (Nursing); several master's degrees: Community Nursing (areas of Family Health Nursing, and Community Health and Public Health Nursing), Maternal and Obstetric Health Nursing, Management of Health Units, Rehabilitation Nursing, Mental and Psychiatric Health Nursing; and some postgraduate and professional higher technical courses: Home Support, Protection and Support for the Elderly, Health Secretariat.

The professional interviewed for this REACT project was a nurse educator at the Higher Health School of Santarém and also a researcher at the Quality of Life Research Centre and the Health Indicators Monitoring Unit. Her motivation for joining the REACT Project was to involve her students in eHealth volunteering to promote older adults' health and develop their skills in accessing eHealth.

Case study 4. Senior University of Vieira do Minho

Photo 16

Vieira do Minho (Photo 16) is a village located in the district of Braga in the Northern region of Portugal. It has 11,955 inhabitants, of whom 3,530 (29.5%) are 65 years old or over

The Senior University of Vieira do Minho is financed by the Vieira do Minho Municipal Council and is, above all, another asset that the Municipality makes available to the Municipality's old adults to occupy their free time and promote the exchange of experiences. Every year, there are more than 100 students aged 60 or over, regardless of their level of education. There are different classes at the University for students to freely choose their curriculum, such as Psychology, English, Information Technologies, Painting, Gymnastics, Water Aerobics, Health and Well-being. There are also several activities, such as the Singing Group, Viola Group and Choral Singing Group. Family and friends of these older adults are often invited to watch and participate, directly and indirectly, in some activities. These activities and classes are based on the social volunteering of trainers and animators who take on the role of teachers and social educators.

For this REACT project, the focus group was made up of an educational science professional, responsible for the University and a group of five seniors between 60 and 75 years old with different academic backgrounds, who, when the REACT project was presented, were motivated to do peer education at the Health and Leisure Centre in his/her respective village. This team is motivated to participate in the REACT Project because they believe it will increase older adults' skills in information technology, combat isolation, encourage forms of coexistence among older adults, and promote their mental health and well-being.

Case study 5. The Teachers' Social Solidarity Association - Guimarães Delegation

Photo 17

Guimarães (Photo 17) is a city located in the district of Braga, in the Northern region of Portugal. It has a population of 54,097 inhabitants. This city is one of the most important historical cities in the country, with its historic centre on the UNESCO World Heritage list since 2001.

The Teachers' Social Solidarity Association (Guimarães Delegation) aims to set up homes for full care and/or day centres to assist its members in situations of disability, low-income retirement, or any other form of social need. Over the years, many members have given their voluntary work, their time and their dedication to the growth of this Association in various areas, expanding the initial objectives to the development of activities that promote culture and personal fulfilment and the promotion of support for family, childhood and youth.

For this REACT project, the focus group was carried out with a psychologist, the technical coordinator of the institution, and two teachers. Their motivation to be part of the REACT project was the possibility of creating a group of the institution's retired teachers who will train secondary school volunteers to promote older adults' mental health and well-being.

The Netherlands

In the Netherlands, the municipalities are not responsible for improving residents' digital skills. Instead, digital support and assistance to residents are mainly provided by welfare organisations and local community initiatives. For this project, the REACT team therefore sought collaboration with the Digital Innovation Coalition, which originated from NHL Stenden University. Within this coalition, initiatives, organisations, individuals, and professionals work together to promote the digital inclusion of older and vulnerable people in rural areas. They do this, for example, by creating several digitalisation labs in various villages in the northern part of the Netherlands. Here, community members can get digital support and guidance when needed. The Dutch team interviewed several initiatives and organisations involved in this coalition.

Case study 1. Bloeizone Appelscha, community initiative

Photo 6

Bloeizone (in English, an area that blooms) is a region where residents work together to provide an environment where people can live longer and be in good health. Appelscha (Photo 6) is a village in the municipality of Ooststellingwerf in the province of Friesland, with about 490 hectares, of which 8 hectares is water. This village has under 4,800 inhabitants only (in 2023). The forest and the dunes around the village attract tourists, and Appelscha has become known in the Netherlands for its natural environment.

Bloeizones are based on the concept of positive health, which refers to people's ability to deal with the physical, emotional, and social challenges in life and empowerment. To have or gain as much control as possible about their life and lifestyle. Various local governments and organisations support this vision. Therefore, the concept of a Bloeizone is now mainly seen in the province of Friesland; more and more villages and neighbourhoods want to become a Bloeizone.

In Appelscha village, two coordinators of this initiative were interviewed at the local community centre. One of them used to be a general practitioner. Collaborating with researchers motivated them to participate in the REACT project. They see the relevance of the REACT project

as the village has many old residents with low skills who can do what is asked of them or expected of them in modern society.

Case study 2. Bloeizone Grou, community initiative

Photo 7

Grou (Photo 7) is a town in the Friesland province of Netherlands with around 5655 inhabitants (in 2023). This town, where water, wood and sustainability are three fundamental values for future development, is known as a water sports town. Overall, the population is satisfied with their town, and the peculiar Sint Piter festival is one of the year's highlights.

In this town, one of the coordinators, a former nurse, works with many target groups. They have a mission, as she said in her interview with the REACT project team: "We've made a dream, and in that dream is also a section about how we may all belong on this planet, and we are about that. Within that whole constellation, I am the coordinator". Indeed, she applies for grants, takes care of finances, implements courses for new volunteers and guides them, and produces newsletters and media dissemination; all this, of course, with the support of other residents. She is "a bit like a spider in the web".

Case study 3. Knowledge lab

Photo 8

The Knowledge Lab in Friesland (Photo 8) is a regional network organisation of schools, universities, local authorities, companies and institutions. This learning network actively contributes to good living and working in the province of Friesland.

Residents see their region as a unique regional laboratory developing services that strengthen its capacity for learning, entrepreneurship, and innovation.

From this organisation, a professional of the working group on digital and digital health skills in Northeast Friesland was interviewed for the REACT project team. He works with several parties to strengthen digital skills but also focuses on raising awareness and looking at what is needed in that area. He thinks the REACT project can certainly help with that.

Case study 4. Leeuwarden Municipality

Photo 9

Leeuwarden or Leuvarda (Photo 9) is a town in the Netherlands and the capital of the Friesland province, with 94,131 inhabitants (in 2023). It was the European Capital of Culture 2018.

A former policy officer of the municipality of Leeuwarden for low literacy was interviewed by the REACT project team. This contact person is committed to the state's low literacy approach towards all 18 Frisian municipalities. Thus, he is an intermediary in the illiteracy approach and in promoting digital skills for the entire Friesland region. Indeed, people with difficulty reading and writing often experience difficulty with digital skills. The gap keeps getting bigger as things get more and more digital.

Case study 5. NLH Stenden University

Photo 10

NHL Stenden University (Photo 10) has a section where teachers, lectors and students specifically perform research and take action in rural areas to improve older adults' digital skills and knowledge. They do personal work interviewing the residents and supporting them.

The person interviewed by the REACT project team said that there are a lot of projects and activities that require active participation from residents, citizens, and volunteers. In his opinion, there is much knowledge about working with volunteers, recruiting volunteers and supporting communities in such a way that they can (try to) solve their challenges. He is motivated to be part of the REACT project because he considers that there is currently weak knowledge about correctly working with and for volunteers.

Case study 6. Regional Care and Knowledge Organisation

Photo 11

The Regional Care Organisation and Knowledge Organisation (Photo 11) has many years of experience in old adults' care. It supports older adults living independently for as long as possible and, preferably, in their homes. If that is not possible anymore, they offer high-quality care. This organisation intends to ensure that current and future seniors can rely on the best possible care and support.

The interviewee of this institution was a volunteer who is the coordinator and is involved in everything around volunteering. He explained that the organisation works with professionals and volunteers in various domains and, where possible, with technology. With the focus on the network, the organisation ensures that volunteers coming to the organisation are recruited. Joining the REACT project was motivated by seeing high collaboration benefits in terms of knowledge, particularly about what other organisations or universities do. Furthermore, the REACT goals align with their current work and where they want to evolve.

Case study 7. Library

Photo 12

The library of the municipality of Leeuwarden (Photo 12) does a lot in digital skills for adults and digital citizenship. They already have courses where residents can go every week to learn more about digitalisation and improve their digital skills.

The interviewed professional works on digital skills for adults and digital citizenship at this library in Leeuwarden. He said they feel motivated to participate in the REACT project because it is considered a very interesting topic, as there are many small villages where many older adults still live at home. The idea of older adults living in their homes as long as possible is very appealing. However, as older adults do not always have all the amenities, it is very good that they can make digital contact with people. For example, they should ensure they get their medication and be self-sufficient. In his perception, this allows them to stay longer in the countryside or a village because they can access certain facilities with digital contact.

1.3. Methodological and ethical paths

General procedures

At the beginning of the REACT project, the guidelines for constructing a country-contextualized template for the agreement and collaboration plan to be used by the partners with their local authorities were discussed. The Portuguese team led this process, and Appendix 1 shows one of these agreements established.

For the 1st and 2nd steps of the need analysis (see "Need analysis objectives", p. 4-5), the Portuguese team produced the first drafts of the templates. The final templates were co-created in a sequence of REACT project meetings, and all partners validated the final version (Appendix 2). This template was used for the two phases of the REACT Project: (i) characterisation of case studies of each country and (ii) interview with regional or local health and social care providers to identify their needs to develop the concept for local collaboration with rural eHealth facilitators.

Initially, the REACT project was intended to include at least three local health and social care providers per country, making 12 case studies and involving four people from each institution. However, the above "1.2. Case studies" section showed that the project was more active than expected, as 17 case studies were implemented in the four countries

The desired profile for professionals to be involved in the REACT project was as follows:

- Being a health and/or social care provider;
- To want to join the project voluntarily;
- Being motivated to train and collaborate with rural eHealth facilitators.

The interviews on professionals' needs to develop the concept for local collaboration with rural eHealth facilitators were organized into four sections, with open-ended questions, so that they could be used to guide a focus group whenever possible or individual interviews when more appropriate.

The first section on normative and cultural aspects was intended to understand the interviewees' motivations for collaborating in the REACT project, their knowledge about eHealth and the solutions it enables, their experience with eHealth technologies and their conceptions about volunteering.

The second section on health and social care providers' training courses was intended to know what they would like the training course to be. The questions were related to the type of material they would like to see produced in the course to later work with eHealth volunteers and the knowledge and skills they would like to develop in the course.

The third section on recruitment and work with volunteers aimed to understand health and social care providers' needs to recruit and work with volunteers and acknowledge volunteer work.

The fourth and final section on how to train and collaborate with rural eHealth facilitators is intended to analyse professionals' conceptions of how rural eHealth facilitators should be trained and how to collaborate sustainably with them.

Ethical considerations

The invitation to participate in this study was accompanied by ethical clarification. All participants were informed about the objectives of the project and the associated evaluation process.

It was explained the length of time the professionals and eHealth volunteers involved were expected to participate, as well as that there were no known possible risks and discomforts associated with the implementation of the project and its evaluation process. The possible benefits of the REACT project to society were also described. In the agreement and collaboration plan that the partners would make with the local authorities, a person to contact for answers to questions was also indicated, namely in the event of a project-related injury or emergency.

Finally, permission to use the institution's name was requested. It was highlighted that participation is voluntary and that refusal to participate would not result in any type of action. The

subjects' right to withdraw from the project at any time without any consequences was also considered.

After co-constructing and validating all data collection instruments and the declaration of free and informed consent, some of the countries involved sent the research project associated with the REACT project to the Ethics Committee of their institutions.

Data analysis

Data from focus groups or individual interviews were transcribed in full and translated into English to be subjected to an initial analysis by the Portuguese team. These documents were submitted to a content analysis, and a mix (inductive and deductive) categorisation system was created. This process was completed with an independent examination by the other countries' REACT teams. When there was no consensus on some items, they were ignored.

The presentation and discussion of the results are organised according to the "Need analysis objectives" (p. 4-5), and data was reduced into schemes that show results per country. Whenever necessary, evidence from focus groups or interviews is presented to reinforce data analysis.

2. Needs to develop the concept for local collaboration with rural eHealth facilitators

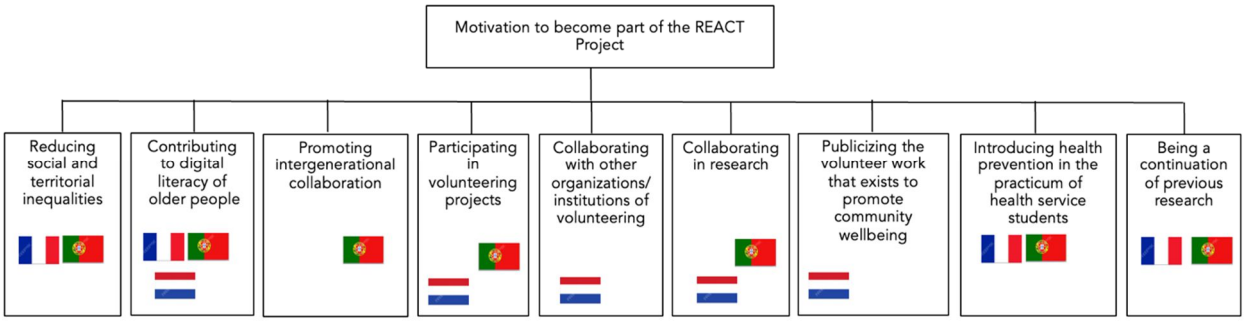
2.1. Normative and cultural aspects

The motivation of some health and social care providers[1] to be part of the REACT project is associated with reducing social and territorial inequalities (Fr and Pt) and contributing to the digital literacy of older adults (Fr, Pt and Nl) (Figure 1), as evidenced in the following excerpts:

> In the beginning, the health service was intended to reduce social and territorial inequalities in health and to initiate all health students - since we have all the different disciplines - to prevention so that when our students practice, whatever their discipline, they have a prevention reflex and not just a curative reflex. For example, in oral health education, I don't just have odontologists; I have a quarter of the odontology classes, a quarter of the pharmacy classes, a quarter of the medicine classes, and so on. So, the aim was really to take part in preventive actions to reduce social and territorial inequalities. (France)

> At the Senior University, we work with older adults who voluntarily seek this discipline to strengthen digital skills, mainly to promote their connection with their family through Facebook, Instagram or WhatsApp, as they wish. The REACT project can help motivate more people of this age to use technologies to promote their health, particularly the available Apps on their cell phones. (Portugal)

Figure 1. Motivation to become part of the REACT Project



In some countries, health and social care providers emphasised that their main motivation for being part of the REACT project was promoting intergenerational collaboration (Pt), participating in volunteering projects (Pt and Nl) or collaborating with other organisations/institutions of volunteering (Nl) as they explained:

> The possibility of having secondary school teenagers promote the digital literacy of older adults and, at the same time, learn how to support them, be socially supportive and responsible for contributing to their community

[1] The interviewees in the Danish case studies were not asked for their motivation to participate in the REACT project, as their participation was decided by their management.

well-being, as well as learning from the experience of older adults is a great contribution to the development of active citizenship among students before the end of compulsory education. (Portugal)

I'm a volunteer coordinator, so I create everything around volunteering, firstly, to make it possible within the organisation and, secondly, to focus on the network and ensure that volunteers come to us. So, recruiting. Our motivation to join is that we see a lot of benefits in terms of knowledge from collaboration. Hence, we are very interested in what other organisations or universities do because we like learning. We are certainly interested in the knowledge and the topic. It also fits well with what we are working on currently and where we want to evolve. (The Netherlands)

Collaborating in research (Pt and Nl) and publicising the volunteer work that exists to promote community well-being (Nl) are more resources of motivation in the voice of other health and social care providers:

I work for a library in the municipality of Leeuwarden, working there on digital skills for adults and digital citizenship. A reason to participate is because I just find it a very interesting topic myself and enjoy contributing to research. (The Netherlands)

I consider that research could improve our practices, so it is important that stakeholders contribute to research and can work collaboratively with universities, so I think the REACT project is an opportunity to promote this integration between research and our day-to-day practice. (Portugal)

What I notice is that there are a lot of projects and activities developed that require an active role from residents, or citizens, or whatever you want to call them. Often volunteers. And that there is a lot of knowledge about working with volunteers, recruiting volunteers and also supporting communities in such a way that they can also solve their own problems. But that knowledge now is still very much in the welfare work corner that has been doing that for decades. But now, also other organisations want to make the step towards the community, such as libraries, but also all kinds of health initiatives. That knowledge needs to be unlocked, disseminated and made applicable to parties other than welfare work. So that's where my motivation comes from, I think there are a lot of valuable insights that are have not been sufficiently applied. With the results that exists, all kinds of activities are just not viable. Because I think there is actually too little knowledge about working with and for volunteers or applying in the correct way. (The Netherlands)

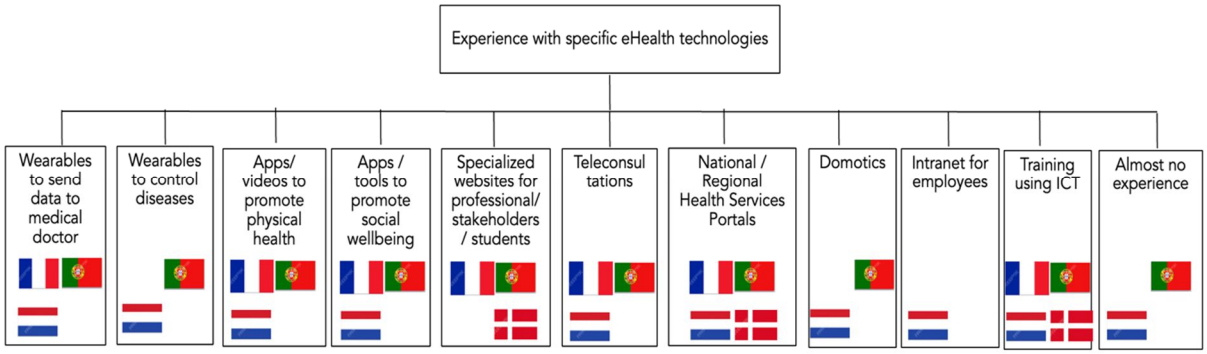
A source of motivation to be part of the REACT project was also mentioned for introducing health prevention in the practice of health service students (Fr and PT) and being involved in a project that is a continuation of their previous research:

For me, it would motivate young people to get more involved in prevention and public health. Because I think the project is completely in line with a public health approach. (…) What I understood was that it would provide another axis. At the moment, prevention is really focused on schoolchildren. Even though we know that the impact of our actions on the health service is not our priority, this would perhaps give us access to prevention among the people who are really involved and on whom we need to focus this prevention, such as parents. (…) And, above all, perhaps, in rather disadvantaged areas, "What can we do to help them make informed choices? So that they can get knowledge? I think it could be interesting in that respect. (France)

I worked with the well-being of older adults (...) in terms of physical well-being (physical exercise and nutrition) and social well-being (sexuality, interpersonal communication, support groups). For me, the REACT project is a continuation of my work. (Portugal)

The experiences of health and social care providers involved in the REACT project with the technologies are shown in figure 2.

Figure 2. Experience with specific eHealth technologies



Wearables to send data to medical doctors, such as apps to connect with doctors and/or other caregivers, devices for sleep apnoea or to control diseases like insulin pump (Fr, Pt and Nl) were mentioned by some participants as everyday experiences:

> Yes, a lot. There are apps, for example, to connect with doctors and connect with other caregivers. I myself am active on the Dutch General Practitioners Society medium. (The Netherlands)
>
> The Volg app is now available for the smartwatch, so many adult diabetes patients were cheering: "Yes, I can finally read things on my Apple Watch!" Really nice! (The Netherlands)
>
> I know the sleep apnoea devices that many older adults use, but also some younger people. A technician comes to the house from time to time to check whether it is working properly, and the data is sent to the doctor for control. (Portugal)
>
> To add, our little son has type 1 diabetes, and he has an insulin pump and, with it, a tracking app. When I'm at work, and he's at school, I can just monitor him on my phone. (The Netherlands)

Apps, videos and social platforms to promote physical health, such as the smartwatch, pedometer, heart rate app, breathing rate app, calorie rate app (Fr, Pt, NL), as well as social well-being, such as the walking app, the health insurance app, WhatsApp, Zoom, Teams (Fr, Pt, NL) were also referred to as eHealth technologies in the interviewees' perception:

> I have a smartwatch. But that's started more as a joke. I wanted to experience it for a while. I use this to register rhythm, heart rhythm, which is sometimes disturbed, to register that for a moment. And, when I exercise for a while, I check my oxygen saturation. (The Netherlands)
>
> And I do have a pedometer on my phone, so if I have my phone in my pocket or something, at the end of the day, I'll look at it to see what happened? But it's not something I focus on by default or anything like that. (The Netherlands)
>
> I have a smartwatch to control physical exercise and sleep hours. I know that many people use it to calculate calories (...) I don't usually use it for that. (Portugal)
>
> A walking app is a funny example. That is just a nice extra motivator to make those miles together, but of course, it is ultimately about walking. So yes, what is the solution then, that app or walking? So this goal means confusion that you often see. But for certain things, technology can be really perfect. (Netherlands)
>
> And I have a health insurance app, but you know, I'm lucky enough to be still healthy and not have to worry about that so much. (The Netherlands)
>
> WhatsApp is often used by older adults to communicate with their family (...) in rural areas; they don't use it as much, but I know of some cases. Sometimes they also use the computer, for example, Zoom or Teams (...), but it's more about contacting family. (Portugal)

Other experiences with eHealth of these health and social care providers involved in the REACT project include specialised websites for professionals, stakeholders or students (Fr, Pt), teleconsultations (Fr, Pt, Nl) and National/Regional Health Services Portals (Fr, Pt, Nl). About these last portals, there are different experiences in different countries, as illustrated below:

> The Netherlands
>
> *Hospital's patient portal*
>
> I use the hospital's patient portal sometimes. And other than that, not really yet. I was just checking with my GP to see if they have that. And yes, they did. But if I wanted that, I would have to make a separate appointment with the doctor's assistant. And I find that too much hassle, so I don't do it. It's very stupid, but then I don't feel like doing it. (Netherlands)
>
> *Personal health environment (PGO)*
>
> I have to say you also have PGO. I still find that a bit scary, so I stay away from that. I read up on it, but then I do choose no; I don't want that yet. That's not yet figured out or clear enough for me, so then I don't. (Netherlands)
>
> France
>
> *LIVI, CARE, DOCTOLIB platforms*
>
> Personally, I don't use online teleconsultations or platforms like LIVI or QARE. I find that for general medicine, it's very appropriate, for psychiatry, it's even more so, and in terms of inequalities in the territory for psychiatry, it's very good because there's no need to see the doctor, there's no need for physical examinations. Otherwise, I use Doctolib and not much else. (France, CS1)

Doctolib, like everyone else. It's true that we're a bit limited when it comes to teledentistry because, at the moment in France, there isn't... that's it! In the experience of a few people who have tried to take the thing all the way, it hasn't been conclusive to now. And, as the act of teledentistry is not currently recognised by Social Security, it's not developing and is somewhat blocked. In additiont, it's true that it would be great to talk to students about the application of knowledge, etc., from the work we've been able to do together, and to tell them that it exists. (France, CS1)

Portugal

National Health Service health portal

Well, in terms of technology, when patients are discharged, it's basically just a discharge letter that they take home to then coordinate with the health centre. In digital terms, your colleague will have access to the health portal and the patient file, essentially. (Portugal, CS1) NOTA https://www.sns.gov.pt/ (Portugal)

Denmark

mitID (myID) & e-boks (e-box) - Digital access to the public sector, including health and social care services

In my experience in connection with all this, where they had to switch to NemID and MitId, there have been a lot of problems. Many of them have not been able to go to the citizen service centre and get help themselves […]. There was no such thing as someone who could come out and help them. And we had a lot of problems there, as I remember. (Denmark, CS2)

Health and social care providers involved in the REACT project also referred to the use of domotics (Pt, Nl), intranet for employees (Nl) and training using ICT (Fr, Pt, Nl, Dk), as was amply explained by the Danish participants:

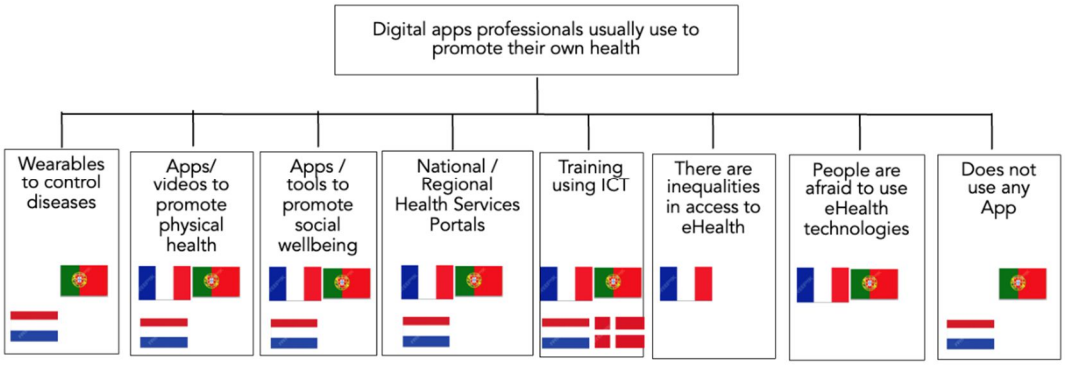
We also have some chronic patients' training that meet and switch on in front of the screen and train after it. [So, it is recorded (= on demand)?] Yep, something online. Then they press a button, and they do it all by themselves. (…) Yes, and these are the ones we have started up, where I or my colleague sit and do exercises, and then the citizens sit in their own homes. From the start, we've targeted those citizens who have difficulty getting out of the house and difficulty getting into the [health] centre or other types of training. So, currently, creating a project for those with the very, very poorest health. These are typically oxygen users and people with severe disabilities who can't really get out of their homes. And we've also got more people on now, as part of training, who are at the slightly better end of the spectrum. [healthwise]. So, we're trying to spread it out a bit because the challenge here in our municipality has been to get enough participants on the screen training and get them referred by our colleagues. They think that screen trainings could be an option. It's still a bit foreign, and unfortunately, in some ways, it's something we run into. So, from the perspective of our colleagues, I think it can be a bit of a hassle. Even though I tried to leave no stone unturned and make it as easy for them as possible, not many people came. So, citizens choose, if they can, to come in and meet us in real life. It's still hard to motivate citizens to do the other things. (…) So, the ones we have right now are the ones who may have had a rehabilitation programme but are not good enough to take another offer. They are then offered screen classes in their own home. (…) Right now, we have it so that at the first start-up, you (referring to the other two interviewees) are simply at home with them and are with them the first time they are even on the screen for it to succeed and work from the start. It's also how should an iPad be positioned so you can see your whole body. These are very small things that can be difficult for ordinary people. (Denmark, CS 1)

(...) We run some kind of digital training, which we do via a program on the computer, and there is a trainer out there who do the exercises with the citizens. I used to be a part of that at one point, but I'm not anymore. (…) I've been a digital trainer. (…) Then they watch the exercises on the computer, and we do them together when we're out there. (Denmark CS2)

Health and social care providers involved in the REACT project were also asked about which digital apps to promote health they generally use[2] (Figure 3).

[2] The interviewees in the Danish case studies were asked what they used in the work with their patients, not for their own health, but for their patients' health.

Figure 3. Digital apps health and social care providers usually use to promote their own health



Practically, the same digital apps they mentioned when they talked about their experience with specific eHealth technologies were again mentioned: wearables to control diseases (Pt, Nl); apps/videos to promote physical health (Fr, Pt, Nl); apps/tools to promote social well-being (Fr, Pt, Nl); National/Regional Health Services Portals and training using ICT (Fr, Pt, Nl). In France, a new app used for training has emerged, Anat 3D, developed at the University of Lyon 1, as explained below:

> There's another thing I'm thinking about. What we use to teach students, but what some physiotherapists also use when they want to explain to patients, is Anat 3D, which was developed at Lyon 1. It's anatomy; you have the person, his silhouette with orientation in space, and you see a segment. There's sound, there are explanations, and then you have subtitling with the option of stopping. It's a format that lasts between 2 and 5 minutes, depending on the complexity, but I find it very educational. It's one of the things I recommend to students. So, the Youtube channel is called Anat 3D. (France)

During this reflection on the personal use of eHealth technology, two important concerns emerged: the inequalities in access to eHealth (Fr) and people's fear of using eHealth technologies (Fr, Pt):

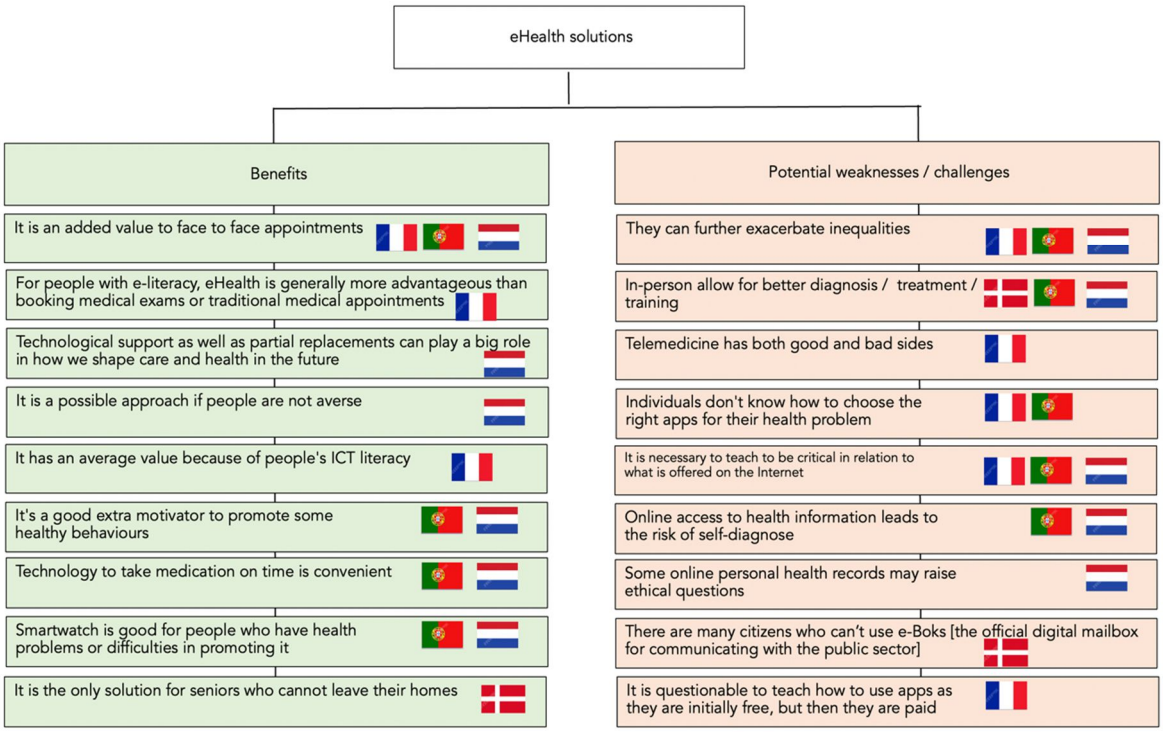
> The level of health literacy in health is your ability to go and find information on a secure site, to understand it, and so on. And that's what makes the difference. (…) And, even young people who are connected and have ease of use, I'm not sure they go... I don't know, go to use… I don't know. That's a question. I don't know whether there are studies on it; if there are... (…) There are inequalities. That's clear. There are those who gain access, who seek out knowledge, gain access to that knowledge, understand and apply it. There are those who scan Yuka, understand it and live with it; those who have appropriated it, they take an interest and it works. And then there are all the others who either don't know it or haven't understood the meaning of Yuka, and so there's all this difference, and so it's an inequality. (France, CS3)

> I was also thinking about fear. Some people don't like using apps, Facebook... They don't understand why they should use these technologies... I also think they are afraid of being cheated. (Portugal)

When we asked health and social care providers involved in the REACT project what they thought about eHealth solutions (Figure 4), the possibility of exacerbating inequalities emerged again (Fr, Pt, Nl):

> For people who don't have access to digital technology for various reasons. This can further exacerbate inequalities in access to healthcare, and that becomes problematic because it reinforces the problem and doesn't solve it. So, it remains to be seen how it's deployed, who already has access, and whether or not it's beneficial. (France)

Figure 4. What health and social care providers think about eHealth solutions



Eight more potential weaknesses/challenges of eHealth solutions were listed. Some participants in three countries (Dk, Pt, Nl) argued that in-person consultations allow for better diagnosis/treatment than teleconsultations:

> (…) Or, from a distance, the doctor can't listen to your heart or check if you have a fever. And I really think that the moment you come to me (as a doctor) with a headache or with a pain in the chest or a pain in the belly and I put my hand on you and connect with that, I mean a warm hand, and connect and say gosh, are there other things going on or something? At that moment, there is a connection that brings up the conversation further and might uncover other problems. (The Netherlands,)

> Well, if I had all the money and a municipality I had to manage and had the opportunity to choose, then I would choose a human being face to face. But that's not to say that screens are bad, but it's just something else. There's a certain closeness and something you get more from the real world than on a screen, even though it's also a good alternative. But it's an alternative, I think (…) Then I would like us in the municipality to buy 2-3 huge buses and drive around and pick up all the citizens, so they also get something social. A combination of a screen-based team and the physical. It just makes a difference that they also look each other in the eye and have a cup of coffee together. You certainly have experience with that. Your screen teams met, and that was also really cosy. (…) Yes, after a year of running them. It was a wish from the citizens on the team that they would also like to meet in real life. So, they came with oxygen tanks and hassle and fuss. And it was great. It's also because... on a screen, it can be quite difficult to build up social communication where they integrate with each other. It's very much a case of them talking to me, and then I talk to someone else. There's something in the social context that changes when it comes onto a screen in that way. The small talk withers a bit; it doesn't give the same thing. (Denmark, CS1)

Some French participants argued that telemedicine has both good and bad sides:

> Telemedicine has both good and bad sides. Telemedicine is sometimes complicated in Établissements d'hébergement pour personnes âgées dépendantes - EPHAD [Accommodation establishments for dependent older people]. We were talking about it this morning at a conference with a legal expert: sometimes telemedicine is a bit catastrophic, but when it's all there is... That's all there is to it. So, it depends on what you put behind it. (…) After all, telemedicine is already a level... it highlights other access issues. I've also seen it in oral telemedicine when we work with EPHADs or SSRs - Soins de Suite et de Réadaptation [Aftercare and Rehabilitation], etc. We'll do pre-diagnosis, we'll give information about the patient's condition, and we'll give the patient a diagnosis. We're going to do pre-diagnosis, we're going to give information on prevention and hygiene, and afterwards, there won't be the solution to give back access either. But for me, it's already a medical act. It's still the next stage (…) Right, so what are we clearly talking about? (…) No, it's more a question of access. That the person can use it on their own, without going to a care service. (France)

Individuals do not know how to choose the right apps for their health problems (Fr, Pt) and how to be critical about what is offered on the Internet (Fr, Pt, Nl) were other problems identified, as explained in the following excerpt:

> So, as far as physiotherapy is concerned we're seeing the emergence of a certain number of applications that are accessible to the general public and which may be very closely linked to a diagnosis that the person is familiar with lumbago... I don't know. This means that he'll look a little at apps on Youtube and use all the digital content. The problem with that is that there's nothing more dangerous than the person thinking that because it says "low back pain", and I've got low back pain, we're back to the same thing. Low back pain is a general family in which there are multiple forms, and within the multiple forms, there may be things that are more or less identical in two people, except that they are not the same people with the same physical condition, shape or form. In other words, if I continue with this idea of low back pain, we know that we need to move, but how? And in what way? This calls for a certain amount of control, and it's very interesting when it's implemented and proposed by a health professional. And yes, it allows you to have something that's online that the person can redo or follow, but that has already been guided and has already had a critical reading of the content to make sure that the content was indeed applicable to the person who's going to follow it. (France, CS2)

The risk of online access to health information leading to the risk of self-diagnosis was identified by participants from two countries (Pt, Nl):

> "(…) And don't forget, some people self-diagnose without ever going to the doctor, based on information they find online" (The Netherlands).

Some French participants also pointed out that it is questionable to teach how to use Apps as they are initially free, but then they are paid:

> In the future, there's also the question of price, which really concerns me because there's everything that's free access and everything that's not. (…) And everything that's open access and then becomes paid for. (…) So directing someone to an app is pretty complicated, I find. (France)

Despite the potential weaknesses/challenges previously identified, nine benefits of eHealth solutions were mentioned by health and social care providers:

1. It is an added value the face-to-face appointments (Fr, Pt, Nl):

   > I think it adds value, and that's enough for me, but it will never replace eye contact (...) It is about having the choice [between a physical or online hospital check-up appointment] because I do get to the point where I'm fine with a talk on Teams. But there are people who, out of a need for security or safety, do want, physical contact. (The Netherlands)
   >
   > It is a good solution when people cannot go to the doctor. For example, in the Covid pandemic, it was the solution for the treatment and monitoring of non-serious cases. The Linha Saúde 24 (Health Line 24) in Portugal, with telephone advice, has also proven to be a great help in cases that do not require going to the hospital, for example, the flu, or to teach how to give help until an ambulance arrives. (Portugal)
   >
   > I think it's no substitute for contact... I recently saw something about endometriosis, where you do a little screening online... you fill in three questions, and at the end, you say whether or not you're at risk of endometriosis. I think it's a very good way of sorting things out, but you need someone who can answer people's questions. (…) it can also provide additional access for people who are a long way from healthcare. (France)

2. It is generally more advantageous than booking medical exams or traditional medical appointments for people with e-literacy (Fr):

   > I'm wondering... isn't it the fact of, effectively, progress that, perhaps, the generation that's going to be there, now, that's enough for them, and that's that... Because we've experienced progress and it's true that if we don't have a telephone, we don't have an e-mail box, it's clear that we can't do anything. I think people are on the margins, in the minority and on the margins of society. (…) Yes, that's true, maybe that's it, I'm just giving my opinion here, but... I think, in fact, that when you take the new generations, for example us, well me, if I want an answer to a question, I prefer to phone and have the person face to face. Young people don't do that anymore. They'll text 36 times to get an answer, or they'll do a voice message, which is what annoys me. A voicemail, so afterwards they have to listen to the voicemail, answer again, and that takes... for me, it's much more... (…) I see my daughter, she's 20, she needs to know what's wrong with her, she has a teleconsultation and no problem. It bothers me because I've experienced the relationship with the doctor. (…) Doctolib is super convenient, because before there was the secretary, you had to check your diary, but now it's up to you. It's a consumer phenomenon, and we're really into it. (France)

3. It has an average value because of people's ICT literacy (Fr):

Average. (…) After that, I find that the answers are very pre-written, I mean, if you go into a particular case, certain things... it doesn't work. We don't have the human element behind it; who knows how to adapt to the particular case? If you make an appointment for an x-ray, if you don't fit into the parameters of the thing, you can't make an appointment. And you have no one to talk to. It's all very... very... I don't know how to put it. (…) It has to be formatted to fit in. (…) That's about it. (France)

4. It can play a big role in how we shape care and health in the future (Nl):

I'm still young, so I get very excited about technology and certainly focused on the future. I think we are indeed in the process of transformation in that now, that everyone has to get a little bit used to using. Because when my grandpa and grandma were 24, they thought, I'm going to work very hard, then at 65, I'm going to be taken care of in a nursing home. But that turned out to be something else. So there is a transformation there. But I definitely believe that support, as well as partial replacements, can play a big role in how we shape care and our health in the future. (The Netherlands)

5. It is a possible approach if people are not averse (Nl):

Yes… But you can hear my hesitation, which lies in the fact that I don't know whether it is a solution for everything, so I think it should be an and-and approach. So that for the people who don't have any aversion to that who can easily get on with it (…) But I also think that in addition to that, there are situations and groups of people that just won't, almost won't or can't do it themselves. [And suppose they would get support in that. Would it be a tool then?] Well, I hope so; we had a workshop with the University lecturers last Thursday. Then there is, for example, at the library, we know, of course, every week there are just computer courses there, and people can go there. So yes, there again, and-and, but we should not expect, as with that awful market situation in the 90s, that from eHealth comes all the blessings. I don't believe that. (The Netherlands)

6. It is a good extra motivator to promote some healthy behaviours (Pt, Nl):

That's a complicated question, especially because there are a lot of certain health problems. Look, if you have a device, say, that vibrates the moment you don't sit up straight, and you sit up straight. As a result, then I think yes, well, fine, you know? If that's it, then that's it. But I think you always have to keep goals and means apart. What I see a lot when it comes to promoting digital health literacy is that technology is offered as a solution. Yeah, look, we have an app here, and you can use it. Whereas if you talk to people in the villages, neighbourhoods and districts, technology is much more often a means to get in touch with others and go for a walk together, but it's not the goal, so to speak. (The Netherlands)

7. It is helpful to take medication on time is convenient (Pt, Nl):

For many things, of course, it's just really convenient. For example, at our care organisation, we use technology that allows you to take your medication on time. Those are obviously very good additions, and I really favour that. (The Netherlands)

8. A smartwatch is good for people who have health problems or difficulties in promoting health (Pt, Nl):

In my opinion, a smartwatch is good for registering heart rhythm, checking my oxygen saturation when I'm exercising (...) it's also good for using the pedometer, counting the steps or more easily answering the phone and being more connected. (Portugal)

9. It is the only solution for seniors who cannot leave their homes (DK):

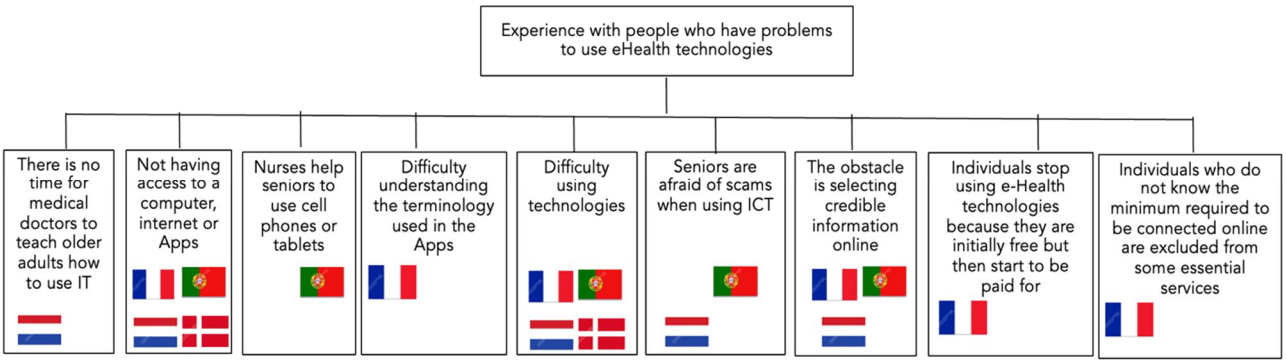
But I think it's always important to keep the goal in mind. I mean, what is the goal? And here it's training, right? Because I don't believe in big buses, because some people simply can't manage to get there. It's a very practical problem. It's that they're waiting for home care, and their buses arrive at 10 o'clock, but the home care hasn't arrived, so we'll run into it. They simply can't cope with the fact that they have to leave the house. I sometimes say, "We'll pick you up". That doesn't work, either. So, I don't believe in big buses. Of course, there would be some people we could help, but by no means all. [So, screen training, that's a good option to offer them?] Yes. (Denmark)

When we asked health and social care providers involved in the REACT project what their experience with people who have problems using eHealth technologies is (Figure 5), one of the

concerns highlighted by some Dutch participants was that doctors did not have time to teach users how to use ICT:

> And I wondered, the people you actually see a lot here [Bloeizone Appelscha, community initiative] are the people who can't use it. It's where it stops, but that's also where it actually starts. But there's just no energy and time there to provide better support to these people who are unable to use digital things. Unless they ask, 'Would you help me?' That, of course, is a very different approach. For example, in the late 80s, we were one of the first general practices in the Netherlands to be computerised. And in the late 80s, my first contact with computers was not the computer itself. I bought a book and made a, what you call it… a keyboard on paper, and I practised all the commands on my paper keyboard. You had the PHP, I don't even remember, those things, and that's how I practised, so I went one step at a time from then on, and then it became a habit. (The Netherlands)

Figure 5. Experience of health and social care providers with people who have problems using eHealth technologies



Not having access to a computer, Internet, or Apps is a situation experienced by participants from all countries when trying to promote the use of eHealth technologies, as a Danish participant explained:

> "Also people who don't have a computer. Don't have the opportunity to go to an e-mail or e-Books and these things" (Denmark).

In Portugal, nurses help older adults use cell phones or tablets to promote social interaction between patients and their families in hospitals:

> Patients have cell phones or tablets in their possession and use them to contact their family (...) Generally, just for that, not to access health services. (…) When they are older, we usually do this with the family, but basically, it is almost always in person. There is telephone contact, but preferably in person. (Portugal)

In France, some health professionals reflect on the difficulties they encounter in understanding the terminology used in the Apps, as they explain below:

> Well, there was one thing I'd been thinking about, which could perhaps be linked to health promotion and, ultimately, to eHealth and remote consultations. You suggested apps, but what I'm thinking about is compliance. So, either in terms of medication or in terms of exercise. Since I'm in a physiotherapy training institute, we know that a lot of things also depend on the effort made by the person to progress in his or her re-education, and the question of compliance and following the recommendations made by a physiotherapist, but it could be quite the same thing for a question of prescribing medication or something else. And there are a whole host of applications linked to chronic pathologies, or not, which also exist here. And when you talked earlier about the tool and its knowledge, there was also the way in which the applications are built and the language used. Because beyond the fact of understanding, it's also sometimes: "But what's the tree structure? Where should I look? How do I understand it? How is the language used? And when it comes to digital technology, there's perhaps also this because it's clear that terminology isn't always accessible and simple: there are certain applications that, in my opinion, aren't very simple. I'm especially familiar with those designed for paediatrics because that's more or less my core business, so I'd say they're more or less accessible to everyone. And maybe those aren't the ones you're primarily targeting since you were talking about the older adults. But perhaps there's a terminology that's going to be used that, in the end, may not be understood either. (France)

The difficulties for different adults (older adults, volunteers, people with intellectual disability, and former low-literate language ambassadors) to use technologies were mentioned by participants from several countries, as can be seen in some examples below:

> (…) I'm just thinking about the one where you called me and was going to run a class, and then she called me; there's someone logged in, but we just can't see her; we can hear her talking to her husband (laughs). She can't hear the people in the class, but everyone in the class can hear her talking. That's a big problem. (…) Well, everything that can go wrong. We've had classes that couldn't hear what we were saying and people who can't see, and then we'll try to guide them through training anyway. Well, you can hear their voice, but you can't see them in the picture. So it's a challenge. And it's also a challenge because we in the municipality have chosen to use secure systems because it has to do with citizens. I think if you ran on teams, it could probably be done a little smarter and a little easier. (…) People who just film on the ceiling. They just have so little sense and feeling for it. We really think that if you give them the iPad, nothing can go wrong. And it just can. It's crazy. (…) It's also the fact that when we choose this group, which is so poor in health, it will primarily be the older adults. But I would also like to say that we had a cancer team during the coronavirus lockdown. There were a few problems, even though they were younger people. So it's technique. (Denmark)

> In my profession, I speak with the target group, people who are low-literate and lack digital skills. I have many contacts with language ambassadors who are willing to learn. (...) They just won't do the whole digital thing, to put it crudely, but we do notice there is really a lot of difference within the target group as well. But if I look at the 7 to 10 language ambassadors we have in Friesland, those are actually the ex-low-literates; they have already completed a programme to become better able to participate in society. And they do have a smartphone, but that's really just for messaging. They really look at which app do they know, which they can trust, and as soon as something new comes along, they will first have to go back to a digital home or a helping volunteer to gain that trust. They don't dare click a button without knowing what lies behind it. Because, oh dear, soon my data will be everywhere, or what happens on the back end that I can't retrieve? So, they just don't do it. Just to illustrate, I know a language ambassador; if she sees that you can order at a terrace with a QR code, she simply walks on. (The Netherlands, CS4)

> I think that electronic prescriptions, I think that older people don't use them, but people who are relatively younger and who have affordable phones end up being able to manage this part of eHealth technologies. Everything else, at least in our context, ends up not happening, but as far as electronic recipes go, the idea I have is that they often use electronic recipes and already have some familiarity with them. (Portugal)

> There are difficulties of use and difficulties of access. In this case, she was talking more about the use of or lack of knowledge of the tools. And it's true that some young people have a lot of great stuff on the Internet, but they don't know where to look. And then there's the problem of lack of access and use of the tool itself. The young person won't have a problem using the tool, but they won't know what to look for or where to look. But the older person is going to have difficulty using the tool, so you have to know what you want. (…) And there are different needs too (…) And populations are not the same. Those who have difficulty accessing it are not the same as those who have difficulty using it. (France)

Some Dutch and Portuguese health and social care providers reported that in their experiences with older adults observed that they are afraid of fraud when using ICT as explained by a Dutch participant:

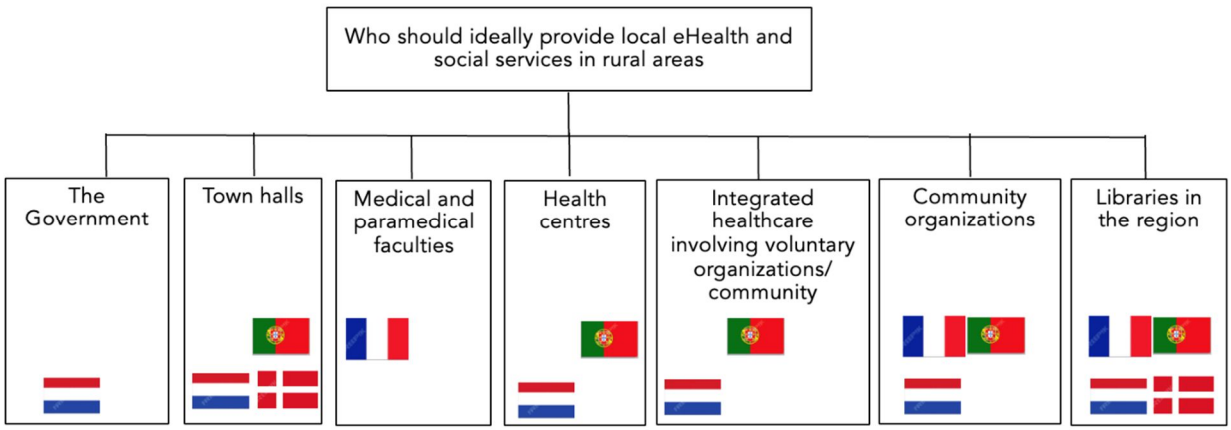
> In the media, you only see negative reports about fraud and all kinds of other crazy things. That doesn't help either. But how do you keep yourself informed about it? And if it doesn't interest you at all? Yes, then that makes it even more difficult. (The Netherlands)

It is also observed by some health and social care providers (Fr, Pt and Nl) that people they work with do not know how to select credible information online, as the following participant explains:

> For me, the obstacle is sorting out the information available on the networks because when we intervene, there are many, many misconceptions conveyed by the networks. As a result, the role of health students is to reframe and help people find the right information. In sexual health, I think that's a big part of the job because there's a lot of contents out there that we don't understand. For example, I don't use TikTok, and there's a huge amount of content on TikTok. (France)

To continue understanding the normative and cultural aspects of the health and social care providers involved in the REACT project, we asked them who should ideally provide local eHealth and social services in rural areas (Figure 6).

Figure 6. Who should ideally provide local eHealth and social services in rural areas



In the Netherlands, some health and social care providers argued that it should be the Government, as shown in the excerpts below:

> The Government. The ownership of healthcare should be with the government. I think market forces are the biggest mistake there has been. The direction function should be with the government so that's where the questions should come. When it comes to assistance, just to mention something, but partly, you can outsource that to an organization that you oversee, that that's done properly. Make sure that the interactions between all the assistance providers are correct. I saw that with my father that wasn't quite aligned either. The general practitioner also has a big role. And not just the single person but also the building in which it takes place. Care there should actually be very easily accessible, mutually accessible. The accessibility for all those services with short lines is important. But ownership, I think, belongs to the government. (The Netherlands)

> Health and social services, health care, I think, should stay with the professionals. And I would like the professionals to do much more; they need to do health promotion. And I think volunteers, the community, could contribute to health promotion and health maintenance. I make a real distinction here between care and health and see that as the responsibility of each person. And then, of course, as volunteers, you can help. And we do because there are sports clubs and walking clubs. And in terms of welfare, actually the same thing, so I think volunteers can do a lot to combat certain welfare problems, such as loneliness. Regarding welfare problems and real requests for help, I think that should stay with a professional then. (…) I hate the market. I'm a former nurse, and I think what has happened in the market since the 1990s is terrible. So no, please, stop that market. It should be the government; I think it's really a public service, just like education and security, that should just be publicly regulated. (The Netherlands)

Town halls should ideally be responsible for providing local eHealth and social services in rural areas (Dk, Nl and Pt), as some participants explain:

> One thing is that Ældresagen could help us go out and help the citizens. The next is the bridging part. Because right now, as we say, so what happens when the citizens are finished on the screen with us in the municipality. Then we'll lose them if there's nothing else. If we haven't found a gift for them in Bevtoft, or if the Danish Lung Association has started some virtual training that we can help them with. We always think about the bridging part. It's not enough just to get them on the municipal system because it's a maximum of three months. [So, it will be a bridge from the municipal to another digital offer?] We do this for all our programmes because otherwise the patient will drop out. And especially the bad ones. (Denmark)

> There are examples of town halls setting up a... training, let's say, in how to use a computer, how to put together a CV, how to apply for a job at the employment office, etc. So, there's a lot of training going on. So, in other words, there are already some things that exist on a purely basic computer level, such as knowing how to reply to a CV, how to use e-mail, etc. And so, yes, this could be a good idea. So, yes, it could be complementary. (…) Well, we live in the same village, there are 6,000 inhabitants in this village, and the town hall helps all the people, in fact, those who want it, who have difficulties with computers, either to fill in their tax forms or to look at apps, etc. So, there are already things in place to help people with basic computer skills. So, things are already underway. (…) That's a growing trend. (…) Nowadays, all public services are online, whether it's for ID cards, passports or tax returns. So, more and more, town halls are helping people to use these tools and procedures. (…) What I've seen in secondary schools is that digital information is often given to children, and they master it. I'm not sure that there are many parents or that there is a majority of parents who go behind the scenes to see a bit... It's very much relayed by the children, in fact. I'm not sure there's an explanation. When I had my children in secondary school, I was never at all guided or tutored on how to follow their schooling in digital terms. (France)

> Town halls, the municipality, will be interesting places to lead the organization of local eHealth and social services in rural areas, for example, promoting coordinated work between the Health Centre, the Senior University, nursing homes, the Republican National Guard and City Council technicians. (Portugal)

Several French health providers argued that there should be medical and paramedical faculties, as they argue in the following excerpt:

> So, the advantage of the health service is that we can move around and reach a lot of the city's priority districts. Even in disadvantaged neighbourhoods, they have telephones, and they know how to use them. I'm talking about young people. On the other hand, support for mothers, parents, family, and friends can be useful because they don't necessarily have the codes, the technology to use the networks, etc. So, we also need to support family and friends. So, we also need to support the people around them so that they, too, can disseminate reliable content. (…) Reliable and adapted to the population. By the way, in the Health Service, National Education is not the only target. In the law mentioned by S. earlier, all establishments, as well as companies and associations, are targeted. The law covers a wide range of target groups (…) In fact, when we thought about setting up the Health Service in the first year, for practical reasons and depending on the theme, we said to ourselves that schools, middle schools and high schools were well managed, that there was a framework... but in fact, it could have been something other than schools. (France)

Various participants in The Netherlands and Portugal argue that those responsible for providing local eHealth and social services in rural areas should ideally be health centres, the general practitioner in combination with the local area team through an integrated healthcare system involving voluntary organizations/community, as explained below:

> Those responsible should be the family doctors in health centres who can support older adults in-home visits and in the health centre through nurses and family doctors. When necessary, they must coordinate with social assistance to mobilise social support organisations in the community. When talking about digital health literacy the doctors and nurses at the health centre don't have time, only if the City Council or the National Republican Guard organises it. (Portugal)

> It is a bit of a tricky question because we are indeed in a rural area here. So people know very well how to find their own GP. You see more and more collaborations between social workers and GPs, for example, offering more personalized social care, which makes it easier/more accessible for people to ask their questions. I think that's a great development. You first start looking at whether you really need to go straight to a doctor or to the hospital; or can we first talk and see what is wrong with you and in what area your discomfort is or what you need? (The Netherlands)

> I think the general practitioner, in combination with the local area team, would be a very nice combination. These people often trust their family doctor very much. If they would have the time, or at least have someone next to them that they have short lines of communication with. [And would this be government-driven or from market forces?] I guess it's government-driven? That sounds a little heavy. But you can facilitate it and also inform a general practitioner in a way that works that way. So, I think the government certainly has a role in this. (The Netherlands)

> Well, you know, I think somewhere in the ideal world, it's a combo between healthcare, the community, the village where you live and yes, maybe a tiny piece of government. But not too much. Yes, well, I don't know. I find it a bit tricky, because I also don't think healthcare should be something that will soon be so commercial that it's only for those who can still afford it. I do think that should be the same for everybody. And I think that's where the government comes in. The pieces have to fall together sometimes, you know. (The Netherlands)

In all countries, the responsibility of community organisations was mentioned, with several Dutch participants highlighting the role of libraries. The arguments of these participants can be analysed in the excerpts below:

> I think it's kind of a triangular relationship. One, you have the community, supporting with little things that can be anything. That could be filling out a form because you want to apply for something, so you do that with people from the village, for example. We are now getting a project like that in our town. It's senior housing and assisted living. That will all come together in one project, but then there will also be a space where they want to do more consultation hours, and they want to facilitate that from the community and things like that. Yes, I think that's very nice, so we all make sure that the community, the health care system and the government ensure that people can stay in their own place for as long as possible. (The Netherlands)

> Ah, in an ideal world, beautiful. Well, first of all, people themselves. When it comes to being healthy and staying healthy, yes, of course, that starts with prevention. And then we also have to look out for each other. Like that, it also happens in the local Bloeizones, for example. That people themselves take initiative and say, we just want us to be able to live in this village as long and healthy as possible. And so that's where it starts, and that goes from organising meetings to exercising together and everything in between. [So basically the community itself, you say?]] I think so, yes. And, of course, you can't implement it completely. It is not for everybody to just do that. I understand that. But I know, for example, in Bakkeveen. There is a group of people

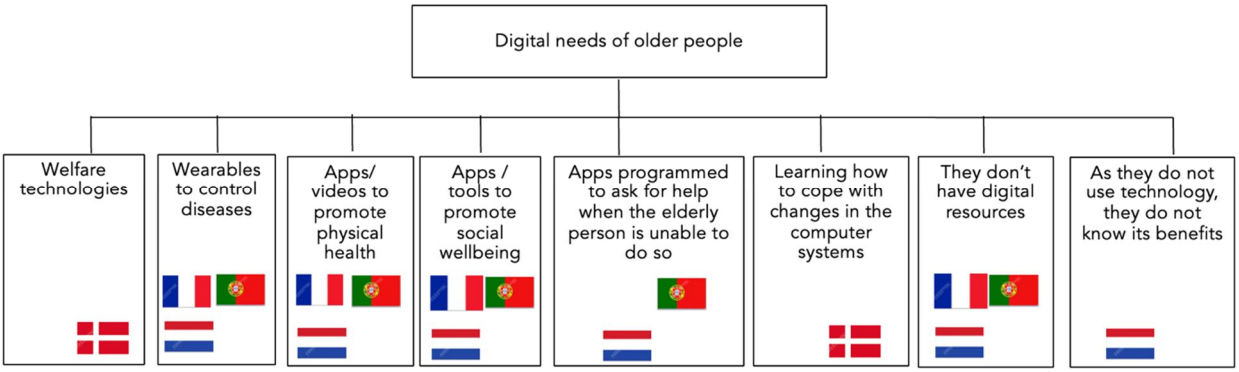
that comes together and engages a dietician themselves, for example.
Mostly, you all go to the general practitioners individually to make an appointment with them. That's how it usually happens. But they just sit in a group together and then ask her to be there, for eating advice and then I think, yes. That's more durable. It saves everybody time and effort, and it's fun too. (The Netherlands)

No, I'd rather see... I don't know, not something top-down, but something that comes up from the neighbourhoods, through the MGCs, through things like that, through... actually, really popular actions, really done by small associations. I'd say things like that. (France)

2.2. Needs, challenges and desires of vulnerable and older citizens in rural areas

The perceptions of health and social care providers involved in the REACT project about the digital needs of older adults are summarized in Figure 7.

Figure 7. Digital needs of older adults



According to the Danish participants, older adults need welfare technologies to live a healthy life. The example is about a smart cup that should remind older adults (who tend not to drink enough) to drink some water or other fluids:

So, if they have to take their medication themselves, there's something that rings a bell for them. (…) Something where they have to do it themselves; we haven't had much of that. We have had some citizens with "the talking cup". So they have to drink. And it works for a while, but then they get really tired of hearing this: you have to drink, you have to drink, you have to drink. And then they actually opt out of the cup. (…) Yes, and then every hour or so, it tells you to remember to drink. (…) And again, we set it up for what it's supposed to do, and then it comes out, and then they just have to drink when something is said. It's actually worked in the places where it's been, but they get tired of the encouragement all the time. (Denmark)

I just heard from my parents that there are a lot of things they have to familiarise themselves with all the time. Once they learn one system, a new system comes along. And what about those 80-year-olds who have never been used to having a computer in their hands? It's even worse for them (…) The only thing we have experienced is in connection with voting. Some people come out to those who don't have the opportunity to come out themselves. And then we're the ones who go out and find these citizens who don't have the opportunity to come up and vote themselves, and then a message is sent to the municipality and then someone comes out so they can vote. (Denmark)

Participants from the other three countries consider that older adults need wearables to control diseases and apps/videos to promote physical health. However, many of them did not have digital resources, as described in the following excerpts:

I know that in the field of diabetes, there is something that people get an alarm with an insulin pump that allows everything to stay in balance. That, of course, is very wonderful. It does take some skills to be able to deal with that. (The Netherlands)

So, I can also imagine people who, maybe with COPD [Chronic obstructive pulmonary disease] that's possible that you could do oxygen measurements at home. I don't know if that happens. (The Netherlands)

The heart rate monitor is an app suitable for older adults, so you can take the measurement simply by placing your finger on the cell phone's camera lens, and you can add annotations to each result or tags and then check the history in a graph. This app also has some training programmes that allow physical exercises to strengthen your heart. (Portugal)

> There's already a lot more, of course, than I know. I think that in the area of physical functions some observation apps do help people. But if you start looking more into the health promotion sphere, you'll soon be talking about pedometers, which make people more active. (The Netherlands)

Some Dutch and Portuguese participants also spoke about the need to have apps programmed to ask for help when the older adult is unable to do so, as explained the following interviewed:

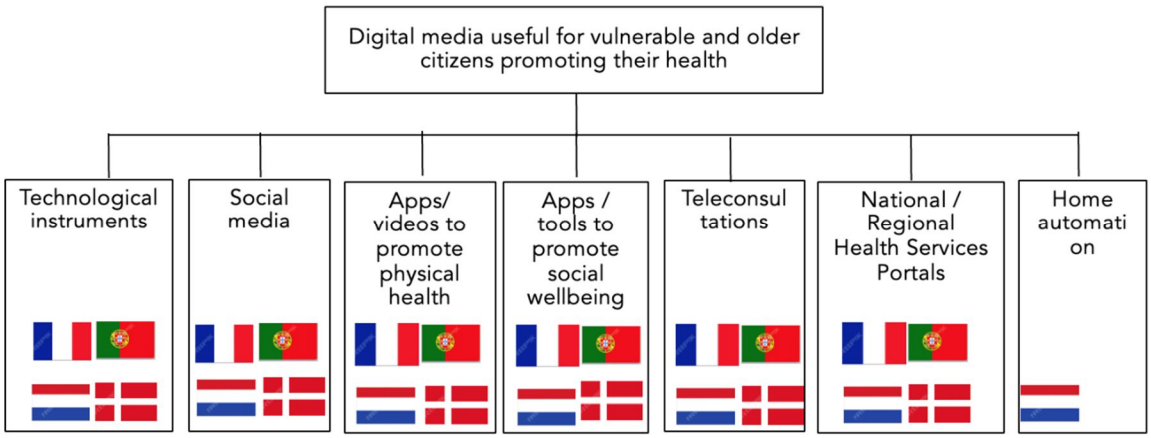
> I haven't really needed a Personal Health Environment (app or website) myself yet, but I'm definitely interested in it when time comes. I think you can even set it to ask you a question, say, every 15 minutes. Suppose you have a concussion, and then I think you have to be woken up every half hour. Then, you can even set it up so that it asks you a question, and if you don't get an answer within two or three minutes, it calls someone. So yes, eHealth can be that accessible. Everyone immediately thinks of one of those robots that arrives with a washcloth, but that's not so bad. (The Netherlands)

To conclude, some participants in the Netherlands drew attention to the fact that as older adults do not use technology, they do not know its benefits:

> They have no idea what it [e-technology] is because they're not using it, what possibly the benefit of that is. I used to be a general practitioner here for a very long time. I've also been in other care settings like the hospital, and then it was common. Well, that's for that patient group. (Netherlands)

Figure 8 shows the digital media that health and social care providers involved in the REACT project considered useful for vulnerable and older citizens to promote their health.

Figure 8. Digital media useful for vulnerable and older citizens to promote their health



The technological instruments mentioned were mobile phones, smartwatches and tablets. Social media, such as Instagram, TikTok, e-mail and WhatsApp were mentioned.

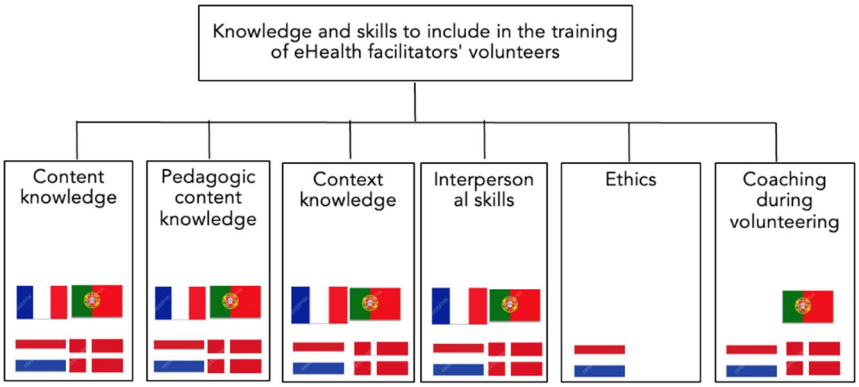
Regarding the suggested apps, there is a wide variety, some of which are exclusive to a single country: SOHDEV application, Training on Youtube; Pronote App, Day-and-Day (Dag en Doen app) App, and Pedometers.

Regarding the suggested National/Regional Health Services Portals, there is also a wide variety, generally exclusive to a single country: websites for booking teleconsultations or medical exams, the French government website, the mangerbouger.fr. App, The Quelcosmétique App, Portal national e-santé, the Portuguese national health service portal, Doctolib platform, Yuka platform, e-Boks & mitID (myID), and the Senior web.

2.3. Health and Social Care Providers Training Course

Figure 9 shows the conceptions of health and social care providers involved in the REACT project regarding knowledge and skills to include in the training of eHealth facilitators' volunteers.

Figure 9. Knowledge and skills to include in the training of eHealth facilitators' volunteers



The content knowledge to be taught selected was the following: the minimum necessary knowledge and digital skills; eHealth literacy skills; knowledge about older adults; defining the technical terms apps use and how to explain what they mean; knowing how to recognize the right content about the medical field.

Below is an explanation from Dutch participants regarding the need for teaching only the minimum necessary knowledge and digital skills:

> If you make a PowerPoint, you have to be very good at discussing the background of what is shown on that PowerPoint with those volunteers. That they know what they're talking about. And, that doesn't have to be substantiated with literature as to why that is so, but at a minimum, you have to inform them. Look, if I drive a car, I don't have to know the engine, but there are actions I have to know in order to learn to drive a car. That's basically how you have to look at this. Some basic skills. Of course, they just have to be able to operate buttons to show the next slide. Or, oh, just two slides back. That's a skill, right? But so, they have to have knowledge of the topic. Let's tackle a digital skill, for example, to be able to e-mail. Well, then you do not have to discuss too many types of things, but take one e-mail, the programme. Initially, provide simple e-mail and ask about when a mail comes back, how to read it, and how to reply to an e-mail in an easy way; how to save an e-mail if necessary. That's already an extra skill when there's an attachment to it, what those people get then from the municipality or a government. If you want to increase e-mail skills, you could do something like this. So, when we look at the employee who is going to train the volunteer and who can do that, they just need a piece of background information as well. Überhaupt about what it is to be low-literate or have lower digital skills and what it is to be an older adults or vulnerable person. (The Netherlands)
>
> I think from there, then again, the combination of both things. Just the hard basics and the knowledge of what I need to convey. What do they need to know at the end of the training? (…) I think there is already a lot of information about the hard basics of how to instruct someone to apply for their DigiD or something. (…) I am thinking specifically from the residents' perspective. I think everyone has a different question in this area. Some people just don't know how to switch on their laptops, and others are a lot more advanced but need more information. So yes, are you going to train them very broadly, or are you going to think of making a kind of section of training or, well, partial training of, well really the basic, slightly advanced, that way. (The Netherlands)
>
> A piece of media literacy; what does that actually mean? You can explain to people why they should do something or install something, but I think it's also important to make them reflect. Then, when you install an app, is it okay for that app to access your microphone or your location and things like that? Without scaring them. I always think that's important. So, it's also positive. (The Netherlands)

Knowledge about older adults was also considered an important content:

> Yes, I thought it might be a good idea, as a group, to say: "So, I'm trying to explain, I get annoyed or I'm very patient...". So, I was thinking that maybe it would be very concrete to work like that for learning. So, I think we'll need a theoretical basis to explain what our intentions are, for which population, what the difficulties of this population are, and so on. And then, concretely, for learning purposes, it wouldn't be so bad to put them

> in a situation. (…) Putting them in a situation, our students, so that they can teach a population to serve as ... (France)

Participants also considered it necessary to teach pedagogical content knowledge, namely knowing how to identify the needs of older adults; how to select appropriate content for the target population; the posture; didactic/pedagogical skills; knowing how to choose apps and how to use them; how to train volunteers and teach volunteers to train seniors; how to train based on personal/contextual characteristics of older adults; how to work collaboratively in interprofessional teams; and how to work on the self-confidence of the older adults.

Knowing how to select appropriate content for the target population and the volunteer posture were greatly emphasised by several French participants, as evidenced by the excerpts below:

> So, when it comes to digital, I don't think they're any better at it than I am. Then it's about the content of the message, but about the content of the message it's about making sure they sort out the information they decide to keep and pass on. (France)

> Because often, the difficulty lies in posture and communication. When it comes to knowledge, they don't always have it, but we have to reinforce it, make sure they don't talk nonsense and so on. But where I perhaps have the most difficulty is posture. They'll often stand behind a table, acting as if they're having an exchange, but it's already a bit closed because they're going to put this table between the people and themselves, and at the end of the day it's more difficult to really be with the person, in a circle or next to them. Because I think there's a little fear. But if you want to learn how to use a digital application, you have to be right next to the person. I've tried to project myself, and I say to myself: "We really need to change our posture and our way of communicating". And that's our little problem, every time. (France)

How to train based on personal/contextual characteristics of older adults and how to deal with the characteristics of volunteers were greatly emphasised by several Dutch participants, as explained below:

> And they also have to know a bit about the social structure of the target group they want to reach (…) Well, look, so when you have a, when you say it's for a club of older adults, that's a very large group of older people. That's people who may be highly educated but are also digitally illiterate. But that could also be poor people who are digitally illiterate. If you bring those groups together, you also have to deal with different experiential structures, so to speak, which you have to bridge first because getting respect towards each other is important. So maybe then you have to make subgroups to really teach people something (…) [Considering their background, life experience, so to speak?] Yes. And who speaks the language (both literally and figuratively) of the people you're actually doing it for them. (The Netherlands)

> It's not just about the materials or how to work with something, but also being able to put yourself in the shoes of the target audience and being able to communicate with them. I think part of that training is also a piece of awareness. You have a target group in front of you that may not have knowledge or may not be proficient in everything, so it's also important how you deal with that person. How do you approach an older adult and/or how do you approach someone who has low language or digital skills? (The Netherlands)

> But also the part of how do you deal with them and how do you trigger them. Keep in mind that they're not employees; they're just volunteers and people who like to do it. How can we present that difference? So, pure theory, and is also how to do it in practice and how to interact with them. Provide tools. Someone does it, for example, next to his work; he is already busy, so I make sure that as a trainer, I can think along with the volunteer. (Netherlands)

The interpersonal skills most frequently mentioned by participants from all countries were: critical thinking; how to deal with the characteristics of volunteers; empathy; social skills; active listening; communication skills; how to show appreciation for volunteers and how to see a volunteer just as a colleague.

The ethical implications of counselling someone was mentioned by some Dutch and Danish participants as follows:

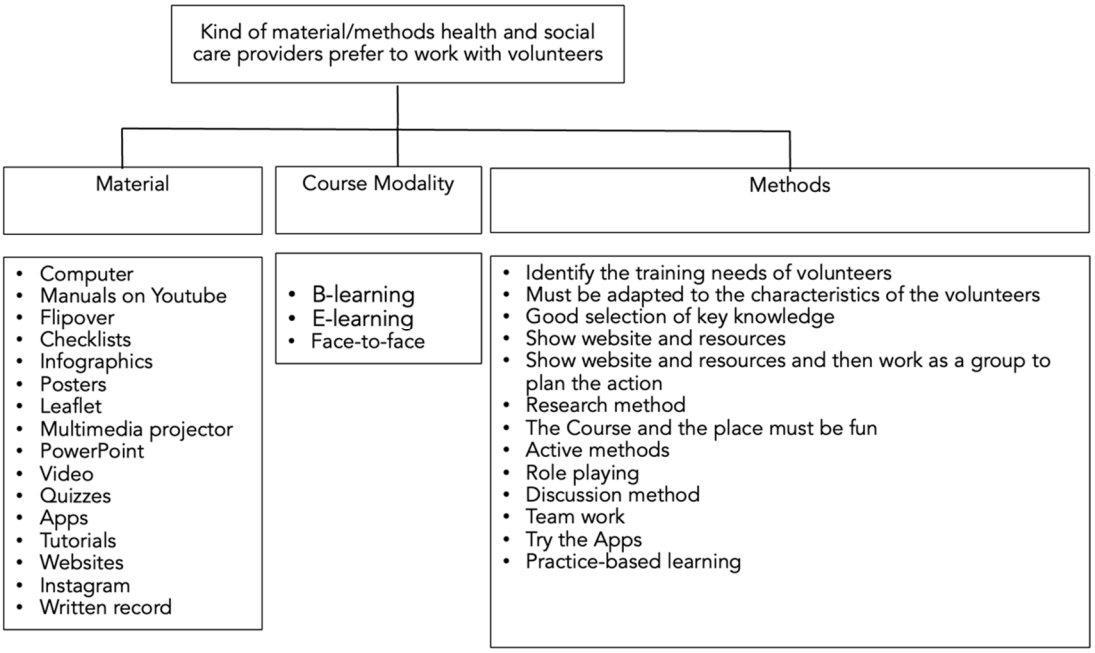
> And also, I think what's important is that without making that very big, but that you also talk about the ethical implications of counselling someone. You're in a… that's always kind of tricky about this kind of thing, but you're in an unequal relationship. Because you can't do something, and then I'm volunteering to come and help you, and if you don't have experience with that, it's good to be aware of that for a moment and think about the difference it makes. To what extent people depend on you, whether that is desirable and what that means. (The Netherlands)

> I can also sit and think about... can we as a municipality just send volunteers into the citizens' homes? That's exactly where I... I mean, who am I sending out? I can get a little worried about that. (Denmark)

To conclude, coaching during volunteering was highly emphasised as an important content in training by several Portuguese, Dutch and Danish participants.

Figure 10 shows the kind of materials/methods health and social care providers prefer to work with volunteers.

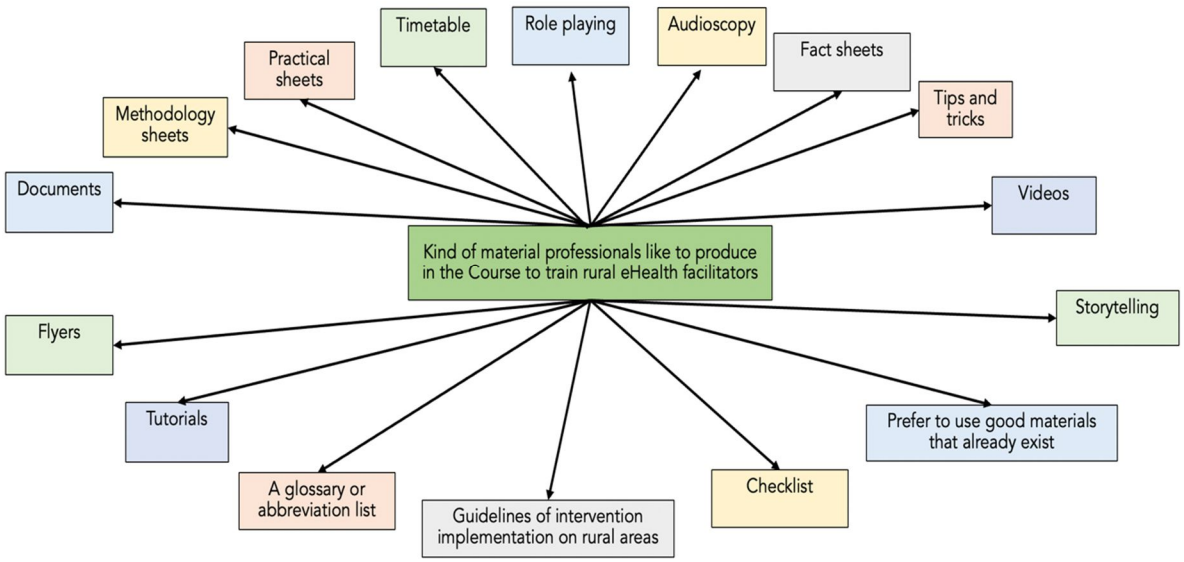
Figure 10. Kind of material/methods health and social care providers prefer to work with volunteers



There was no consensus within the countries regarding the course modality, with divergent opinions on the B-learning, E-learning and face-to-face modalities. The most frequently mentioned learning methods are aimed at collaborative teamwork involving active and action-oriented learning.

Figure 11 shows the kind of materials professionals like to produce in the Course to train rural eHealth facilitators.

Figure 11. Kind of material professionals would like to produce in the Course to train rural eHealth facilitators



Most participants in all countries prefer to build or select different types of materials during the courses to later train eHealth volunteers, as the opinion of seven participants shows:

> Documents, fact sheets, tips and tricks, videos. A step-by-step plan of certain parts. And also, some kind of guidance on flyers that you can take with you as well. By the way, if you use names, abbreviations or whatever, explain it. Some kind of glossary or abbreviation list. How understandable it is to you, it may not be for someone else. That's a tip. (The Netherlands)

Methodology and practical sheets were mentioned by most participants:

> Methodology sheets, for example, like "You've got such and such a video, there's this and that which could tell you that the message is bad, so be careful". I remember, for example, when we went through all the videos on TikTok, we realised that we had to be very careful because a lot of them say that they're doctors or that they're wearing medical clothing, and they give the impression that they're doctors and give the impression. But just because they're dressed up doesn't mean they're doctors. Things like that, perhaps key messages to leave with the older adults. (France)

> So, there was a site, I think by Cnam, on health promotion, especially food and nutrition. For the proposed activities, there are a few practical sheets and also timetables. So maybe more for students this time and not necessarily for the person who is targeted, but I thought it was really well done. Escapade is called the site, and for each little activity, there are very well-done tips with little tutorials. (France, CS2)

Role-playing was also widely referred to as an appropriate strategy for developing communication and problem-solving skills in eHealth volunteers, as shown in the following excerpt:

> The role-playing would be interesting if we want to develop communication and problem-solving skills in volunteers. In role-playing, we start with a problem situation that involves different characters. The characters prepare the role they are going to play and then debate the problem to solve it in this simulated situation that the theatre allows. (Portugal)

> There has to be a theoretical part, but I think role-playing is important. In any case, it's often the case in training courses for trainers. During the COVID crisis, we were trained to go out and train people to test for COVID-19, and that's how we were trained. (France)

Some participants prefer to use good materials that already exist, as the following interviewee explains:

> Well, of course, that depends a bit on the content. If it's about the oefenen.nl. Then I have that site there. But if it's about media education, then I pick my things from everywhere, so to speak. From the network mediawijsheid.nl, I put that back into my own presentation, for example. [And for digital skills?] Well, I get a lot from oefenen.nl. I have those booklets from the success series of the Reading and Writing Foundation. I don't know if you know those booklets, but they have a really nice series focused on digital skills. I'm also a fan of Senior Web's web page. There's a lot of understandable information from there. But I also use skills dojo where there are just lessons for high school and primary schools and so on. Yes, I do believe that the lower the level, the more people understand it, and you can sometimes turn it very nicely into material for adults. So yeah, I always pick it a little bit from everywhere. (Netherlands)

3. Summary

The evidence presented in the normative and cultural aspects of the health and social care providers who participated in this phase of the REACT project shows that most participants are aware of the difficulties of recruiting and working with volunteers, acknowledging volunteer work and training and collaborating with rural eHealth facilitators. However, they are knowledgeable about various strategies that they are willing to implement to address difficulties/barriers that may arise when working with eHealth volunteers on this project.

According to the perceptions of these regional and local health and social care providers regarding the needs, challenges and desires of vulnerable and older citizens in rural areas, it is necessary to create conditions for their access to different eHealth technologies and the necessary training to use them, namely: wearables to send data to medical doctors, wearables to control diseases, apps/videos to promote physical and social well-being, how to access teleconsultations, and how to use National/Regional Health Services Portals.

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To conclude, in the perception of the health and social care providers involved in this study, eHealth volunteers need to acquire the minimum necessary knowledge about health promotion, active ageing, types of digital applications available to promote health, and the types of support used (smartwatches, smartphones, computer, tablets, etc.). From their perspective, they also need to develop their pedagogical content knowledge, namely, knowing how to identify the needs of digitally vulnerable and older adults, how to select appropriate content for the target population, the posture, didactic/pedagogical skills, knowing how to choose apps and how to use them, how to train volunteers and teach volunteers to train seniors, how to train based on personal/contextual characteristics of older adults, how to work collaboratively in interprofessional teams, and how to work on the self-confidence of the older adults.

Participants also consider that developing context knowledge and interpersonal skills is the key to the training, namely, developing critical thinking, how to deal with the characteristics of participants, empathy, social skills, active listening, communication skills, how to show appreciation for volunteers, and how to see a volunteer just as a colleague. Finally, the ethical implications of the work on eHealth volunteers are also a critical topic in this co-constructed curriculum.

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Appendixes

Appendix 1. Agreement and collaboration plan partners to make with local authorities

Agreement and collaboration plan for cooperation between the University XXX and the REACT project

Dear President of the City Council

The Child Studies Research Centre of the Institute of Education of the University of Minho hereby invites professionals from the XXX University to participate in the European Erasmus+ Project Rural eHealth Facilitators (REACT- KA220-ADU-2D9650FE), which aims to integrate a group of professionals from the University XXX who will co-create a Training Course for eHealth volunteers, with researchers from four countries involved (Denmark, France, Netherlands and Portugal) and participants from four more Portuguese institutions. The objective is for these professionals, after a two-day training, to train volunteers who will go to more rural areas to interact with vulnerable or older citizens to develop their digital skills and their motivation to use them to promote their health.

We would like to thank you in advance if it is possible for some participants from the University XXX to be part of this project, and we hope that you will benefit from this collaboration.

REACT Project

The REACT project started on November 1, 2022, and will continue for three years until October 31, 2025. The overall objective of the REACT Project is the development and testing of training material for the involvement of health and social service professionals in the training, development and testing of material for the training of eHealth and well-being volunteers in interacting with vulnerable or older citizens at a transnational level, between partners from countries with eHealth and well-being models with very different levels of digital implementation. This co-design will bring resilience to the co-produced training material, as the differences mean that the project will act as a solid laboratory to test the scope of the training programme so that it can later be used independently in contexts with institutional and national differences.

The project is based on co-design, co-creation and co-production to develop the concept of volunteer facilitators of eHealth and well-being in vulnerable or older citizens. At least 3 case studies will be developed in each European country: Denmark, Netherlands, France and Portugal.

The role of the University XXX in the REACT project is described in the phases below

Phase 1 – Initial meeting: April to June 2023

In close dialogue with the project partner in the municipality, a team of between 3-5 professionals will be created to voluntarily join the project at the University XXX. This team of professionals will first participate in a **focus group** to find out what they think about this type of volunteer training. Afterwards, there will be a two-day training session to subsequently recruit volunteers. Volunteers will be trained by this team of professionals from the University XXX and will go to more rural areas to interact with vulnerable or older citizens with the aim of developing their digital skills and their motivation to use them to promote their health.

Phase 2 – Training of professionals: May 2024 to June 2024

Professionals from the University XXX will participate in a **two-day course at the University of Minho** to improve their knowledge and skills on various subjects, including: 1) active ageing; 2) eHealth (types of digital applications available and type of media used (smartphones, computers, tablets, etc.); 3) potential barriers/facilitators for interventions; 4) interpersonal skills as eHealth facilitators; 5) evaluation and monitoring of volunteers' learning. During this Course, training will be organised for eHealth volunteers.

Phase 3 – Training of eHealth volunteers: June to September 2024

Volunteers will participate in a two-day Training Course with previously trained professionals. During this Course, you will plan your visits to seniors and establish your first contact with them. During this phase, the trainer will provide support to the professional trainers.

Phase 4 – Training seniors in eHealth skills: September 2024 to March 2025

Volunteers will go to more rural areas to interact with vulnerable or older citizens with the aim of developing their digital skills and their motivation to use them to promote their health. During this phase, professionals will support volunteers.

Phase 5 – Evaluation of the REACT project: March to April 2025

Focus groups will be held by the project coordinator with professionals and volunteers, with the aim of finding out what they think and feel about the project. The conversations will be audio recorded. The data will be treated anonymously.

Phase 6 – European Collaboration

There is no financial incentive related to participation in the REACT project; however, the training and coaching that professionals and volunteers receive during the project will be provided free of charge. Furthermore, participants will have the possibility to interact with other project institutions – both local and international – to learn from their experiences.

I am completely available to answer any questions through the following contacts: e-mail: tvilaca@ie.uminho.pt; cell phone: + 351… .

Hoping to receive a positive response from you, I bid you farewell with best regards,

Teresa Vilaça
Project Coordinator in Portugal
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Appendix 2. Need analysis template 1: regional and local health and social care providers

Need analysis template 1
regional and local health and social care providers

This template has been developed for co-partner countries to characterize the regional and local health and social care providers' needs of each case study regarding the recruitment and work with volunteers, the acknowledgement of volunteer work and their perceptions regarding their needs to train and collaborate with rural eHealth facilitators.

The template is based on the following 2-phases as presented in the ERASMUS+ Rural eHealth Facilitators (REACT) Project (KA220-ADU-2D9650FE): Characterisation of the case studies of each country; Interview with regional or local health and social care provides to identify their needs to develop the concept for local collaboration with rural eHealth facilitators.

Characterization of the three case studies

As 3 case studies are planned in each country, it is expected to involve 4 people from each institution, making a total of 12 Regional and local health and social care providers per country. Therefore, the desired profile is as follows:

- Being a health and social care provider;
- To want to join the project voluntarily;
- Being motivated to train and collaborate with rural eHealth facilitators.

Please, copy three times the following template, one for each institution/case study.

Name of the institution:	
It is:	a regional institution a local institution
Describe how this institution supports/ responds to the needs of vulnerable and older adults	
Describe how you started the collaboration with this institution	
Describe the health and social care provider project team of this institution	
Please, describe the motivation of this team to become part of the REACT project.	
Describe the activities you have had with this local reference group	

Interview on needs to develop the concept for local collaboration with rural eHealth facilitators

Briefing

This interview is the beginning of the ERASMUS+ Rural eHealth Facilitators Project (REACT Project) that aims to empower your team during a training course, to later, with the material we will co-create with participants during this course, you become trainers of volunteers. These

volunteers will interact with vulnerable and older citizens in rural areas to develop their digital skills and their motivation to use them to promote their health and access digitally to the Health System. In this project, we call these volunteers eHealth facilitators.

This interview is confidential, anonymous and will last approximately 30 minutes. If you authorize, the interview will be recorded to facilitate data processing. If at any time of the interview you want to stop and remove your informed

consent to the processing of the data you have already provided, this will not bring any negative consequences to you or the project.

Thank you so much, for your collaboration in this interview.

A. Normative and cultural aspects

1. What was your motivation to become part of the REACT Project?
2. What is your experience with specific eHealth technologies? (Defining what kind of eHealth technologies in function of the context)
3. What is your experience with people who have problems to use these technologies?
4. Who should ideally provide local health and social services in rural areas (state, family, volunteers, market)? (contextualize/ reformulate according to case – users/ older adults / chronically ill etc.)
5. What do you think about eHealth solutions in general and particular? So, for example, a check-up call at the hospital should really be physical and not online?
6. What do you think about volunteering work?
   What do you think should be the task of volunteers in rural communities? And what is the difference with the larger cities?
7. What do you think is the volunteer's motivation?

B. Health and Social Care Providers Training Course

1. What kind of material do you prefer to work with volunteers? (e.g. infographics, videos, PowerPoint presentations, mobile apps)
2. How do you think the Course you are going to be involved in to plan the training of eHealth facilitators should be? (What kind of knowledge and competencies do you think are necessary to include in this Course? What kind of activities would you like to carry out?)
3. What kind of material would you like to produce in the Course to train and collaborate with the rural eHealth facilitators?
4. What digital apps do you usually use to promote your health?
5. Do you know other digital media that could be useful for vulnerable and older citizens to promote their health?

C. Recruitment and work with volunteers

1. Do you work with volunteers?
2. If yes, how do you recruit your volunteers? What can you do differently to better recruit volunteers?
3. Who may be the volunteers your team will later train to become eHealth facilitators?
4. How can they be recruited?
5. What difficulties/ barriers can you find to do this recruitment? How can these difficulties be overcome?
6. What do you do for your current volunteers?
7. What is necessary to acknowledge volunteer work?

D. How to train and collaborate with rural eHealth facilitators

1. In your opinion, what profile should volunteers have to interact with vulnerable and older citizens in rural areas to develop their digital skills and their motivation to use them to promote their health?
2. Are there specific facilities to work with volunteers?
3. What kind of knowledge and skills do you think are necessary to include in the training of volunteers to become good eHealth facilitators?
4. What strategies could be used to work with these volunteers?
5. How do you think you could collaborate with rural eHealth facilitators during their interaction with vulnerable and older citizens?