



CHERRIES
RESPONSIBLE HEALTHCARE ECOSYSTEMS

D4.3 Report on the co-creation activities

Constructing Healthcare Environments Through Responsible Research Innovation and Entrepreneurship Strategies, CHERRIES project will support Responsible, Research and Innovation (RRI) policy experiments in the healthcare sector in three European territories: Murcia (ES), Örebro (SE) and the Republic of Cyprus (CY).

January 23, 2023



| | |
|------------------------|--|
| Grant agreement number | 872873 |
| Project acronym | CHERRIES |
| Project website | www.cherries2020.eu |
| Deliverable number | D4.3 |
| Version/last editor | 2.0 |
| Work package number | 4 |
| Lead | Maria Anastasi (CyRIC) |
| Nature | Report |
| Dissemination level | Public |
| Delivery date | 14 February 2023 |
| Author(s) Email | m.anastasi@cyric.eu ; laure.raso@ceeim.es ; lana.uvhagen@regionorebrolan.se , martha.lundkvist@regionorebrolan.se ; m.moyseos@cyric.eu ; a.amanatidis@cwts.leidenuniv.nl ; claudia_colonnello@yahoo.it ; |
| Project Coordinator | ZSI |
| Executive summary | The report describes the co-creation activities in each of the three pilot regions Murcia, Cyprus and Orebro. The report provides a description of the co-creation process, the list of the actors and their role in the process alongside a description of the day-to-day activities and all the communication between the different actors. The report also includes a list of risks and challenges each region faced during co-creation and the mitigating actions each leader used to overcome the risks. |



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n° 872873. This document reflects only the author's view and the Commission is not responsible for any use that may be made of the information it contains.



Table of Contents

- 1. Introduction..... 3
- 2. Responsible Research and Innovation as part of the co-creation journey..... 5
- 3. The phases of co-creation 7
 - 3.1 The design phase..... 7
 - Profiles and expertise 7
 - Planned Timeline 7
 - Performance Monitoring 7
 - 3.2 The planning phase 8
 - Addressing a demand-driven innovation 8
 - The regional co-creation teams 9
 - Stakeholder groups..... 11
 - 3.3 Implementation phase 11
 - Co-creation management 12
 - Measurable co-creation..... 13
- 4. Murcia 14
 - 4.1 Evaluation and feedback 14
 - 4.2 Local Assessment 15
 - 4.3 Lessons Learnt and proposed improvement points 15
- 5. Örebro 17
 - 5.1 Evaluation and feedback 17
 - 5.2 Local Assessment 17
 - 5.3 Lessons Learnt and proposed improvement points 17
- 6. Cyprus..... 19
 - 6.1 Evaluation and feedback 19
 - 6.2 Local Assessment 19
 - 6.3 Lessons learnt and proposed improvement points 20



| | | |
|-----|---|----|
| 7. | Communication during the co-creation process | 21 |
| 7.1 | Narrative | 21 |
| 7.2 | Distribution of effort in the common communication parameters | 21 |
| 8. | Challenges and mitigations | 25 |
| 8.1 | COVID-19..... | 25 |
| 8.2 | Murcia..... | 26 |
| | Pilot testing technical issues | 26 |
| | Team and stakeholders’ changes | 27 |
| 8.3 | Cyprus | 27 |
| | Solution provider in a separate country..... | 27 |
| | Difficulty in engagement with the intended target group | 28 |
| 8.4 | Örebro..... | 28 |
| | Difficulty reaching the target group involuntarily alone through the project’s intended activities: | 28 |
| 9. | Conclusion | 29 |
| | CHERRIES Partners | 31 |



1. Introduction

The practical application of CHERRIES was divided into four main phases: a) definition of the need, b) selection of the solution, c) co-creation, and d) adoption (Figure 1). This deliverable is submitted as a report of the third phase, concerning the co-creation. Co-creation in CHERRIES was designed and applied in the three pilot regions namely, Murcia in Spain, Orebro in Sweden and the Republic of Cyprus. This report describes the co-creation in the three regional pilots from design to implementation, presents the challenges faced, mitigating actions and lessons learnt.

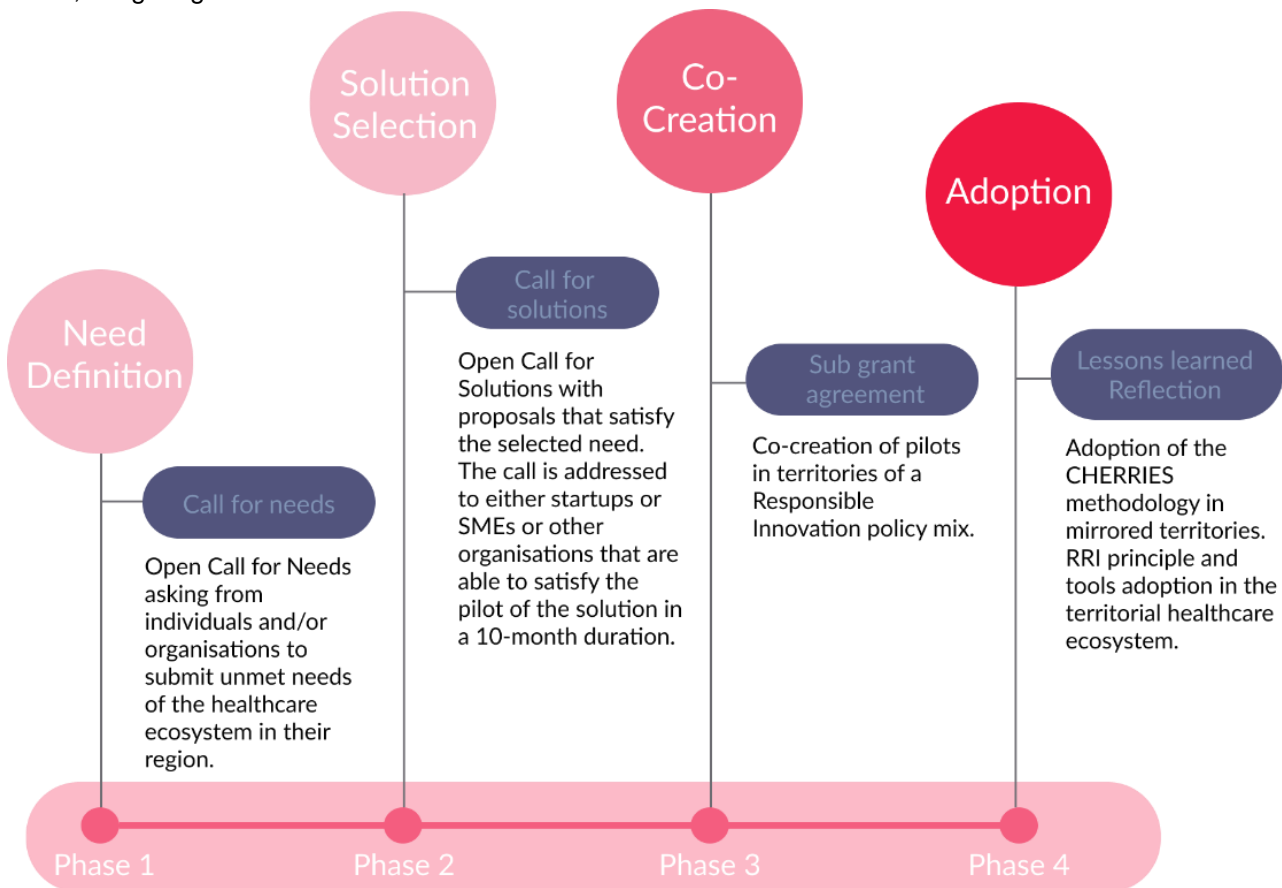


Figure 1: CHERRIES territorial experimentation

The co-creation methodology for CHERRIES was rooted in the notions of responsible research and innovation (RRI) and the open and user innovation (OI) as they are described in D3.2. RRI in healthcare aims to advance the alignment between health needs, (bio)medical and health technology research, development of products and processes, and implementation in health practice in systematic collaboration with all stakeholders involved (Molas-Gallart et al., 2016)¹. OI in the context of CHERRIES is used as a policy instrument in healthcare and public health, that was combined with a methodological sequence

¹ Molas-Gallart, J., D'Este, P., Llopis, O., & Rafols, I. (2016). Towards an alternative framework for the evaluation of translational research initiatives. *Research Evaluation*, 25(3), 235–243. <https://doi.org/10.1093/reseval/rvv027>



previously tested in the H2020 project inDemand². In healthcare, it is expected to be *people centric*, with innovations built in collaboration by companies, innovation leaders and end users.

For testing and validation, the methodology was applied in three pilot use cases two of which were based on *technological innovation* (Murcia and Cyprus) and one on *social innovation* (Orebro). This report describes the results from the third phase of the methodology, namely: *the co-creation of pilots in the territories within a duration of 9 months as well as to the contractual and managerial aspects of the activity*. To guarantee the methodological model is applied co-creatively, and that the developed solutions are indeed aligned with the values, needs and expectations of society, CHERRIES fosters the engagement of societal actors, healthcare professionals and patients. Therefore, the development of the solution needs to include interactions with all the actors: healthcare (professionals and patients), the CHERRIES local teams and the solution providers. Figure 2 provides a graphic description of the co-creation process as it was applied in the three regions. In the next chapters, we provide a report on the co-creation as it was applied in the three pilot regions.

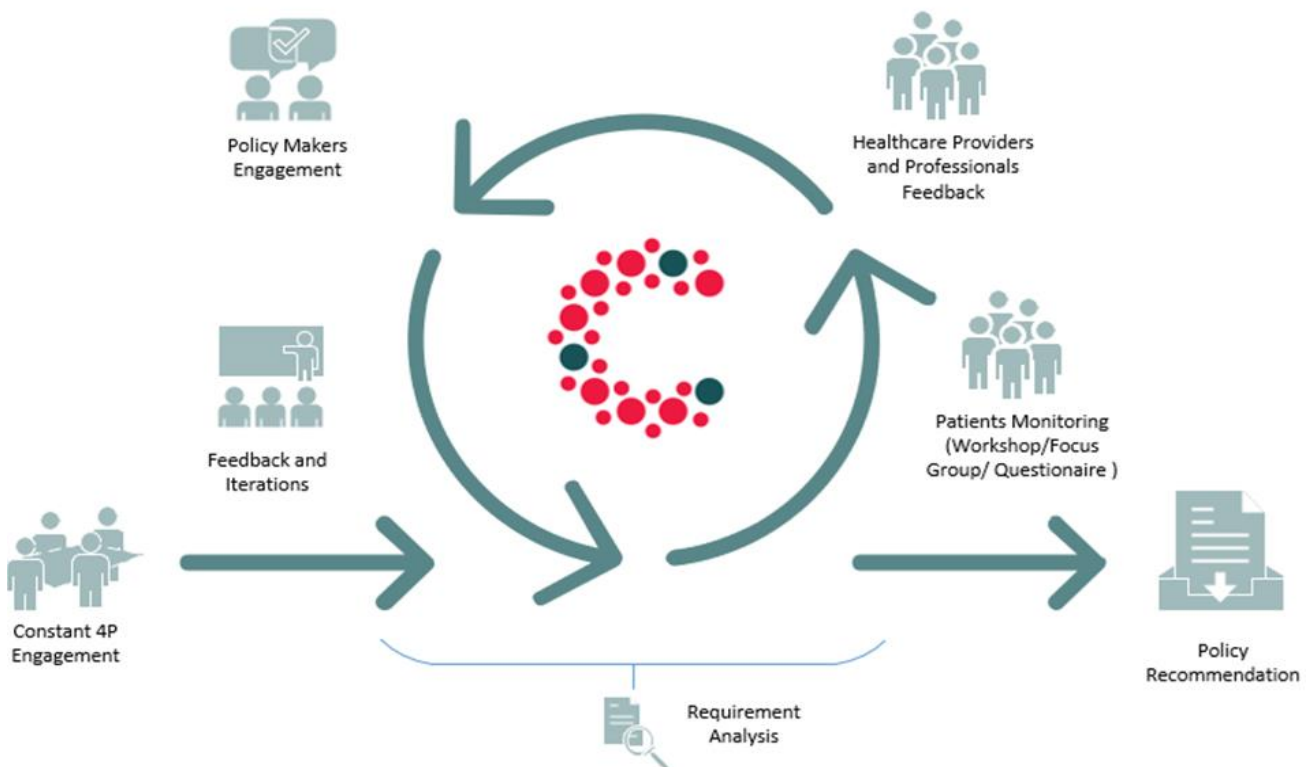


Figure 2: The CHERRIES co-creation process in RRI

² inDemand H2020 - <https://www.indemandhealth.eu/>



2. Responsible Research and Innovation as part of the co-creation journey

The story of science and technology as inherently beneficial to society is running out of steam and much work has been put in by activists and scholars to argue for a governance of science and technology that accounts for the consequences that are otherwise left to the ‘invisible hand’ of the market to regulate³.

Beyond the scholarship on (the governance of) science and technology, the European Commission, and more particularly the DG-RTD, has set in place RRI as an instrument to not only *anticipate, include, respond to and reflect on*⁴ science and technology in the making, but also has recommended an operationalisation of the concept that urges scientists, researchers, innovators, and any other actor active in research or innovation activities to consider the so-called ‘dimensions’, including *engagement, gender equality, science education, ethics, open access and governance* in how they relate to problems and their imagined solutions⁵.

From this perspective, RRI is a concept for not only responsibly addressing societal issues, including the sustainability of the natural environment, *through* research and innovation actions⁶, but also offers underlying principles to be considered *during* research and innovation actions. Another way of looking at RRI is like a social quality assurance system, which is applicable to private and public funded research and innovation. RRI is generally promoted by the European Commission thought to be able to improve the alignment between research policy and societal values. In theory, this notion could be an easy enough to follow. It can be however, a challenging notion to apply in practice as activating a purely theoretical framework in a practical application carries certain risks that the regional teams managed to overcome with the support of other project partners. As expected, RRI had a center place in the co-creation activities whose outcomes and impact were weighed against social, ethical, environmental and political concerns.

In achieving outcomes that are socially desirable, co-creation should be based on concrete plans that can match technological progress with public needs. RRI in co-creation brings together all actors (i.e users of a solution, industry/sector professionals, citizens etc.) in shared innovation processes providing opportunities to tackle together the needs of all.

Beyond these narratives of RRI as a governance instrument, it is essential to enhance the (re-)organisational dimension of RRI in its translation. This concerns for how RRI becomes enacted in various institutional contexts or in already existing interorganisational, regional networks that were involved in the activities of CHERRIES and how they were challenged through RRI processes.

In this translation, the project challenged how the regional teams relate to themselves and their activities, highlighting how RRI demands reconfigurations of existing structures. Unavoidably, we enter a political

³ Pfothenauer, Sebastian & Juhl, Joakim. (2017). Innovation and the political state: Beyond the facilitation of technologies and markets.

⁴ Stilgoe, J., Owen, R., & Macnaghten, P. (2013). Developing a framework for responsible innovation. *Research Policy*, 42(9), 1568–1580. <https://doi.org/10.1016/j.respol.2013.05.008>

⁵ European Commission. (2014). Responsible research and innovation: Europe’s ability to respond to societal challenges. Publications Office. <https://data.europa.eu/doi/10.2777/95935>

⁶ Schneider, Xenia. (2019). The Responsible Research and Innovation (RRI) Roadmap. https://www.researchgate.net/publication/339630196_The_Responsible_Research_and_Innovation_RRI_Roadmap



arena. Navigating these politics of change fell mostly into the hands of the regional partners (and partly the CHERRIES researchers who supported them in their activities). It surfaced *by challenging who gets to define problems, what makes for a good problem, what qualifies a good solution or by exposing the dominant actors in the regional healthcare innovation settings, for example.*

Making visible the stakes that are attached to these questions leads to considerable destabilisations of the ways that regional healthcare innovation actors operate. Fuelled by the normative perspectives that make for *responsible* in research and innovation, these questions that CHERRIES laid out heralded important conversations across regional stakeholders and allowed them to reflect on the implications of their work. Nonetheless, the conditions had to be established beforehand and the project had to establish itself as an actor in the regions, which the project did by a succession of activities to define problems, enrol the right actors, and have them reflect on their activities by intervening in the regional healthcare networks through a process that can be described as translations as by Callon (1989)⁷:

The first stage is the one of problematization, where the project enters the scene and defines *what the problem is* (healthcare pressure, demanding new ways of working together), *what the solution is* (approaches from responsible research and innovation), and *which actors are part of the arrangement* (various regional healthcare actors).

The second stage is the one of involvement (Callon calls this *interessement*) where projects try to lock in the actors into the roles of the project protocol. It is not enough for the actors to be identified in the initial stage of the problematization, they must become “interested” in the project, involve themselves by embodying the roles and relations as defined by the problematization.

Third, is the stage of the enrolment, where things starts to move, where the identity of the actors is being tested as they start to negotiate, forge, seduce, consent, or concede into an arrangement.

Last, there is the stage of representation (Callon calls this *mobilization*), which designates the process of coming to a characterization of a reality that represents all actors involved.

Given this background, co-creation in CHERRIES was not only a ‘form of doing’ RRI (through involving various actors at stake, but also raising questions that ‘usually’ belong to only certain groups), but also a way of intervening in the prerogative of actors concerning regional (health)care.

⁷ Callon, M. (1984). Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay. *The Sociological Review*, 32(1_suppl), 196–233. <https://doi.org/10.1111/j.1467-954X.1984.tb00113.x>



3. The phases of co-creation

Co-creation was the third phase of the CHERRIES territorial experimentation as seen in Figure 1. We approached the co-creation process as we would approach any project, dividing it into three project phases: a) the design phase, b) the planning phase and c) the implementation phase. In the subsections below, we describe these three phases.

3.1 The design phase

The objective of the design phase was the selection of actors and setting up a timeline. First, we identified key and secondary actors and created a timeline for the entire process. We then set up tools for monitoring the performance of the entire process.

Profiles and expertise

To initiate the co-creation phase, the teams identified the main actors in each the sector/area. It is also of great importance to observe that there are different kinds of expertise, and that sought expertise may even be found where it is not expected. For example, a small NGO might not have project skills or market knowledge, but they might have extensive knowledge of a certain target group. In that sense they can complement skills from organizations with vast project knowledge and administrative skills – and vice versa. Thus, the answer to “who is needed” may have a broader sense and people with secondary or not evident skills initially, may turn out to be of value. Additionally, in respect to the RRI key aspects, co-creation process must also consider public engagement.

Planned Timeline

The co-creation activity was initially designed to last for ten months. It started with publishing a call for collection of territorial healthcare sector needs as it is described in D3.2, all of which were analysed and assessed to choose the most prevalent one. This was followed by publication of a Call for Solutions to respond to the selected need. The choice of the solution was based on the match of the sectoral demand with RRI principles. Upon selection of the solution, the co-creation process for setting up the 3 pilots started. In each of the three regions, the co-creation team was comprised of the CHERRIES consortium members and the selected solution provider that was selected to respond to the chosen need.

Efforts were made by each of the regional teams to keep within the 10-month period timeline, however bottlenecks made it difficult to maintain. Such bottlenecks are described in the next sections with attention given to a condition that was unforeseen and unprecedented, the world pandemic of COVID-19.

Performance Monitoring

For the CHERRIES co-creation we have exploited the inDEMAND project's lessons learnt to ensure we avoid falling into traps and better understand how to engage with healthcare providers. In investigating the important tips by inDEMAND we began the co-creation journey involving relevant stakeholders in the very beginning. This early engagement worked in a two-fold way during our journey and was a key element to our success, it firstly allowed us to the extent possible, to seek advice from the stakeholders and secondly, it enabled us in our efforts to ensure that engagement was continued.

By performing a preliminary scan, we have identified the main groups of stakeholders as healthcare providers, policy makers, patients, healthcare professionals. After this preliminary identification, we have



sought people with specific expertise and professional backgrounds to elaborate in the co-creation of a solution for the need identified in the beginning of the project.

During the co-creation process, the teams planned several events to engage stakeholders. These included focus group workshops, bilateral talks and questionnaires that assisted in understanding the stakeholders' expectations. Within these events, we have managed to facilitate an effective exchange of findings and knowledge by targeting informed audiences rather than addressing 'the masses'. These events were further evaluated during and following each session to capture and analyse the 'value' or the 'quality' of the content, and the results derived from these co-creation-focused activities. The co-creation team took advantage of the access to the groups of stakeholders to discuss mitigation measures and adjustments as well as reports.

3.2 The planning phase

Once the initial design phase was completed we started planning the co-creation activities, breaking it down to three sections: a) initiation, It was preceded by the need definition where selections of territorial needs were made based on the assessment following the methodology described in D3.2. Post selection of the regional need per pilot, the teams were tasked with the selection of solutions that would meet those needs. Two priorities for the selection of solutions were either the enhancement of the societal engagement in providing highest-quality care for citizens or had focused on providing technological solutions that create economic opportunities too. In the Orebro pilot, priority was the former while in Murcia and Cyprus, the latter which is also shown in the awarded solutions. The selected needs and solutions per region are shown in Table 1 below.

Table 1: The regional needs and solutions

| Region | Need | Solution |
|--------|---|--|
| Murcia | Early detection of the progression of Multiple Sclerosis | Technological solutions(ICT): e-health platform and kinetic algorithm. The solution was focused on <i>MS Progress</i> by PULSO EDICIONES |
| Örebro | Breaking and preventing involuntary loneliness | Methods for outreach activities, where lonely elderly people are identified and reached and offer a wide range of activities to counteract loneliness among the elderly by the Laxa Municipality |
| Cyprus | Provision of medical services to the Cypriot citizens that live in rural and remote areas, who do not have easy access to healthcare services and prescribed medication | A peer-to-peer ecosystem providing innovative telemedicine services developed to support real-world healthcare based on real-time distributed data by DoctorsHello |

Addressing a demand-driven innovation

The notion of co-creation applied in CHERRIES is based on a demand driven approach and the RRI model. The practical aspect of co-creation began with the open Call for Needs in the pilot communities to assess the societal demand. Following the open calls, each region received a number of documented needs from various stakeholders and after careful assessment a single selection was made. The need was then



matched to a selected solution, picked after another open call, this time for collecting solutions. The solution providers were scored on a series of criteria: solution excellence, potential impact, viability of the suggested work plan, team's experience, business sustainability and responsible research and innovation and the highest score was selected for funding.

Three “co-creation teams” were established, one for each region comprised of the solution provider in Murcia and Cyprus, the stakeholder(s) who submitted the need(s) in Murcia and Orebro, healthcare organization personnel (e.g., innovation unit, IT, legal, management and/or healthcare staff and others.) as well as representatives of the civil society (e.g., patient groups, NGOs). The co-creation teams then arranged an initial number of meetings over the 10-month implementation period to exchange technical information and monitor the development of the pilot.

The entire co-creation program was initially planned to run for a maximum of 10 months, from June 2021 to April 2022. A contract was signed between the funding partner (CHERRIES representative), the solution provider and a representative of the team that defined the need while the CHERRIES consortium provided business and administrative support to the solution provider. Consultations were focused in Murcia and Cyprus on questions regarding business modelling, access to private investors and commercialization specific to Cyprus, while in Orebro they were mostly focused on evaluation and sustainability. At pilot end, each solution provider was expected to deliver the solution and deliverable reports as defined in the Grant Agreement.

The regional co-creation teams

In each territory the co-creation team was composed of various types of organizations and expert profiles to cover the different components of each of the solutions including social, technical, medical and clinical, patients' use, business management or commercial. Three co-creation teams were established, one in each region: Murcia, Orebro and Cyprus. In accordance with the Grant Agreement, the teams were comprised by the respective solution provider, the stakeholder(s) who identified the need(s), healthcare organization personnel (e.g. innovation unit, IT, legal, etc) as well as the civil society (e.g. NGOs, patient groups).. The facilitators of the three teams and acting 'leaders' were CEEIM, CyRIC and OLL.

In each territory the co-creation team was composed of various types of organizations and expert profiles to cover the different components of each of the solutions including social, technical, medical and clinical, patients' use, business management or commercial.

In Murcia:

- **Local CHERRIES Partners:** Facilitating and monitoring the process and the terms of the contract was the responsibility of the four entities involved in the CHERRIES territorial team: CEEIM – EU Business Innovation Center of Murcia; SMS - Murcia Health Service; CARM DGUE – Murcia Regional Government General Directorate for EU; and TICBIOMED.
- **Challenge Proposer team:** Responsible for the Challenge definition and correlative requirements and monitoring (technical, clinical and users). Three entities that worked together in devising the challenge on the occasion of the first call for needs: EMACC the Association for Multiple Sclerosis of Cartagena, the Biomedical Engineering group from the Polytechnic University of Cartagena and the Neurology Service of Cartagena Hospital.



- **Solution Provider:** Responsible of leading the process and of the development of the technical innovative solution in co-design and co-creation with the rest of team: Pulso Ediciones, S.L.(ES)

In Örebro:

- **Local CHERRIES Partners:** Facilitation of the co-creation process and terms of the contract monitoring. Six entities made up the territorial team in Örebro: Public Health Team of Southern Örebro county ; Social service centre of Laxå municipality; Laxå Health centre, Region Örebro county; Regional Development department, Region Örebro county; RF-SISU National Sports Association Örebrocounty; Activa foundation.
- **Challenge Proposer team:** Responsible for the Challenge definition and correlative requirements and monitoring; *Laxa kommun* with the support of NGOs and public health organizations as well as the University of Orebro tasked to measure the impact of the solution.
- **CSOs:** Focused on reaching the target group as well, organizing a range of activities and facilitate the interactions with them. Several civil society organizations including sports associations, the church, pensioners' organisations and study associations.

In Cyprus:

- **Local CHERRIES Partners:** Project management, facilitation and monitoring the process and the terms of the contract. Two entities made up the CyRIC – Cyprus Research and Innovation Center and AIK – Aretaieio Iatriko Kentro.
- **Challenge proposer team:** Input on the applicability and ease of adoption of the solution, assistance in the solution maintaining a patient-centric approach throughout the implementation. Dr.Gabriel Kalakoutis – MD at AIK and resident at the remote Kormakitis village; Mrs. Monica Kalakouti – Patient association representative and resident at the remote Kormakitis village.
- **Solution Provider:** Development of the technical solution, provision of technical equipment and management of the solution. DOCTORSHELLO™ - ANONIMI ETAIREIA EREUNAS KAI ANAPTIKSIS SISTIMATON KAI IPIRESION (SYSTSERV)



Stakeholder groups

A preliminary plan of the stakeholder groups was created and published as early as drafting the CHERRIES proposal. Based on that plan the “4P” model provide the main stakeholder groups for CHERRIES as the 4 groups below:

1. Policymakers (healthcare focused)
2. Patients
3. Providers (of healthcare)
4. Payors⁸

As the project progressed, the teams identified that additional groups may be considered as stakeholders and they approached those at different times during co-creation, to enable acquiring of a holistic view for the issues at hand and facilitate the co-creation journey. These further stakeholder groups involve social scientists, researchers, innovation policy makers, innovation providers, digital technology providers, technology solution developers, psychologists, NGOs, public institution representatives (libraries, nursing homes, etc.) and academics.

In each territory the co-creation team was composed of various types of organizations and expert profiles to cover the different components of each of the solutions including social, technical, medical and clinical, patients' use, business management or commercial.

3.3 Implementation phase

The CHERRIES model on co-creation was applied in the three regions however the application was driven by regional demands and given different validity based on the three sub-foci: sustainability, competitiveness, entrepreneurship. The common methodology was used as set a of rules and a guidance book for each region. Throughout the implementation of the pilot the co-creation process was driven by a *sustainability fit* between the solution and the end users. The selected solutions in Murcia and Örebro were co-financed by the respective solution providers, while in Cyprus the solution was fully financed by the cascading funds provided through the CHERRIES project.

In Murcia, the *Early detection of progression in Multiple Sclerosis* was identified as the best proposal in terms of needs. The objective was to develop an innovative technological solution deploying an Internet of Things (IoT) and sensors-driven approach to monitor patients within a clinical trial and inform the healthcare professional of the progression of the disease. The pilot focus was mainly on the sustainability of the innovation and especially on the adoption of the solution by the healthcare sector had it proven its efficacy. This was a key concept along the process, starting with the identification of the need finally selected by acknowledging the inclusiveness and multi-actor perspective of the need proposing team including healthcare specialists of the disease, patients' association representatives and researchers in Biomedical engineering. The involvement of the Need Owner was essential and as prerequisite from the need's selection stage in order to “translate” this need into a challenge with specific requirements that the solution needs to integrate. Furthermore, the sustainability focus was also weighty in the selection of the solution provider with a specific scrutiny on the foreseen exploitation strategy and business plan for commercialization. Moreover, the sustainability aspects were also important in the composition of the co-

⁸ The definition of a payor is provided in the 4P model provided with the CHERRIES proposal as one *operationalizing the financial elements of the policy framework*



creation team including a variety of profiles that cover all the inherent aspects of the development of the solution (healthcare professionals, innovation specialists, patients and civil society or IT and business experts). In that regard, through the application of the RRI approach and working on co-creation mode, the objective was to improve the ownership sense of the co-developers to ensure their acceptance of the solution and further adoption, implementation and use.

For Örebro, sustainability was in the center of the co-creation management, and it has been a main focus through the whole process of the pilot implementation. For this, rewarding an applicant was based on their plan for sustainability throughout the co-creation. It is the regional team's view that the solution provider co-financing the solution, can enable long term sustainability of the solution.

In the case of Cyprus, each party brought different expertise and vast experience in their respective fields, and this was essential in successfully co-creating the Cyprus pilot. Sustainability, competitiveness, patient-centric and entrepreneurship were the basis of the co-creation process, and these values were considered from planning throughout the end of the implementation. The three partners brought different entrepreneurial skills to the table but with a common goal of sustainability of the solution for the Cypriot society beyond the CHERRIES project, they collaborated to deliver the pilot goals. Specifically, an important aspect for the solution provider was to seek help on access to investment for further development, networking and further commercialization. Aretaio Hospital as a healthcare provider structure has advancing of the healthcare services in Cyprus in its core goals and seek solutions that abide to their values. CyRIC as a technological SME and an EBN member, is heavily invested in innovative technologies and entrepreneurship. CyRIC as the leader of the co-creation team was able to identify the focus for the solution provider and assist them with, in a transparent and healthy way that could allow enhancement of the solution's sustainability as well as entrepreneurship. The call for solutions provided a healthy framework for competitiveness rooted in transparency.

Co-creation management

To manage the co-creation process we used an agile methodology similar to initiations for implementing technological solutions. The CHERRIES co-creation began with gathering requirements during the design of a solution, responding to the needs of the affected parties, target groups and end-users. All stakeholder groups were consulted during this exercise and their needs were documented. The main objective of the co-creation process is to ensure that patients and healthcare professionals are in sync and that there is a "*common language*" established. The stakeholders were asked to provide requirements that respond to territorial needs and specifications. Two iterations of requirements' collection were performed per region using questionnaires and workshops.

To guarantee alignment of the developed solutions with the values, needs and expectations of society and respond to the demands of RRI, CHERRIES was based on the engagement of societal actors, professionals and patients. It was therefore evident that the development of any solution should have included interactions with all the actors (healthcare, professionals and patients) with greater validity given to those who had defined the need. To secure collaborative creation, the regional teams also had monitoring workshops individually tailored for patients, providers, policy makers. The goal of this exercise was to meet expectations set during the pilots by successful incorporation of varying perspectives combined with operational efficiency and functionality of the proposed solution.



Measurable co-creation

Generally, pilot studies are used to evaluate the adequacy of planned methods and procedures⁹. It is usually a small-scale study that can have a vital role prior to conducting a full-scale implementation project. For the three pilots in CHERRIES, we considered each individual applicability the study per region, and we set realistic targets for the sample groups, however, in some aspects those targets were not met following complications of the COVID-19 pandemic as described in Chapter 8 of this report. The set targets and actual reach for each group in the three regions are presented in Table 2. The approximate reach was assessed considering the size of the targeted community the pilot took place.

Table 2: Target reach per region

| Region | Groups | Engagement target | Actual reach | Approx regional reach |
|---------------|--|-------------------|--------------|---|
| Murcia | Patients | 30 | 30 | Total patients with MS in the heath area of Cartagena: 458 (2019) Impact: 6.5% |
| | Doctors and other healthcare professionals | 7 | 5 | |
| | SME representatives | 2 | 4 | |
| | Policy/Decision makers | 1 | 1 | |
| | Association reps | 3 | 3 | |
| | Researchers | 2 | 2 | |
| Örebro | Target group | 35 | 25 | ~10% of the elderly in Sweden are socially isolated. In Laxa municipality: ~45 people |
| | Healthcare personnel | 20 | 13 | |
| | Policy/Decision makers | 8 | 8 | |
| | Associations | 5 | 8 | |
| Cyprus | Patients | 50 | 37 | Total population in target area: 827 Deviation from initial target: ~1.5% Impact : 4.47% |
| | Doctors | 10 | 4 | |
| | Nurses | 6 | 6 | |
| | Policy/Decision makers | 10 | 7 | |
| | Associations | 20 | 9 | |

⁹ Polit D.F.Beck C.T. Nursing research: Generating and assessing evidence for nursing practice. 10th ed. Wolters Kluwer/Lippincott Williams & Wilkins, Philadelphia, PA2017



4. Murcia

4.1 Evaluation and feedback

In the case of Murcia, healthcare sector services have acquired during the past years relevant experience in developing innovative challenge-driven public procurement and co-creation initiatives and projects such as the H2020 inDemand. This implies that locally, there is a ground for awareness on similar processes, although in the case of CHERRIES, the RRI approach was a key innovative element for fostering new practices in the healthcare sector.

The main relevant actors and organisations were identified, informed and engaged from the beginning of the process. The selection was based on expertise and roles in the ecosystem as informed by the actors mapping exercise and networking activities. Additional stakeholders were engaged to respond to the specific needs arisen during the project implementation. In the case of the CHERRIES pilot in Murcia, the local scope of territorial actors to be involved in, first, the identification of the needs process (Call for Needs, members of the selection committee...), then during the second Call for Solutions and further during the co-creation, was a wide and multi-sectorial approach to inclusiveness.

Based on these grounds, some actors involved in the CHERRIES' co-creation journey already had strong experience that they could share with the "newcomers". In Murcia, it is to underline that from the call for needs stage, the selected Need Owner team was expected to play a significant role within the co-creation and to be involved in and throughout the co-creation journey until the final development of the solution. This was meant to ensure that the requirements of the call for solutions and the development of the solution were aligned with the challenge's requirements and driven by three types of organizations that joined forces: healthcare practitioners, patients association and researchers. Thus, each organization involved in the co-creation process, the local project partners, Need Owner team and solution provider, internally appointed their participants. Those participants remained mostly the same along the process, which was a good thing to ensure coherence and continuity.

During the co-creation, the involvement was constant and mostly direct with online exchanges, the attendance to the progress meetings, and other activities of monitoring, training and focus groups and members of the co-creation team have also been involved to complementary activities promoted by the CHERRIES project at a broader level, not limited to the pilot level.

As mentioned previously, different kinds of profiles, expertise and sectors were brought to the table: technology, innovation, medical care, patients support, policy making, business, represented by different types of organizations such as patients' associations, healthcare provider/payor, education and research centers, SMEs, business and innovation agencies, the regional government, or healthcare cluster.

Although the function of each participant was defined from the beginning, the roles and interactions have evolved along the way. The dynamic exchange and monitoring was promoted mainly by the experienced healthcare representative, the organization in charge of facilitating the pilot at local level and the solution provider, who paid particular attention to the inclusiveness of the different perspectives during the solution develop.



No particular entity can be considered as more important than others, since the co-creation team members were assigned a specific role based on their expertise and provided inputs that were complementary to each other. Nevertheless, it is considered essential to have a facilitating partner (or a core team) who oversees provides the project management (coordination of the meetings, reporting) and ensures the equitable participatory process of every member.

The communication and the good translation between “expert jargons” is also a key point to ensure that the participants are interacting in a common language towards the benefits of the process and that they maintain a results-oriented attitude.

The commitment of the team has lasted the whole process and the members worked collegially towards the same objective to deliver a sound innovative solution that could improve the early detection of the progression in the Multiple Sclerosis thanks to IT solution. Despite the technical difficulties met by the pilot testing in real environment, the application of CHERRIES model and the co-creation activities themselves between public and private actors showed positive results for the participating actors and their organizations.

4.2 Local Assessment

The development of the technological solution included a two-stage process:

1. Laboratory phase to develop a system for recording the movements of Multiple Sclerosis (MS) patients, based on the Internet of Things (IoT), i.e., applying sensors in the form of smart wristbands. The sensors were meant to record the movements of patients during most of their daily activity. In this phase, the solution provider together with the co-creation team defined the requirements and produced a prototype.
2. The testing phase with the involvement of 30 patients. These sensors would be applied to 30 patients previously selected and evaluated from a neurological point of view, in order to determine their previous state and be able to compare it with their subsequent evolution.

4.3 Lessons Learnt and proposed improvement points

One of the lessons learnt from the process that made it fruitful, is the need to provide initial training/guidance to the local members team on co-creation process and determine the expertise to be brought to the process, and the foreseen level of commitment of each member, even if the role, interactions and involvement might evolve along the way.

The question of the selection/appointment of representatives within each organization is also relevant as co-creation processes require time, continuous involvement, and legitimacy of each participant to have a say and feel comfortable expressing it. It appears important to inform the involved participants on the workload and the role/function within the process. Participants may be willing to take part in the process and see it as an opportunity that can bring benefits to develop a sound solution but also internally, within their own organization. Promoting the feeling of co-ownership towards the process and its outcomes also secures the involvement within the co-creation process.

Engaging the participants in the co-creation process implies providing each member with clear information about the terms of their involvement. A clear understanding of one's role helps maintaining a high level of



active participation during the whole process and engagement. Notable here is the fact that the core team can be affected by changes within each organization, changes of positions, change of conditions for end-users, and other external factors that may impact on one's involvement, which can have negative consequences in relation to the work that must be carried out.

Additionally, in that regard, the facilitator of the process should also pay attention to the expectations of the team members and other indirect participants towards the process and its outcomes, especially when it comes to innovation that may not lead to the foreseen results or might not be as efficient as expected. Continuous communication between the team members about the progress and possible difficulties, or delays is a key factor, together with an adequate communication between the rest of the external actors.

Some improvement points have been identified along the process as for a) better involvement of the end-users': additional to the patients' representatives, a small group of patients could be involved in the definition of the challenge itself to ensure that the requirements are adapted to their needs and condition (e.g. when defining what device to use), to make sure that the developed solution does not carry any negative impact that can be foreseen (e.g. stigmatization, usability limitation); b) improvement on the involvement of complementary profiles in the different phases of the project since each phase is specific and requires different types of expertise (e.g. end-user engagement, technology development, business sustainability).



5. Örebro

5.1 Evaluation and feedback

The co-creation team in Laxå consists of representatives from region Örebro (health center), Laxå municipality (social welfare, public health, culture/library), and several civil society organizations (CSOs) such as sports associations, church, pensioner's organizations and study associations. Each stakeholder is important for the collaboration in their own way. The Region/health center is important for reaching the target group and collaborating with the CSOs' around activities. The municipality both as project owner (and possible owner of a long-term solution), as activity organizer and as an important channel to the target group. The CSOs are important in reaching the target group as well as organizing a range of activities. As the CSOs are free from the exercise of authority, they can be considered more neutral than government organizations – thus reaching other groups and thereby complementing the public actors.

No organization has been more important than another – although, the co-creation experience shows the importance of a coordinating organization. In this case, it has been the municipality, but it could just as well have been the health center or a CSO – the key is engagement, commitment and available recourses. Also, the understanding of the collaborating actors' differences and conditions is essential. The dynamic between the partners has been very rewarding.

In order to make every voice heard, Laxå has had continuous meetings with the working group as well as the steering group. They have organized an open workshop and thereby enlarged the working group, to reach and engage more organizations. Another approach to make every voice heard has been to organize smaller groups for planning and arranging activities; groups dedicated to one activity.

5.2 Local Assessment

The pilot project builds on the collaboration and co-creation between the municipality, the local health center and several NGOs to break and prevent involuntary loneliness among the elderly. The pilot approaches the challenge through a two-part solution. The first part consists of an outreach program aiming to identify and reach the target group (elderly people) using the collaborating organizations' existing networks in the area. The second part focuses on the initiation of an arena where the target group can meet and where a number of activities will be offered designed based on their input and wishes.

The initial stated methodology and standards in the proposal have not changed with two exceptions:

1. The pilot coordinator is hired through an NGO and is not in the target groups age bracket. A change that the operations team and the steering committee have assessed to not affect the plan of action nor the activities of the pilot.
2. The group activities had to be delayed due to the pandemic but are now planned and/or up and running.

5.3 Lessons Learnt and proposed improvement points

Different and unclarified expectations from, and on, the partners in the pilot collaboration have sometimes made the process a bit challenging. Expectations regarding time, recourses, possibilities and limits in action, especially regarding civil society actors. This is an important lesson; we have to clarify expectations but also



what mandate and room for maneuver each organization has. Due to this, mutual knowledge of each sector's conditions and incentives is important. That is best achieved by dialogue.

During most of the co-creation phase, the pandemic made it impossible to have physical meetings with the working group; all meetings were digital. During the end of the co-creation phase physical meetings were allowed again. As much of the co-creation in this project depends on relationship-building, collaboration and trust, the meeting culture was much improved when physical presence meetings were allowed. If the physical meetings and activities could have started earlier in the project, it would have been beneficial for the project. Also, the fact that the workload for healthcare management and staff has been extensive during the pandemic has affected their possibility to partake in meetings and activities the way that was planned.

The pandemic also made it difficult to reach the target group and arrange activities for them which resulted in Laxå having to postpone and reschedule planned activities.

Due to the points raised above, an investigation and description over each partner's role in the project needs to be defined. This definition was originally done during the application phase, but since then, the conditions for some of the partners have changed. New partners joined the project – which is ultimately a good thing, but it also changes the rules for the actors in the project. Furthermore, an agreement on continued roles and responsibilities can be a point for improvement.



6. Cyprus

6.1 Evaluation and feedback

For Cyprus, CHERRIES came at a time that the healthcare scene was going through several radical changes. For the first time after a nearly 20-year design period, the General Healthcare System (GHS) was ratified in 2019 and implemented in 2020. The GHS comprises of a long-awaited strategy that reforms the public healthcare services in Cyprus, at a national level. The Cypriot pilot was initiated only a year after implementation of the GHS, a period where it is fair to say, was still one of trial and error and healthcare policy makers and other relevant stakeholders were primarily concerned with issues deriving from this change.

In regard to forming the stakeholder engagement strategy for Cyprus the local team was challenged with a peculiarity compared to the teams in Murcia and Örebro to the effect that no organization representing a policy stakeholder in Cyprus was part of the CHERRIES Consortium. This was a shortcoming for the Cypriot team since they had to find ways to engage with policy makers externally. The difficulty was in raising project awareness in gaining trust and maintaining a streamline of constant engagement with policy stakeholders, in the beginning and during the co-creation process in the absence of results. The team explored their individual policy networks and managed to raise awareness in those networks quite early in the cocreation process, regardless of the hardship in maintaining the engagement until the end. Nonetheless, policy stakeholders responded to the invitation to the final event for the Cypriot pilot and were key players in the interesting conversations that followed the demonstration of the solution.

Moreover, the COVID-19 outbreak and the announcement of the pandemic, created another bottleneck for the implementation of the co-creation, as physical meetings were generally restricted and visits to the hospital (AIK) were only possible after carrying out a large number of safety measures to limit the spread of the virus. Therefore, the largest part of the co-creation workload had to happen remotely which was both a blessing and a curse. The fact that this alternative meeting style was available meant that the work could carry on in the timeline planned, however, with the lost ability to meet with people face-to-face created at times doubts and showcased a decreased the level of trust each stakeholder held towards another. This mishap was managed with regular meetings and constant information about the progress of the project as well as the presentation of regular results and their impact.

6.2 Local Assessment

The co-creation process' intensity in activity increased upon the announcement of the open call to collect needs from the community. The engagement came mostly from organized groups of patients, doctors and patient families. The submitted needs were evaluated against their clarity of presentation, impact and realistic implementation effort. The selected need was the one that scored the highest (14.17/15). The regional team identified that for most of the submitted needs there was a common denominator, remote access to medical support.

Prior to beginning the co-creation calls for needs were opened in the three regions. In Cyprus, it ran in the midst of strict restrictions imposed by the government COVID-19 pandemic which was a leading factor in the submitted responses as most of them described needs for provision of some type of healthcare service from a distance. The regional team advertised the open calls to several networks but maintained realistic



expectations as to the response rate. Experience has shown that such exercises like the call for needs, that invite the public to act are not common in Cyprus and when they do happen, engagement is usually low. For this reason, the receipt of almost ten submitted needs was considered a success.

6.3 Lessons learnt and proposed improvement points

The co-creation process in Cyprus was achieved in its biggest part with no major issues that were impossible to mitigate. However, a lesson learnt for future applications is the need to enforce tools for better engagement and better ways to raise awareness and keeping momentum for the proposed solution. This was particularly evident in the faced difficulty with engaging stakeholders that were not part of the project but are the right people to decide on the unfolding of the results at a regional level -in the case of Cyprus, at a national level. Once the pilot unfolded and results were produced, the engagement was somewhat easier. This led the team to realize that other, more efficient ways must be designed for approaching stakeholders, like half-day conferences and networking events where stakeholders would get the chance to participate in bilateral conversations that would allow thinking of how the pilot's solution is an impactful tool that can be used beyond the lifetime of the project.



7. Communication during the co-creation process

7.1 Narrative

The process of co-creation is deeply rooted in constant communication, which builds trust between the co-creators and allows the resolution of any issues as soon as they appear. In the beginning of the co-creation process, the core team decided to document in logs, all the communication each regional team had between themselves, the solution providers and stakeholders. The three regions comprised of a steering group and a working group per region. The working group involved people working directly in the implementation of the co-creation activities from planning to design and then to implementation. The steering groups were made up of representatives of key organizations who are partners in the project, and/or have particular expertise to lend to the project, and they have connections with the intended users of the output of the project. The steering groups assisted in steering the co-creation through from start to completion, they helped in the decision-making processes and held advisory roles with guidance transferred to the working group members.

Each regional team used for a tool of communication, a communication log however, the issues discussed were grouped into 6 parameters:

- Project Management
- Dissemination
- Application of RRI
- Adoption trajectory
- Patient Engagement
- Technical issues

Figure 3 and Figure 4 in the following section present the percentage of time for discussions on each topic.

7.2 Distribution of effort in the common communication parameters

The three regions comprised of a steering group and a working group per region. The working group involved people working directly in the implementation of the co-creation activities from planning to design and then to implementation. The steering groups were made up of representatives of key organisations who are partners in the project, and/or have particular expertise to lend to the project, and they have connections with the intended users of the output of the project. The steering groups assisted in steering the co-creation through from start to completion, they helped in the decision-making processes and held advisory roles with guidance transferred to the working group members.

Each group engaged differently per parameter and in the following figures the common communication parameters are shown per group per region. This allowed us to measure the effect of the communication activities upon the end of the co-creation as well as better understand the skills that are necessary in the composition of each team. Communications between the steering and working groups were documented in communication logs that each regional team kept where each communication effort was assigned a topic out of the 6 parameters and allowed us to measure percentages of the time spent for each, for the purposes of this report.



Steering groups

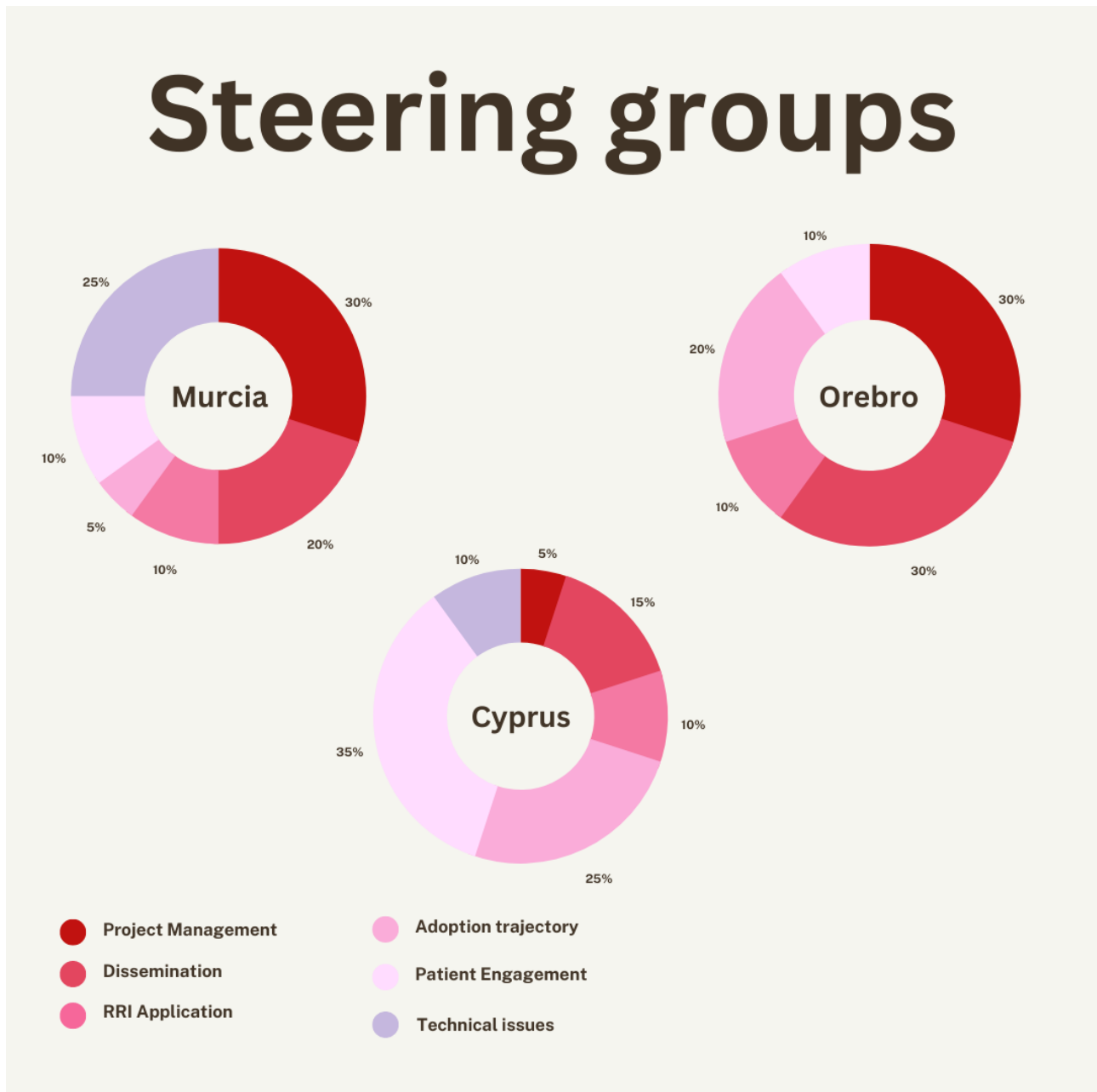


Figure 3: Communication engagement within the regional steering groups

For the teams in Murcia and Örebro, the steering groups engaged to the biggest part in project management and dissemination activities while in Cyprus the steering group dealt mostly with patient engagement and the possibilities for national adoption. For Murcia and Cyprus, implementing a technological solution resulted also in the involvement of the steering group to resolution of technical issues, more so in Murcia where decisions had to be made when the solution was faced with difficulties during development. Örebro, adopting a social inclusiveness solution did not engage their steering group in any technical discussions though they were heavily involved in disseminating the project and engaging further actors such as CSOs and NGOs. The steering groups were equally involved in the application of RRI (10%) and in Örebro and Cyprus they



played a key part in the adoption trajectory as they were involved in conversations with actors in adoption of the respective solutions beyond CHERRIES.

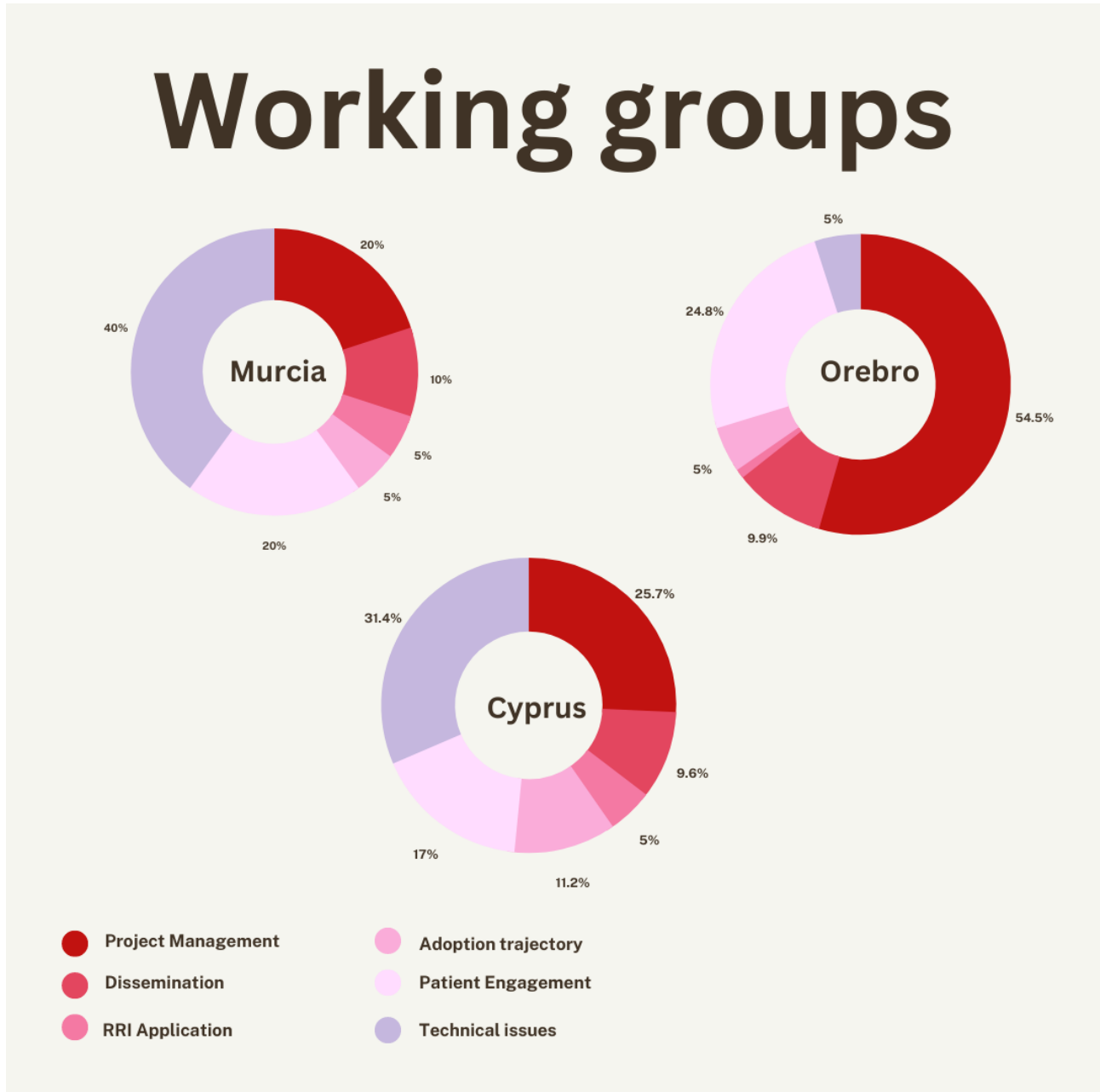


Figure 4: Communication engagement within the regional working groups

The working groups were responsible for the hands-on day-to-day task progress and all three regional teams spent a large percentage of their time dealing with project management. For Murcia the biggest challenge for the working group was the technical issues included in the development of the solution and communications mostly involved discussions with the solution provider to solve those and mitigate potential risks they carried. For Örebro, apart from project management, the team dealt with the reaching the target group. Despite the teams’ affiliations with people of older generations that could be involved as the target



group, identifying the involuntary lonely during the COVID-19 pandemic was difficult and the team put a lot of effort in communicating with them and addressing their needs. In the case of Cyprus, the distribution of effort for the working group was divided into dealing with project management and administrative aspects as well as communication with the solution provider to resolve hindrances that could have delayed project progress. The working group also had bigger effort in the patient engagement especially since the first rural area could no longer be the involved in the project. The application of RRI was a secondary concern for the communication between the teams as it was embedded in the project activities regardless, therefore no specific communications were dedicated to it other than the monthly reports through the BEMS with the RRI responsible CHERRIES partners who provided monitoring and guidance to the working groups.



8. Challenges and mitigations

The following sections describe the main challenges the regional teams faced, during co-creation. The fact that co-creation was implemented during the COVID-19 pandemic with various restrictions in place, was a common problem for all three regional teams and several mitigating actions were applied to address these challenges. Furthermore, the teams were faced with other, regional and solution-related problems which are presented in this chapter's sections 8.2-8.4.

8.1 COVID-19

Co-creation is a challenging process on its own, and the CHERRIES co-creation period overlapped with the COVID-19 pandemic, which weighted more into this challenge. As with the rest of the world, the three regions have suffered consequences deriving from the pandemic. Having to transfer most of the operations between the Consortium remotely, resulted in often faced with unavoidable process delays, and delays in approvals.

The COVID-19 pandemic had a clear impact on the workload for the healthcare sector, as the professionals gave priority to its mitigation. In that context, initiatives and projects such as CHERRIES had to double their efforts to contact, engage and involve the relevant actors along the different stages of the process, and especially as for the co-creation that requires a strong involvement from all parties. Furthermore, the patients and end-users have also some medical specificities to be considered, especially in times of a pandemic, when it comes to ensuring their optimal participation, considering that a medical condition could prevent them from participating as much as they would wish, or that in times of COVID-19, some activities could not be carried out to avoid any additional health risk.

In Murcia, the solution provider team based in the north-east of Spain, had foreseen different onsite meetings with the local team during the co-creation. Due to the COVID-19 restrictions in place in many of the organizations, during the first period of implementation, the interactions were exclusively held online. The first in-person meeting took place only at month 4.

Most of the risks linked to the COVID-19 were foreseen by the local team and were mitigated though online meetings and platforms. Nevertheless, in the process of co-creation most of the members would have rather preferred to have at least the kick-off meeting in person.

In Cyprus, the pandemic measures imposed by the government prohibited *unnecessary* meetings at hospitals which made communication extremely challenging and limited it almost entirely to online meetings. The determination of the pilot team to carry forward the testing, surpassed issues presented because of the pandemic. Constant communication and the ability to use remote means to progress with the workplan were the mitigating actions that allowed the outcome of the pilot to be a success.

Further to the above, the case of Cyprus was shockingly enabled by the pandemic outbreak. With the limitations imposed (curfew, restrictions of movement, testing before entering a hospital, etc.), day-to-day routine visits to medical centers and healthcare providers were kept in most cases to the minimum, and for a lot of people living away from city centers the effort needed to transfer themselves to the doctor was exponentially increased. However, due to this unique element, patients were less hesitant to the idea of



implementing an e-health solution since it allowed patients direct contact with their doctors, even from afar. It is therefore suggested that despite the unquestionably devastating negative impact of the pandemic, it has also assisted in the roll-out of the solution proposed in the Cyprus pilot.

For Örebro, the COVID-19 pandemic and increased spread of infection were extremely challenging where in the midst of it all, the team started unfolding a pilot deeply dependent on human interaction between the elderly. The spread of COVID-19 could have caused possible fear within the target group to participate in activities and social contexts, which would result in the target group avoiding new social contacts. The target group of involuntary lonely elderly could be assumed to get more isolated during this period. Outreach activities could further be affected if the spread of COVID-19 continued to increase.

The situation regarding the spread COVID-19 changed during the project; increased spread and new mutations lead to new recommendations. All of which brought even more uncertainty. The project team worked based on national guidelines and a plan for the planned activities, where distance could be kept, were put in place.

For example, the start of group activities could have been given a later date until more activities could be carried out outdoors. Alternatively, the concept was altered due to the current situation and activities, as well as group size, was adapted. Outreach activities were planned safely, with awareness that the situation could make it difficult to reach the target group.

Thus, the pandemic affected the outreach as well as the planned activities in the pilot. However, the project team mitigated the risk of the pandemic and worked systematically in the pilot regarding co-creation and collaborating activities, which also strengthened the collaboration.

8.2 Murcia

Pilot testing technical issues

The major challenge occurred during the implementation of the solution in a real environment, since some technical problems mostly concerning connectivity, prevented the experiment to obtain a satisfactory level of data collection which had a major impact on the rest of the activities. A contingency plan was put in place that unfolded in different phases, monitoring of the corrective measures was also performed to assess the success of the plan. Unfortunately, despite all the efforts from the team, the pilot had to be terminated anticipatedly due to the technical issues that finally could not be solved.

The co-creation process that was to last 10 months went as planned during the first period (M1-M4), except for the face-to-face meetings (e.g., Kick off meeting) that had to be organized online. The documentation was prepared, the agreements were signed, the terms of the co-creation were agreed, and the first technical milestones were completed. Difficulties emerged at the time of the release of the second prototype to be tested in real-environment conditions with the patients. The selected company developed a system based on a smartwatch with a Bluetooth connection to a mobile phone dedicated specifically to the pilot, which in turn send the records accumulated from the smartwatch to the cloud. The system was tested in the company laboratory giving appropriate results, so that in October 2021, the 30 devices were distributed to patients, who also received basic training on the system. At this stage, the first technical issues arose which prevented



follow up of the implementation of the solution as expected and prohibited collection of enough tangible data for processing.

A contingency plan was co-designed and implemented by the co-creation team with the development of new versions of the prototypes and a reduced number of patients to 5 to allow testing of the successive versions, trying to achieve stability in the registry, with follow-up meetings every 1 or 2 weeks. Although this contingency plan gave good results, after some additional time, the capacity of registry did not improve as expected and led to the decision of termination of the pilot, as the neurological assessment carried out on the patients previously, was only valid for 6 months. This contingency plan phase was a good occasion to acknowledge the positive commitment of the whole team, incl. the patients, by keeping the motivation and involvement in trying to solve the technical issues and re-launch the testing.

Although the pilot had to be terminated, the co-creation process has shown good results and the team has expressed, and formulated lessons learned and recommendations that will increase the probability of success in the future. These recommendations have been enriched by the patients' perspective collected from the people who took part to the pilot activities. Despite the failure of the solution during the second stage and the frustration of not having achieved the expected results, the patients' feedback was positive regarding their participation in this responsible innovation process in healthcare. Their insights and proposals for improvements are highly valuable in view of a possible further development of the solution of similar activity and moreover, for the implementation of co-creation processes in innovation in the healthcare sector, beyond the CHERRIES project itself.

Team and stakeholders' changes

In Murcia, apart from the COVID-19 pandemic, another challenge arose before the closure of the call for solutions when the regional government had experienced some unexpected changes of key policy makers. Although, these changes have impacted on the participation in some activities linked to CHERRIES, mostly no major consequences have been noticed for the decision-making processes during the call for solutions and further during the implementation of the co-creation, since the different partners have ensured the continuity of activities. Some changes have also occurred within the local co-creation team along the process, as for example with the inclusion of new members from the solution provider side to handle the complications arise from technical issues.

8.3 Cyprus

Solution provider in a separate country

To mitigate the risk of having a solution provider in a separate country, constant open communication channels were established between the regional team and the solution provider. Formal and informal conversations took place frequently in attempts to mitigate problems. Issues of technological nature were mostly discussed between the solution provider team and the hospital team. Project progress was also monitored with frequent written and oral communication between the pilot coordinating team and the solution provider. The fact that the AIK team included the hospital's Chief Technology Officer (CTO) with clear understanding of the technical aspects of the solution was key to the smooth roll out of DoctorsHello in the hospital. The CTO was able to solve most of the issues faced, without heavy dependency on the solution provider. The provider was though available for guidance via phone and emails whenever necessary.



Additional to remote issue solving, the solution provider team visited the pilot site twice and managed to resolve technical issues in situ.

The biggest achievement of the aforementioned mitigating actions was the successful implementation and good results of the pilot leading to discussions with decision makers for potential application of such e-health solutions at national level.

Difficulty in engagement with the intended target group

The initial target group to be involved in the pilot was chosen as the remote, rural village of *Kormakitis* in the northern part of the island. The village is mainly comprised of a Maronite community. The local community receive medical care in Nicosia, but they must travel from quite afar and cross a border to reach a healthcare provider. Additional difficulties emerged due to enforced restrictions in movement between the south and north because of the COVID-19 pandemic, so *Kormakitis* inhabitants could not be transferred to healthcare providers easily.

Moreover, the main point of contact between the *Kormakitis*' community and the hospital was a doctor living in *Kormakitis* and a resident doctor at AIK. Unfortunately, due to personal circumstances they could not continue their enabling role therefor, contact with the village population was proven difficult. The pilot coordinating team in collaboration with the hospital, moved fast to arrange for a new site in another remote village in the mountainous area of Troodos. The community welcomed the participation in the pilot tests and during informal interviews with the participants, they expressed positive feedback for the solution and would welcome this service for day-to-day healthcare consultations.

The outcome of the mitigating action was the uninterrupted implementation of the pilot progressing and ending in successful pilot results.

8.4 Örebro

Difficulty reaching the target group involuntarily alone through the project's intended activities:

Since this is a pilot project with a short timeframe, the pilot team could not claim with absolute certainty that the intended activities would reach the target group.

An evaluation after project completion can provide insight into how outreach activities can be made permanent and how they should be designed. The project's activities have just started, and we are currently unable to evaluate, or risk assess whether the target group will be reached. As an assessment of the effects of the spread of infection in society, the difficulty can increase, and this is something that the project group may plan from outside.

The identified risk "**Difficulty reaching the target group**" remains an issue of discussion. The implementation of the outreach activities and evaluation of the measures that have been tested to reach the target group in a long-term perspective. 13 members from the target group are currently taking part in *Senior Power (Seniorkraft)*¹⁰ which indicates that the outreach has gained success.

¹⁰ *Seniorkraft* is a program that in collaboration offers a group of seniors (max 15 participants at the time) a 15-week activity schedule with focus on: Physical activity, Healthy food habits, Social interactions, and Meaningfulness.



9. Conclusion

In the above chapters we report on the co-creation journey for each of the pilot regions within the CHERRIES project. The methodology for co-creation was applied in the three pilot regions two of which adopted a technological solution (Murcia and Cyprus) and the third one adopted a solution for social innovation and inclusiveness (Örebro). Reflecting on the progress of co-creation in this report and how the methodology was followed in each of the three regions, it is safe to conclude that albeit challenging, it was a good approach to follow. It allowed the partners to work in agile modality and conclude the exercise with a valuable list of learnt lessons to be considered by firstly, the project's mirror regions as well as others that wish to follow the CHERRIES methodology.

The process of co-creation was deeply driven by identification of the key people and bringing them together whilst understanding that their role within the co-creation process may change from one step to the other. Patient engagement in activities that are not necessarily medical is challenging, making the engagement of the healthcare professionals essential in facilitating the process. It is therefore, clear that the management of the two groups must be aligned, despite the different positions they are in during each step of the co-creation as a process.

Furthermore, the ability to adapt to the challenge of the COVID-19 pandemic was key to the successful results of the project. The regional tools ensured that available technological tools were employed to overcome the issues of restricted face-to-face communication and limited access to team members and stakeholders and tried to the best of their abilities to maintain open communication channels with all actors participating in co-creation.

The project challenged how the regional teams relate to themselves and their activities, highlighting how RRI demands reconfigurations of existing structures. Unavoidably, we enter a political arena. Navigating these politics of change fell mostly into the hands of the regional partners (and partly the CHERRIES researchers who supported them in their activities). It surfaced *by challenging who gets to define problems, what makes for a good problem, what qualifies a good solution or by exposing the dominant actors in the regional healthcare innovation settings, for example.*

As reported in the previous chapters, co-creation was a tool that enabled better collaboration, agility and entrepreneurship by opening the innovation process up to a wide range of voices that would more often than not, never be involved in it. Additional to this, the inclusion of *RRI* was vital to the co-creation as it forced the teams to address responsibility in R&I with impacts that are truthfully beneficial to society. It urged the teams to run quality checks to the performed activities by considering societal benefits and shortcomings whilst working on sustainability of their proposed solutions, which to an extent gave the design of the pilots a more ethical stance.

The co-creation journey within the CHERRIES project was key in the promotion and encouragement of active involvement of all relevant stakeholders and end users, to create on-demand, *tailor-made* solutions. The implementation of the pilots received positive impact by the participating patients, healthcare providers and CSOs which CHERRIES is modeled to serve. The process of co-creation is strongly suggestive of an approach that considers the actors, the end-users and the decision makers in one pool facilitating them to be involved in the design and implementation, bringing different opinions to the same table. Finally, the



involvement of people outside the consortium of project partners, was essential in approaching the process of co-creation in a realistic and applicable way whilst disseminating the results to the best-suited groups may also enable future policy recommendations.

CHERRIES Partners



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n° 872873. This document reflects only the author's view and the Commission is not responsible for any use that may be made of the information it contains.