CHERRIES
RESPONSIBLE HEALTHCARE ECOSYSTEMS

# Adapted territorial methodology for the experimentation per territory.

May 28th, 2021

Authors: Moyses Moyseos, CyRIC EUBIC

# Document Control Sheet

| | |
|---|---|
| Grant agreement number | 872873 |
| Project acronym | CHERRIES |
| Project website | www.cherries2020.eu |
| | |
| Deliverable number | D3.2 |
| Work package number | 3 |
| Lead | Cy.R.I.C EUBIC |
| Nature | Report |
| Dissemination level | Public |
| Delivery date | 2021-05-28 |
| Author(s) Email | m.moyseos@cyric.eu |
| Project Coordinator | ZSI |
| Executive summary | The "*Adapted territorial methodology for the experimentation per territory*" deliverable encapsulates the CHERRIES Methodology. A methodology that has been designed to provide flexibility and agility to the demand driven innovation processes, for co-creation and reflection to mirror territories upon their application in every region. The CHERRIES Methodology is presented and analysed in four different phases, all of them analysed in detail, providing all the necessary considerations and documentation that give the reader a framework of territorial methodology for experimentation by applying Responsible Research and Innovation tools and principles and adapting to territorial preconditions in order to collect and identify the needs in healthcare as well as to adopt to regional challenges and support co-creation solutions in the healthcare ecosystem whilst engaging all relevant stakeholders. |

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement nº 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.

# Versioning & Contribution History

| Version | Date | Author/Editor | Contributors | Comments |
|---|---|---|---|---|
| 1.0 | 20/01/2021 | Moyses Moyseos | All partners | |
| 2.0 | 28/05/2021 | Moyses Moyseos | All partners | |

**Document last saved on 28/05/2021**

# Table of Contents

# Table of Terms

*Table 1: Terminologies and Definitions used in CHERRIES*

| | |
|---|---|
| **APPLICATION** | Innovation solution proposal answering the call for solutions or all for needs. Consists of the following items: 1/ The Proposal has to follow the templates provided for this purpose; 2/ Declaration of honour duly signed, stating that this very same project proposal does not receive funds elsewhere. |
| **CALL FOR NEEDS** | Publication of an announcement inviting either organizations or individuals and generally stakeholders from the 4P model as defined in the project to submit a "need" as also defined in the project. CHERRIES methodology is a demand driven approach on healthcare innovation and the first and most important step is to properly identify and define a solid need. To define the need, the applicant has to complete the application form as designed by the consortium and adjusted accordingly in the territorial conditions. In CHERRIES, the current call is hosted in 3 different regions with different geographical, socioeconomical and healthcare characteristics. |
| **CALL FOR SOLUTIONS** | Publication of an announcement inviting innovative Start-ups, SMEs and other organizations to provide a solution addressing the unmet need that has been defined in the call for needs. To provide a solution, the applicant has to complete the application form as designed by the consortium and adjusted accordingly in the territorial conditions. |
| **CHALLENGE PROPOSER (CP)** | The organization/entity or group of organizations that propose the unmet need and frame it in the form of a challenge. The CP also works in close collaboration with the solution provider to co-create a solution. The Challenge Proposer is directly in collaboration with the territorial partners of CHERRIES. |
| **EVALUATION SELECTION OF THE NEEDS** | Group of stakeholders who are responsible for selecting the need among all proposals submitted. The Evaluation Selection Committee (ESC) is composed by the territorial partners as well as with the experts, professionals, and civil society in the field of the Need and Solution under examination |
| **SELECTION COMMITTEE OF CHALLENGES** | Group of stakeholders who are responsible for selecting the challenge among all proposals submitted. The SC (selection committee) is composed by the territorial partners as well as by the experts and committees in the field of the seed and solution under examination |
| **EVALUATION PROCESS** | The call for solution evaluation process is structured in three steps: 1-Eligibility Check. A first review performed by the local partners. 2-Proposal evaluation. A SC evaluates all eligible proposals, 3- Solution Provider selection. The selected local beneficiary solution providers and their solutions' proposals are published & notified. |
| **FUNDING/CONTRACTING BODY** | Funding/Contracting organization that launches a competitive call to select the best solution provider for each territorial challenge. It also provides the economic support to the Solution Provider to carry out the development of the solution. In CHERRIES project, the funding/contracting body is the regional partner that has received the funding (through the project) and will provide it to the solution provider following the sub-agreement regulation. |
| **SOLUTION PROVIDER** | Organization that, once selected, becomes the solution provider and starts co-creation with territorial team, supporter and challenge owner. |
| **SUBGRANT AGREEMENT** | Selected Solution Providers are requested to sign a covenant document which main objective is to validate the administrative, financial and technical operational capacity and to establish some minimum ground rules for receiving support from the CHERRIES project. |
| **THEME** | A Theme is a large Healthcare area where there are needs that can be addressed by an innovative solution. The Theme is defined by the call for needs and its purpose is to identify unmet need to be solved in relevant healthcare areas. |

# 1. Introduction

CHERRIES engages health ecosystems in South-West Europe (**Murcia ES**), Northern Europe (**Örebro SE**) and South-East Europe (**Republic of Cyprus CY**), in which the territorial preconditions and development paths are varying. CHERRIES project is developing an adapted territorial methodology for the experimentation pilots in each territory. The demand driven innovation processes for co-creation and reflection to mirror territories implemented throughout the project are elaborated in the current document presenting the unique CHERRIES approach. By applying Responsible Research and Innovation tools and principles and adapting them to territorial preconditions in order to collect and identify the needs; the CHERRIES methodology is designed to adopt to regional challenges and to support co-creation solutions in the healthcare ecosystem whilst engaging all relevant stakeholders of the 4P model which are Patients, Professionals, Policymakers and Payors

CHERRIES Methodology has been designed to reflected the live progress and activities of the territorial experimentation process in the three different regions and as a result, it is able to provide any user and reader that potentially would apply the CHERRIES methodology in a mirror territory with all the necessary step-by-step guidance as well as the documentation to be used during its adoption. The unique value of CHERRIES methodology is that it provides the potential adopter with flexibility and agility to adjust and apply the core methodology based on its unique territorial preconditions.

The prevailing document consists of 4 chapters, each one delivering blended experience and expertise as well as a unique customized approach for territorial demand driven RRI approach in the healthcare ecosystem.

Chapter 2 expands on the theoretical considerations around the healthcare sector in the European landscape. It emphasizes on the tremendous changes that the healthcare sector is currently undergoing and the challenges that the healthcare decision makers increasingly recognize to solve in the face of innovation. A dedicated section to Responsible Research and Innovation, highlights the societal beneficial impact that RRI policy aims to achieve. Additionally, within the abovementioned section, mitigation measures are presented in in regards to the negative effects of poor innovation management in areas with potentially adverse societal effects.as well as actively supporting innovative activities in areas where the societal benefit is expected to be high.

Chapter 3 is considered to be the core of the document as it encapsulates the detailed description of the CHERRIES methodology so far. The CHERRIES Methodology is a methodology based on RRI and co-creation and it encapsulates in every step of the process the elements of agility and flexibility to the region to adopt accordingly as it is designed to be mirrored in other territories beyond the experimental pilot regions. An initial outline and an overview of the model is introduced. *The engagement of societal actors, with central roles or knowledge about the healthcare and innovation ecosystem in the territories as well as citizens, irrespective of their age, gender, ethnicity and socio-economic background, is a central aim and methodological cornerstone of CHERRIES. The need articulation processes as well as the co-creation phase of the experiments guarantee that developed solutions are aligned with the values, needs and expectations of society*[1]. CHERRIES methodology presents clear reference to the RRI framework, and in particular aims at offering innovation actors the tools and processes aimed at facilitating multi-stakeholders approaches to

[1] CHERRIES (G.A no.872873 ) Annex I to the Grant Agreement

innovate in healthcare because societal challenges require innovative solutions resulting from a multi-stakeholder dialogue.

Chapter 4 presents a five-step approach on the methodological choices made in the CHERRIES pilot territories. The Analysis of the regional context and potential for innovation, the Governance and Elaboration of an overall vision of the future per region, the identification of the territorial priorities and finally the roadmap and plan of action of the application methodology. A methodology for the identification of regional priorities, is presented as well as. The chapter is based on the theoretical interface of innovation policy, RIS3, RRI and healthcare sector and presents a step-by step- guide on how to implement the CHERRIES methodology in a territorial setting.

Chapter 5 provides a comparison of the different regional approaches and concludes with an outlook on the highlights and critical milestones of the CHERRIES approach. A matrix is presented that allows thereader to easily compare and draw valuable conclusions on the agility and adaptation of the CHERRIES methodology.

# 2.Theoretical Considerations

The current changes in the demographic structure of European societies constitutes a societal challenge[2]. Aging and declining populations with lower shares of working population increase the pressure on and costs of the social-welfare systems. While this development will have numerous effects on regional economies, it is also affecting healthcare as it is mostly organised in the public sphere and innovation activities are shaped by the precautionary principle and strict regulations which leads to a situation where market rules apply only partially. This is also affecting the innovation systems that produce novelty within the healthcare systems. The following sections provides an overview of the challenges the sector is facing in regard to innovation in healthcare, discusses how RRI and Open and User Innovation approaches can contribute to better innovations in healthcare.

## 2.1. Background and challenges in healthcare innovation

The healthcare sector is currently undergoing tremendous changes throughout Europe and other OECD countries. Healthcare organisations are facing an environment in which medical information, technologies, and relationships with other healthcare systems are in constant flux while the pressures are accentuated by ageing populations, growing burdens of chronic diseases and comorbidities, and related changes in the nature of demand as well as drives towards more personalised treatment provision. At the same time, healthcare provision systems are facing constant pressure to reduce costs while improving quality. Thus, innovation is a critical factor for organisations within the healthcare system (Larisch *et al.*, 2016[3]; Marjanovic*et al.*, 2020[4];

[2] European Commision Report on the Impact of Demographic Change
[3] Larisch, L. M., Amer-Wåhlin, I., & Hidefjäll, P. (2016). Understanding healthcare innovation systems: the Stockholm region case. Journal of Health, Organisation and Management, 30(8), 1221–1241. https://doi.org/10.1108/JHOM-04-2016-0061
[4] Marjanovic, S., Altenhofer, M., Hocking, L., Chataway, J., & Ling, T. (2020). Innovating for improved healthcare: Sociotechnical and innovation systems perspectives and lessons from the NHS. Science and Public Policy, 47(2), 283–297. https://doi.org/10.1093/scipol/scaa005

Proksch *et al.*, 2019[5]). In addition, COVID-19 pandemic has added an extra layer of pressure to the aforementioned.

Healthcare decision-makers increasingly recognise the potential of innovation to help respond to the challenges they face and to support high quality, safe, and effective care (Marjanovic *et al.*, 2020). Thereby, the broad goals of healthcare innovations are either improved health outcomes or improved economic outcomes, or both at once. However, the stakeholder groups in healthcare systems put different emphasis on these aspects and might have mix of complementary and conflicting interests, that influence how health innovation pathways and promising approaches unfold. Therefore, healthcare innovations rarely achieve widespread uptake even when there is robust evidence of their benefits (and especially when such evidence is absent or contested) (Greenhalgh & Papoutsi, 2019[6]) and successful implementation of new approaches represents a contested and complex social negotiation process with significant differences in the balance of power of the different stakeholder groups.

**Innovations in healthcare systems refer to new medicines, diagnostics, health technologies, practices, objects or institutional arrangements** perceived as novel by an individual or a unit of adoption. Innovation is crucial for improving health outcomes in high-income countries well as in countries of low and middle income, and for achieving the Sustainable Development Goals. In order to increase the service delivery quality or to reduce costs, the healthcare sector faces a constant need to adapt, learn, and develop to meet the needs of patients, providers, policy makers and payors. Innovation is increasingly seen as a mean to address these needs. Based on an innovation system thinking, this system is driven by localized and endogenous interactions across various units (i.e. ecology of agents and connections among them), coordinating mechanisms (i.e. institutional milieu), and growing interdependencies across different domains (i.e. scientific research, regulation, delivery of patient care and the market process) (Consoli & Mina, 2009)[7].

**Various innovations lead to better healthcare.** Historically, much of the health innovation literature has focused on innovation from an industrial strategy or economic competitiveness perspective with existing studies hardly ever coming from innovation scholars but health economists, health policy and health management scholars (Consoli & Mina, 2009; Marjanovic *et al.*, 2020). Thus, there is less comprehensive evidence on how to support innovating for the purpose of healthcare services improvement, with some notable exceptions (e.g., Greenhalgh & Papoutsi, 2019). While it is apparent that innovations rarely achieve widespread uptake even when there is robust evidence of their benefits (Greenhalgh & Papoutsi, 2019) the why, what, how and who of healthcare innovations (Ilinca *et al.*, 2012[8]) are mostly addressed with a perspective of a specific technologies with little information on systematic pathways. There are few comprehensive studies that consider bottlenecks in a systemic and sustainable manner (Marjanovic *et al.*, 2020) and the discourses about single innovations and underlaying processes are fragmented.

[5] Proksch, D., Busch-Casler, J., Haberstroh, M. M., & Pinkwart, A. (2019). National health innovation systems: Clustering the OECD countries by innovative output in healthcare using a multi indicator approach. Research Policy, 48(1), 169–179. https://doi.org/10.1016/j.respol.2018.08.004

[6] Greenhalgh, T., & Papoutsi, C. (2019). Spreading and scaling up innovation and improvement. BMJ (Online), 365. https://doi.org/10.1136/bmj.l2068

[7] Consoli, D., & Mina, A. (2009). An evolutionary perspective on health innovation systems. Journal of Evolutionary Economics, 19(2), 297–319. https://doi.org/10.1007/s00191-008-0127-3

[8] Ilinca, S., Hamer, S., Botje, D., Espin, J., Mendes, R. V., Mueller, J., … Plochg, T. (2012). All you need to know about innovation in healthcare: The 10 best reads. International Journal of Healthcare Management, 5(4), 193–202. https://doi.org/10.1179/2047971912y.0000000018

The academic discourses about innovation in biotechnology, pharmaceuticals, medical devices, personalised medicine, integrated care models, and digital health emphasise different aspects and show that innovation pathways between these subfields have different foci and are not well connected. In the context of **biotechnology and pharmaceuticals**, the understanding of innovation is based on a scientific and technologically based innovation mode (STI) (Jensen, *et al.*, 2007[9]) and the literature can be read in a way that seems a linear science-push understanding of innovation prevails in this stream (Consoli & Mina, 2009). The innovation pathway is described as small innovative biotechnology firms – often start-ups or spin-offs without any product on the market – developing drugs and start the regulatory trail process in order to gain market authorisation, while larger companies coming in the innovation process as acquisition and late-stage clinical trial specialists, betting on therapeutic assets that may be potent near-term vehicles for earning growth (Roy, 2020)[10]. Thereby, larger companies, possessing the comparative advantage of global regulatory, manufacturing and distribution expertise become the gatekeeper selecting the drugs that make it to the patient. This, as shown by the case of Gilead's *sofosbuvir*, a curative drug for hepatitis C, poses risks for curative drugs in the innovation process leading to ask Goldman Sachs if "*curing patients is a sustainable business model"?* (Roy, 2020, p. 113).

In this process, the value of new drugs is quantified as a future-oriented value, in which the price and costs of therapeutic interventions are deemed commensurate with the value if health improvements for health systems and the populations for which they are accountable. This model of therapeutic value added is deeply rooted in European healthcare systems and leads to strategies of value-based pricing for both sides – the public payors and the private suppliers (Ciani *et al.*, 2016; Roy, 2020)[11]. However, while these processes are shaped with the logics inherent to drug development, **medical technologies and devices** are judged with similar criteria while they differ in many aspects. Their performance and use are heavily dependent upon organisational settings, training, competence, and experience of the medical staff and during their learning phase the actual value of new devices cannot be assessed. Further, they are so quickly replaced by newer generations that an assessment of a technologies value might never be assessed at all. Moreover, due to different regulatory and coverage requirements or given circumstances (e.g., unethical blinding in clinical trials), the evidence on added value at market launch is less robust than for drugs. Further, the assessment value of devices is less clear as they often have multiple indications (e.g., CT-scan, MRI) or are embedded into procedures or services. As they are often deployed in diagnostics, their value cannot be separated by the value of the treatment received afterwards. Therefore, it is not easy to parcel out the contributions of each single components to final outcomes (Ciani *et al.*, 2016). This criticism Ciani *et al.* (2016) formulate against taking a pure added value-based approach for the assessment of medical devices points towards two directions. First, medical devices are predominantly based on engineering sciences and their value is increasing due to incremental changes done over time in an innovation mode based on learning-by-doing, by-using, and by-interacting (DUI) (Jensen *et al.*, 2007). Second, in contrast to a new drug, the value of a new medical device is depending on the embedding of a technology in the routines and clinical practices and therefore, the knowledge and acceptance of the staff.

[9] Jensen, M. B., Johnson, B., Lorenz, E., & Lundvall, B. Å. (2007). Forms of knowledge and modes of innovation. Research Policy, 36(5), 680–693. https://doi.org/10.1016/J.RESPOL.2007.01.006

[10] Roy, V. (2020). A Crisis for Cures? Tracing Assetization and Value in Biomedical Innovation. In K. Birch & F. Muniesa (Eds.), Assetization: Turning Things into Assets in Technoscientific Capitalism. (pp. 97–124). The MIT Press.

[11] Ciani, O., Armeni, P., Boscolo, P. R., Cavazza, M., Jommi, C., & Tarricone, R. (2016, March 1). De innovatione: The concept of innovation for medical technologies and its implications for healthcare policy-making. Health Policy and Technology, Vol. 5, pp. 47–64. https://doi.org/10.1016/j.hlpt.2015.10.005

The legitimation of a technology is therefore based on a more complex and social process than a drug with a clear added value.

The importance of an embedded socio-technological perspective on innovation is even clearer in the literature on **care and eHealth**. In order to decrease the pressure of aging societies on healthcare systems and to enable and support elderly to manage their own lives, the organisation of care provision is currently undergoing changes. Under the term of "assisted living", a proactive and distributed healthcare system based on support for self-sufficiency and often home-based and patient-centric services, are established. In parallel, the concept of eHealth is describing a wide spectrum of technologies ranging from simple online systems for managing doctor appointments and prescriptions, through technologies for sensing vital functions and monitoring a person's lifestyle and fitness level, to complex online communication and sensing platforms. eHealth is placed at the intersection of the healthcare and ICT innovation system. Konrad *et al.*, (2018)[12] describe a case of digital care technology where the technological development required simplicity rather than a broad range of functionalities. The successful application was primarily an issue of coordination and information exchange, and the active social embedding of the platform in use networks, practices, and institutional frameworks. Bugge and collegues (2018)[13] in their case study of assisted-living technologies illustrated a government-led initiative aiming at a transition from reactive to proactive approaches for healthcare provision. They find that the success of transition depends on the buy-in of a broad range of stakeholder groups, and a readiness to learn and adapt behaviour. Central government is only one among many actors, and it plays a variety of roles, employing a specific policy mix with some focus on being the coordinator of stakeholder debates and of initiatives to support demand articulation and directionality of innovation. The case illustrates the importance of understanding the conditions for innovation generation and absorption when it comes to support system transitions. Both cases illustrate, that a socio-technical perspective on development and implementation of new technological solutions can inform the discourse on healthcare innovation and those inter- and intra-organisational dimensions are crucial in understanding systemic innovations. Further, both cases point towards a DUI-mode of innovation.

Summarising these paragraphs, one can state that healthcare innovation comprises quite different processes in terms of innovation mode and valuation models. While drugs are based on STI modes and sold globally, medical devices create most of their value due to incremental improvements in a DUI setting and are therefore, not as easily scalable. Innovation for care and eHealth solutions in contrast are most of the time built for a specific context and socially embedding, that is essential for the innovation's success. Therefore, the valuation is most of the time will not be scalable and depend on a DUI innovation mode.

## 2.2. Responsible Research and Innovation (RRI)

The general aim of Responsible Research and Innovation (RRI) policy is that research and innovation should have a societally beneficial impact (Owen, *et al.*, 2012). RRI policy, aims on both mitigating the negative effects of innovation in areas with potentially adverse societal effects, as well as actively supporting innovative activities in areas where the societal benefit is expected to be high, for instance, in addressing grand societal

[12] Konrad, K., Schulze Greiving, V., & Benneworth, P. (2018). The role of user-led regional innovation networks in shaping responsible innovation in eHealth. https://doi.org/10.3990/4.2589-2169.2018.01
[13] Bugge, M. M., Coenen, L., & Branstad, A. (2018). Governing socio-technical change: Orchestrating demand for assisted living in ageing societies. Science and Public Policy, 45(4), 468–479. https://doi.org/10.1093/scipol/scy010

challenges. The RRI concept emerged within the EC, starting as a policy rather than an analytical concept (von Schomberg, 2011[14]) and subsequently the Directorate-General for Research implemented RRI as a cross-cutting action in the Horizon 2020 research and innovation programme at its establishment in 2014, foregrounding the responsibility of researchers and innovators towards society. RRI has been implemented on EC level policy soon after it has been put forward by von Schomberg (2011) and others.

Subsequently, the theoretical foundations are rather new as well and the academic discourse on how to achieve the general aim of RRI is still ongoing. One of the most frequently cited definitions sees RRI as "*a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products*" (von Schomberg, 2011, p. 9). In another publication, von Schomberg (2013)[15] clarified that the deliberation around the value of innovations has to **include citizens and civil society**. Also, RRI is not only about the avoidance of unintended consequences (of a specific innovation, etc.), but about pro-active forms of anticipatory governance supporting ways of developing these innovations (von Schomberg, 2013).

In their definition of RRI, Stilgoe *et al.* (2013)[16] also focus on the aspect of anticipation. "*Responsible innovation means taking care of the future through collective stewardship of science and innovation in the present*" (Stilgoe *et al.*, 2013, p. 1570). They draw from an analysis of the history of responsibility debates in science, recalling the Asilomar conference in 1975 as an example of scientists taking responsibility. RRI is a form of governance that includes a forward-looking responsibility instead of a more consequentialist view. This involves anticipatory governance, constructive or real-time technology assessment, upstream engagement, etc. They propose four dimensions for RRI: **anticipation, reflexivity, inclusion and responsiveness.** The four conditions can be seen as necessary devices for reflection that will give shape to the research and innovation process by cultivating a forward-looking approach to responsibility.

In the **healthcare sector,** (technological) innovations can exert pressure on available resources (Demers-Payette *et al.*, 2016[17]; Roy, 2020). In publicly financed systems, this puts the state in a position where it fosters innovations with the aim of creating a competitive economy and at the same time, the state is the main purchaser of innovative and expensive medical technology. This is posing an enormous and increasing challenge to balance growing public health spending and providing patients with access to the best possible care. Therefore, it is imperative that new technologies resolve and not create problems for healthcare systems. This resulted in calls for developing new ways of designing health technologies and a model for the design, development, and governance of medical innovation that carefully examines moral and social issues and encourages greater inclusion of the actors concerned by the innovation. Hereby, the idea is that such a model might be better suited to respond to the multiple challenges and needs of health care systems and make it

[14] von Schomberg, R. (2011, November 13). Towards Responsible Research and Innovation in the Information and Communication Technologies and Security Technologies Fields. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2436399
[15] von Schomberg, R. (2013). A vision of responsible research and innovation. In R. Owen, J. Bessant, & M. Heintz (Eds.), Responsible Innovation (pp. 51–74). John Wiley & Sons, Ltd.
[16] 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
[17] Demers-Payette, O., Lehoux, P., & Daudelin, G. (2016). Responsible research and innovation: a productive model for the future of medical innovation. Journal of Responsible Innovation, 3(3), 188–208. https://doi.org/10.1080/23299460.2016.1256659

easier for the State to manage the delicate trade-off between investments and control in the governance of medical innovations (Demers-Payette *et al.*, 2016). In this context, RRI could help to anticipate social risks and to reduce unforeseen and undesirable consequences of innovations.

In healthcare systems, responsibility is imposed through a set of long-standing rules and routines that govern the provision of medical services. These regulations require public and private actors to deliver the necessary services to maintain and improve the health and wellbeing of the population. Accountability is embedded in the policies and regulations that frame R&D, manufacturing and distribution of medical devices and pharmaceutical products by ensuring the quality, effectiveness, and safety of these products. However, RRI as described in four dimensions by Stilgoe, Owen and Macnaghten (2013) can contribute to identify innovation needs and to better integrate innovations within the healthcare system by providing a future-oriented framework. According to Demers-Payette *et al.* (2016), **anticipation** in healthcare innovations addresses the identification of new preclinical opportunities for innovation, as well as their social, ethical, and political risks. **Reflexivity** refers to a socio-political analysis of the context in which medical innovations are produced and used as well as to examination of the value system and societal practices governing R&D processes in healthcare. The **inclusion** dimension indicates the consideration of a wider public in R&D and requires a public deliberation on systemic health issues and/or user engagement in the medical innovation process. **Responsiveness** is interpreted as the ability to mobilise emerging views, norms, and knowledge in the R&D process and subsequently create funding, regulations, and audit processes that allow for an adaptive medical innovation process.

Overall, RRI in healthcare in aiming at developing novel solutions that benefit patient's needs or improves the healthcare system. More broadly, **RRI in health** 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[18]). While RRI offers a new lens to consider the challenges that new health technologies raise for health systems, the dimensions that specifically characterize responsible health innovation include the following value domains: **population health** (relevance, ELSI, equity), **health system** (inclusive, responsive, level of care), **economic** (greater value for less resources), **organisational** (value for users, purchasers and society), and **environmental** (Silva, *et al.*, 2018).[19]

## 2.3. Open and user innovation

### 2.3.1 The concept of Open Innovation and its application in healthcare

The concept of Open Innovation (OI) describes emerging practices of large innovative companies and their deviations from the traditional, linear way of organising innovation processes. The novelty of this concept in comparison to preceding innovation concepts is represented by the increasing importance of collaboration with external stakeholders through the iterative exchange of knowledge, technology, and resources across their traditional entity boundaries. Firms, in order to stay competitive, need to engage with different types of

[18] 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

[19] Pacifico Silva, H., Lehoux, P., Miller, F. A., & Denis, J.-L. (2018). Introducing responsible innovation in health: a policy-oriented framework. *Health Research Policy and Systems*, *16*(1), 90. https://doi.org/10.1186/s12961-018-0362-5

partners, ranging from suppliers to customers, as well as universities, research centres and competitors. Thus, according to this framework, the boundaries of an organisation have to become permeable rather than closed, since innovation developed through intentional inflows and outflows of knowledge exists within a system of relationships with external partners (Bigliardi *et al.*, 2021)[20]. The original definition of OI phrased this openness in the context of knowledge and market dynamics: "valuable ideas can come from inside or outside the company and can go to market from inside or outside the company as well. This approach places external ideas and external paths to market on the same level of importance as that reserved for internal ideas and paths" (Chesbrough, 2003, p. 43)[21]. One important feature of OI thinking, which is in line with system thinking and older innovation system approaches, is that OI defines innovation processes as a distributed process based on purposively managed knowledge flows across organisational boundaries, using pecuniary and non-pecuniary mechanisms in line with the organisation's business model (Chesbrough & Bogers, 2013)[22]. OI and open business models have been widely debated in innovation research, whereby, aspects including the benefits of OI, knowledge management and OI, OI from an organisational perspective, business models and OI, as well as business models in an ecosystemic, open context, are of central interest (Malm *et al.*, 2020)[23]. Chesbrough and Bogers conceptualize 3 different possible modes of OI, differentiated by the direction of knowledge-flow: Outside-in (inbound), meaning firms leveraging external knowledge and technology to accelerate internal innovation, Inside-out (outbound), meaning the licensing out of internal intellectual property, and the Coupled mode of OI combining these two processes (H. Chesbrough & Bogers, 2013, p. 8). While the inbound side of OI has been thoroughly explored, the outbound side of OI has only recently gained more attention, reflected by growing research on intellectual property (IP), licensing and selective revealing of IP (ibid). While the OI concept has generally been well received, it has drawn some critiques as well, mainly that it is too linear in its nature and fails to acknowledge circularity in innovation and that many of its ideas have existed previously, which the author of the main work introducing the OI concept didn´t acknowledge enough according to Trott and Hartmann (2009)[24].

The OI concept has, since its first publication by Chesbrough (2003), made waves and has influenced countless other discourses. Research on the OI concept began in Business and Management sciences and soon after expanded to other disciplines as well as into policy (Chesbrough & Bogers, 2013). The discussion has also branched out and combined with other topics, for example open innovation in software development, such as the open software phenomenon (West & Gallagher, 2006[25]) or open innovation and

[20] Bigliardi, B., Ferraro, G., Filippelli, S., & Galati, F. (2021). The past, present and future of open innovation. European Journal of Innovation Management, ahead-of-print(ahead-of-print). https://doi.org/10.1108/EJIM-10-2019-0296
[21] Chesbrough, H. W. (2003). Open Innovation: The New Imperative for Creating and Profiting from Technology. Harvard Business Press.
[22] Chesbrough, H., & Bogers, M. (2013). Explicating Open Innovation: Clarifying an Emerging Paradigm for Understanding Innovation. In New Frontiers in Open Innovation (pp. 3-28.). Oxford University Press.
[23] Malm, H., Pikkarainen, M., & Hyrkäs, E. (2020). Impact of coupled open innovation on company business models: A case study of demand-driven co-creation. Journal of Innovation Management, 8(3), 75–108. https://doi.org/10.24840/2183-0606_008.003_0006
[24] Trott, P., & Hartmann, D. (2009). Why "open innovation" is old wine in new bottles. https://doi.org/10.1142/S1363919609002509
[25] West, J., & Gallagher, S. (2006). Challenges of open innovation: The paradox of firm investment in open-source software. R&D Management, 36(3), 319–331. https://doi.org/10.1111/j.1467-9310.2006.00436.x

the maker scene (Giusti *et al.*, 2020)[26]. Further connections have been drawn between open and frugal innovation, as well as reverse innovation (Hossain, 2013). An issue that is gaining traction is open innovation in the public sector (Lee *et al.*, 2012[27]; Mergel & Desouza, 2013[28]), which can be useful to leverage potential distributed knowledge sources, for example through public hackathons (Bertello *et al.*, 2021)[29].

A special case of public open innovation is using it as a policy instrument in healthcare and public health, which is core of CHERRIES. In this area, a paradigmatic shift away from the traditional assumption that "only health care professionals are able to devise, develop, and disseminate novel concepts and solutions in health care" has happened only recently, whereas the integration of the public in Research and Development (R&D) is now seen as essential for innovation in health care and public health (Bullinger *et al.*, 2012, p. 165)[30]. This shift to including the public in health care research is seen as important from a democratic standpoint, as the public should have a right to participate, and could improve not only the quality, but also the relevance and impact of R&D results for patients, who can further contribute important knowledge and experiential insight to the research process (ibid, p. 166). While public participation in health care has been a topic of academic discussion for a while, most participation today can still only be classified as "tokenism" at the most, meaning participants are given a voice, but they still lack the power to ensure that their views will be heeded (ibid). This was often justified on the basis that integration of the public in health care research causes high costs, an argument that has become less relevant due to the introduction of new technologies which have significantly heightened the feasibility of inclusion (ibid). Bullinger *et al.* further showed the interest on the side of the public to be involved in health care research at the example of an open health platform about rare diseases and the amount of citizen engagement it gathered (2012).

Pikkarainen *et al.* (2020)[31] went a step further and have developed and empirically tested a demand driven OI approach on the example of digital health within the H2020 funded inDemand project (2020). According to them, we need "a new open innovation approach encompassing stakeholders from regional administrations, hospitals, companies and intermediate organizations to enable them to openly work together towards commonly identified global and regional digital health goals" (Pikkarainen *et al.*, 2020, p. 1). Open innovation in the health sector should therefore be people centric, meaning innovations are built by companies together with innovation customers and end users, thereby moving further than a merely "tokenism" approach of public participation. OI in public health would further help to make funding structures clearer and improve the communication density and knowledge transfer within the healthcare innovation

[26] Giusti, J. D., Alberti, F. G., & Belfanti, F. (2020). Makers and clusters. Knowledge leaks in open innovation networks. Journal of Innovation & Knowledge, 5(1), 20–28. https://doi.org/10.1016/j.jik.2018.04.001

[27] Lee, S. M., Hwang, T., & Choi, D. (2012). Open innovation in the public sector of leading countries. Management Decision, 50(1), 147–162. https://doi.org/10.1108/00251741211194921

[28] Mergel, I., & Desouza, K. C. (2013). Implementing Open Innovation in the Public Sector: The Case of Challenge.gov. Public Administration Review, 73(6), 882–890. https://doi.org/10.1111/puar.12141

[29] Bertello, A., Bogers, M. L. A. M., & Bernardi, P. D. (2021). Open innovation in the face of the COVID-19 grand challenge: Insights from the Pan-European hackathon 'EUvsVirus.' R&D Management, n/a(n/a). https://doi.org/10.1111/radm.12456

[30] Bullinger, A. C., Rass, M., Adamczyk, S., Moeslein, K. M., & Sohn, S. (2012). Open innovation in health care: Analysis of an open health platform. Health Policy (Amsterdam, Netherlands), 105(2–3), 165–175. https://doi.org/10.1016/j.healthpol.2012.02.009

[31] Pikkarainen, M., Hyrkäs, E., & Martin, M. (2020). Success Factors of Demand-Driven Open Innovation as a Policy Instrument in the Case of the Healthcare Industry. Journal of Open Innovation: Technology, Market, and Complexity, 6(2), 39. https://doi.org/10.3390/joitmc6020039

system (ibid). Within the inDemand they tested an OI approach for digital healthcare solutions that requires the collaboration of various actors with different, clearly defined roles within the innovation process (Pikkarainen *et al.*, 2020, p. 2). By testing this model on ten different innovation co-creation cases in the digital health sector of different European regions, they concluded that the model can be used to improve global digital health policies, achieve better people centricity through hospital personnel engagement and promote knowledge transfer, while making process roles, responsibilities and funding structures clearer to all the participating stakeholders as well as speeding up the time to market of the results (ibid, p. 14). This model, served as key-inspiration for CHERRIES.

The topic of open innovation in healthcare has received a further boost through the Covid-19 crisis in 2020. According to Chesbrough (2020)[32], there are lessons to be learned in open innovation from our reaction to this crisis. The situation caused by Covid-19 and the sudden urgency it caused led to different forms of user innovation for example, which can be especially useful when solutions to complex issues are needed and users stand to profit from those innovations themselves (Chesbrough, 2020; von Hippel, 2006[33], 2016[34]). Examples for all forms of open innovation were found by Chesbrough, these include, among others, users sharing their designs for masks, hand sanitizers or ways to support several patients with one ventilator (outside in innovation in a b2c context), or the company Medtronic opening up its ventilator design and IP in order for everyone to be able to produce them in times of need (Inside out innovation in a b2b context) (Chesbrough, 2020). Since the pandemic management relied on a fast response, many issues which before hindered the growth of OI became less relevant - These developments of Open Innovation in the context of healthcare are promising, important and timely because - as Chesbrough puts it – “Global public health simply works better – and faster – when we open up.” (Chesbrough, 2020, p. 4).

# 3. The CHERRIES methodology

The engagement of societal actors, with central roles or knowledge about the healthcare and innovation ecosystem in the territories as well as citizens, all kind of citizens, irrespective of their age, gender, ethnicity and socio-economic background, is a central aim and methodological cornerstone of CHERRIES. The need articulation processes as well as the co-creation phase of the experiments guarantee that developed solutions are aligned with the values, needs and expectations of society[35].
The CHERRIES methodology presents a clear pathway towards RRI in the healthcare sector and offers innovation actors the tools and processes aimed at facilitating multi-stakeholders approaches to innovate in healthcare. It does so in order to address societal challenges in an adequate way through various aspects of a multi-stakeholder’s dialogue:

- Broader vision/Long term vision.
- Increased and improved relationship between customers and users.
- New resources of creativity and innovation.

[32] Chesbrough, H. (2020). To recover faster from Covid-19, open up: Managerial implications from an open innovation perspective. Industrial Marketing Management, 88, 410–413. https://doi.org/10.1016/j.indmarman.2020.04.010
[33] von Hippel, E. (2006). Democratizing Innovation. The MIT Press. https://library.oapen.org/handle/20.500.12657/26093
[34] von Hippel, E. (2016). Free Innovation. The MIT Press. https://library.oapen.org/handle/20.500.12657/26044
[35] CHERRIES (G.A no.872873 ) Annex I to the Grant Agreement

- Increased awareness about upcoming regulatory regimes.
- Reconsideration of business processes focusing on customers rather than competitors.
- Obtain competitive advantages and benefits by including RRI in their processes and products (cost reduction, risk reduction, better supply chain engagement, reputation, innovation capabilities, increased attractiveness of the employer, new opportunities).
- Increase the capacity of health entities to systematically identify and solve their needs while creating opportunities for private companies.
- Digital solutions with a high success rate -in terms of their application in practice/market uptake- because they have been developed side by side with the client.

RRI can help healthcare actors in their decision making taking into account a long-term vision, an inclusive attitude and a societally oriented approach.

CHERRIES experimentation process is therefore permeated by a RRI approach, from needs' identification to solutions' definition and co-creation. Through the proposed methodology and throughout the different pilot phases, CHERRIES will help healthcare innovation players act according to RRI process dimensions such as diversity and inclusion, openness and transparency, anticipation and reflection, responsiveness, and adaptability.

Moreover, wherever relevant, the 2 regional calls (call for needs and call for solutions) will refer to some specific RRI-driven criteria (such as open access, gender equality, public engagement, governance, ethics and science education) forcing healthcare innovation players working together towards ethically acceptable, socially desirable and environmentally sustainable products and services.

In the following paragraphs, where each phase of the experimentation is described in more detail, CHERRIES will suggest practices and tools that will help regional actors shaping responsible healthcare ecosystems.

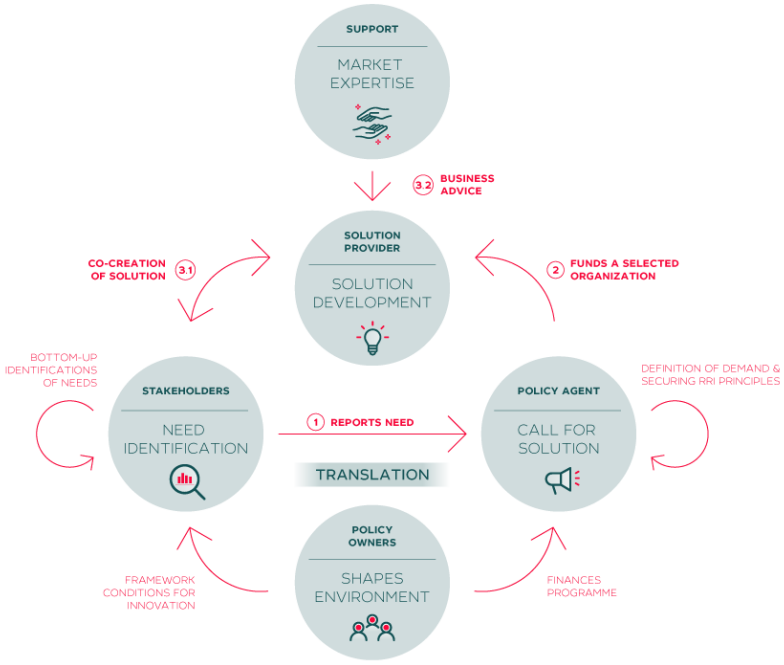



*Figure 1: Schematic representation of the CHERRIES experimentation approach.*

**Introduction to the Phases of the Methodology**

As mentioned above the CHERRIES methodology suggests a standard process that enables each region to tailor and adjust to its specific territorial context. Flexibility and adaptability are two key assets of CHERRIES approach.

The representation of the four phases in Figure 2, reflects the process and presents the method to be used by the partners responsible for the implementation of the CHERRIES pilots per territory. To propose a very practical and operational framework, the document is structured along these four phases which each region needs to implement on the regional level.

**Phase 1** focuses on the need identification. In order to achieve this objective, stakeholders launch a call for needs to identify the unmet need in the social healthcare arena and, through a process of evaluation and selection, a regional need will be selected in each region.
**Phase 2** aims to the translation of the selected need to be shaped into a call for solutions. The call for solutions is also divided into five micro-processes that are presented in Figure 3.
**Phase 3** refers to 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.
**Phase 4** aims to present the lessons learned during the adoption of the Methodology in the mirror territories as well as the adoption of RRI principles and tools in the healthcare ecosystem.

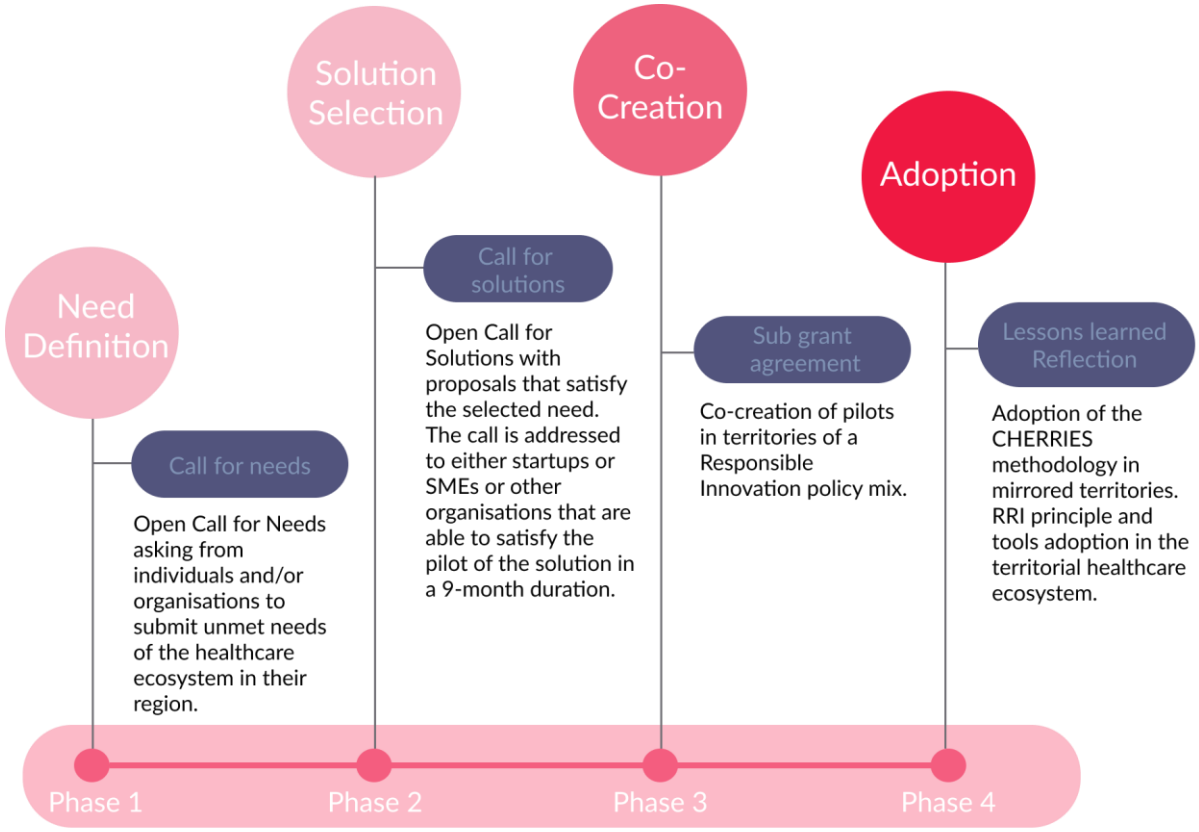



*Figure 2: Cherries Methodology divided in phases*

## 3.1. PHASE 1: The need identification

### 3.1.1 Introduction to the CHERRIES need identification process

The needs should arise from the healthcare system and go beyond the level of an individual patient, be concrete without being overly specific, fit the scope defined by the project framework, and be solvable through an innovative solution.

**What is a need?**

needs in the CHERRIES project can be defined as singular requirements that are identified and reported by healthcare professionals or patients, they are associated with everything human beings require to function well. In the context of CHERRIES, a need is an issue within or connected to the healthcare system that is either affecting the healthcare service delivery quality, creating avoidable costs within the healthcare system or both things at once.

The reported needs are aggregated (if appropriate) into sectoral demands of the healthcare professionals or patients. Thereby, CHERRIES is taking a clear user- or citizen-led approach to innovation processes.

**How do the needs connect to the innovations in CHERRIES?**

We are aiming to identify needs in an open and participatory manner and subsequently we will fund projects meeting these needs with innovative solutions. These solutions could be new services, products, processes, inter- or intra-organisational routines or social practices that are considered as innovative and responsible.

An innovation in the context of healthcare generally refers to new medicines, diagnostics, health technologies, practices, objects, social or institutional arrangements perceived as novel by an individual or a unit of adoption. The OECD defines health innovations as: "*Health innovation identifies new or improved health policies, systems, products and technologies, and services and delivery methods that improve people's health and wellbeing. Health innovation responds to unmet public health needs by creating new ways of thinking and working with a focus on the needs of vulnerable populations. It aims to add value in the form of improved efficiency, effectiveness, quality, sustainability, safety and/or affordability. Health innovation can be preventive, promotive, curative and rehabilitative and/or assistive care*."[36] Following this broad definition of innovations, we seek to identify underlaying needs as a mean of improving the healthcare system with a demand-oriented and user-centred perspective.

**What is the scope of the needs?**
The scope arising from the project framework conditions. The CHERRIES project can fund one innovation pilot per region. The maximum amount for the successful solution provider can get is €50.000. Further, the solution provider and the "Regional team" agree that they co-create the solution in the course of 10 months. This limited resources in terms of money and time, limit the scope of potential solutions and subsequently the need will be selected keeping these specifications in mind.

### 3.1.2 Establish the process for needs definition

The identification of the needs followed several steps presented in the following scheme.

*Table 2: Establishment of process of needs definition*

| | |
|---|---|
| **PREPARATION** | The objective is to define and prepare the documentation, process and tools that is followed and used by the consortium in order to select the needs in each region. It is composed of:<br>• General planning<br>• Appointment of the Executive team coordinating the process on the stakeholders' side. They should define the calendar, responsibilities, and dissemination strategy. They also create the template for submission of unmet need proposals, set up the tools to collect them and develop the content for dissemination.<br>• In prevision of the call for needs a questionnaire will be created. The objective of this questionnaire is to collect the most important information necessary to assess and select the proposal.<br>• Setting up the tools to collect needs.<br>• Define the evaluation criteria |

[36] WHO, n.d., https://www.who.int/topics/innovation/en/ retrieved 24.06.2020.

| | |
|---|---|
| **RECRUITMENT** | This phase is focused on the dissemination of the initiative amongst the society. The objective is to ensure that the identified main stakeholders fully understand the project, the process, the objectives and especially their key role in the project.<br>It includes the organisation of a workshop to present the initiative, the objectives, the selected Topics, the defined process and more especially the coming call for needs |
| **CALL FOR NEEDS** | The objective of the call for needs is to collect via an online tool (platform or Google doc for example) the most relevant needs the society may have today, and which could be solved with an innovative Health solution. The citizens are invited to fill in a specific online questionnaire to submit the most critical need they have at the moment. |
| **EVALUATION** | The objective is to evaluate the needs submitted during the call for needs according to the selection criteria previously defined. |

### 3.1.3 Define the selection process of the most important need(s)

*Table 3: Selection Process for the needs*

| | |
|---|---|
| **APPOINTMENT OF THE EVALUATION COMMITTEE** | Each CHERRIES region has to create its regional Evaluation Committee (EC) by identifying the most relevant experts to assess the needs submitted on the platform according to the defined Selection Criteria and their knowledge of the healthcare sector.<br>The Evaluation Committee is composed by experts and stakeholders depending on the regional scope. Indicatively:<br>• Healthcare stakeholder organisation (4 members):<br>• Top management<br>• Clinical stakeholders,<br>• Information Technology experts,<br>• Innovation management experts,<br>• Representatives from the other involved stakeholders to assess per challenge the feasibility of potential solutions within the expected time and budget constraints. |
| **ASSESMENT AND SELECTION** | The **Evaluation Committee (EC)** selects 1 need based on the Selection Criteria defined.<br>The Evaluation is done in two steps:<br>▪ **Step 1: Evaluation of the Eligibility Criteria**. The first step of the evaluation process will be the evaluation of the Eligibility Criteria. The Eligibility Criteria was not assessed by the whole Evaluation Committee but only by one expert from the regional healthcare stakeholder.<br>▪ **Step 2 – Evaluation of the Selection Criteria.** The second step of the evaluation process will be the evaluation of the Selection Criteria. |

### 3.1.4 Define the selection criteria

*Table 4: Selection Criteria for the needs*

| | |
|---|---|
| **EXPECTED IMPACT** | Expected impact for the stakeholder's organization, the healthcare professionals and the patients.<br>Based on his/her expertise and knowledge, the expert should estimate the potential level of improvement of the actual situation if the defined Need is solved by a new solution.<br>This measurement has to be assessed following (at least) the three main criteria:<br>• Outcomes for the health situation<br>• Cost savings compared to the current situation.<br>• Satisfaction of end users (they could be citizens, patients and/or healthcare professionals) |
| **FEASIBILITY** | Feasibility of the project.<br>The expert should ask himself/herself: is it realistic to solve this Challenge today? Or are there too many barriers for the moment?<br>To assess these criteria, the expert should take into consideration the actual situation in the hospital, the features of the potential solutions to be implemented and their future degree of adoption (e.g., expected interoperability efforts, feasibility of the pilot, adherence of the patient/healthcare professional...) |
| **PRIORITY** | Priority: these criteria measure the alignment with the healthcare policies & strategies of the hospital but also with the regional, national or European healthcare policies.<br>The expert should evaluate the level of alignment of the Challenge regarding the different healthcare and innovation policies and so assess the potential contribution to these different policies. |
| **SCALABILITY** | Scalability of the Challenge.<br>The expert should evaluate the scalability potentiality of the Challenge. The scalability will be evaluated regarding its level of duplicability: are there lot of other healthcare actors who might have the same Challenge/need? (The more hospitals that face the same Challenge, the higher the score. These criteria must also measure the feasibility of the later scaling up of the solution if the pilot finalizes successfully. The key aspect here is the replicability.<br>Finally, these criteria also integrate the potential market and Business attractiveness towards future commercialization potential. |

## 3.2. PHASE 2: The call for solutions

Upon selection of the identified need, the next step is to translate the need into a call for solutions. The call for solutions will be implemented in five steps that are presented in the below figure which in total represent phase 2.

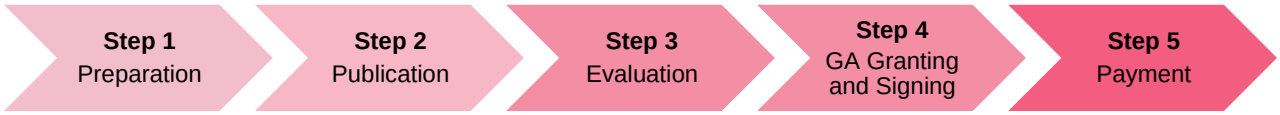



*Figure 3: Call for solutions steps*

### 3.2.1 Preparation

The main objectives of this phase are to determine the following aspects: the legal framework of the call and to agree between the partners on the conditions of the call to be published. In order to achieve them the following actions have been implemented.

The framework of the call has to follow the H2020 rules but, in order to make it sustainable, the usual procedures of Funders, in particular the European Regional Development Fund model, or a combination of both, would be taken into consideration.

Partners will also consider and implement previous practices developed in EU funded projects, such as inDemand. Both content & templates of the call may be assessed and eventually replicated.

It is essential to keep the local stakeholders in the partner regions duly informed about the process, in order for them to be committed from the beginning of the Project.

The text of the 3 calls will include:

- Description of the challenge. The need that has to be tackled.
- Funding scheme: Maximum amount of financial support. Define the nature of the cost that would be covered: only staff costs will be covered (If health restrictions allow, physical meetings are foreseen in the region. If the solution provider lives in a different region / country the solution provider will be responsible for all their own travel expenses. The Grant will not cover them). Persons or categories of persons that may receive financial support.
- Different types of activities that qualify for financial support.
- Duration period.
- Project specifics.
- Application requirements.
- Criteria of eligibility and selection.
- Phases of the selection process.
- Ethics and IPR.

In this phase the following documents will be prepared:

- The application forms.
- Declaration of Honour model, declaration made by the solution provider as a statement of oath to be sent with the application form.
- The Subgrant Agreement Model.

### 3.2.2 Publication

The publication of the calls has to adhere to the following principles and key milestones:

- The calls and support documents will be published on the EU funding and tendering portal, the project website and will be disseminated within the territories.
- The 3 calls will be published individually as there is a specific call for each region, aimed to be in conformity with the peculiarities of each region concerning time frame, formalities, administrative requirements, etc.
- The calls should be open for two months.
- In the submission process, there should be an online receipt/confirmation of applications.
- The calls will be published in English and translated to the language of the Region if required. The application might be sent in English or in the local language. Even if the application is sent in English, the solution provider must be able to communicate in the local language with the regional team and the rest of stakeholders involved in the co-creation process.
- The call texts will include relevant information regarding Ethics and IPRL.
- Monitoring and reporting processes will also be detailed on the complete call definition.
- It should include a preliminary definition of the Co-creation intensity & duration clarifying the estimated amount of work, including interactions with healthcare, professionals and patients.

Once the call for proposals is considered to be completed, it is time to undertake the publication. Three procedures are to be put in place for this purpose:

- Call announcement in the Participant Portal (PP)

A brief announcement about the call (making use of the model proposed by EC) is sent to publication on the Horizon 2020 Participants Portal. Thus, the Project coordinator receives the indication of the Funders to pass the template for publication. This announcement briefly contains the main topics of the call and makes invitation to visit the project website where the full call details are ulteriorly published. In parallel to the publication in the PP, the Partner in charge of communication will publish the Full Call Details on the project's own website.

- The three partner regions may also publish the call in their domestic official bulletins. It depends on the legal status of each Funding/contracting body and the conformity with its habitual procedures.
- A workshop will be organized in each region to present the call and explain how to participate. This workshop will be addressed mainly to potential solution providers.

### 3.2.3 Evaluation and notification

The steps that need to be followed during the evaluation and notification of all applicants are listed below in the following order:

- Regional teams agree on the composition of the Selection Committee and eventually participation of advisory committee at local level.
- The Award criteria are scored according to a grid consisting of a quantitative score for each evaluation criteria-sub criteria. A ranking list is the final output of the call.
- In the first phase of the evaluation, the eligibility of the solutions proposed will be assessed considering:
    - The completeness of documentation and eligibility of each submitted proposal will be assessed.
    - The solution providers should be established in eligible countries.

    - The list of eligible cost for financial support is simplified and only personnel cost is considered eligible.
    - The list of activities that qualify for financial support should be aimed to deploy business development and testing activities together with healthcare professionals and patients in a real-world environment.
    - To ensure the feasibility of the co-creation model within the available budget and duration, it is important to select concrete pilots able to provide quantifiable results at the end. In the case of technical solutions, pilots should be ready for replication and scale- up, as established in the objectives of the call. Each region, depending on the solution needed, will specify the required level of development according to the Innovation Maturity Level defined by CIMIT.
- In conformity with the eligibility criteria, in justified cases, the applicants may be requested to provide additional explanations clarifying some inconsistences of their proposal but no changes to the application documentation are allowed once the application is submitted. Complementary documentation or information will be electronically requested and submitted via a dedicated email. If so, applicants may dispose on 7-calendar day term to correct or provide documents to complete their initial application. The on-line list is updated with the results of the checking for all the proposals received.
- Those applications that fulfil the eligibility criteria will be presented to the Selection Committee.
- The second phase of the evaluation will be organised as follows:
    - Each Selection Committee member first individually assesses the proposals.
    - A selection workshop is organised with all members where the best three solution providers are pre-selected and will be invited to oral presentations session with the Committee to clarify the contents of their proposal.
- All the applicants will be informed on their results and the results will be publicly available.

#### 3.2.3.1 Composition of the Committee

The selection Committee will be composed in each partner region by a number of professionals. The provenance of such advisors may vary from region to region. Eventually, advisors can be also recruited from the Advisory Board of the project, but members from the regional team and funding/contracting body must take part.

The role of the Selection Committee will be to oversee the proper execution of the evaluation process which will be carried out in the light of the same basic principles which govern Commission calls: i. Excellence, ii. transparency. iii. Fairness and impartiality. iv. Confidentiality. v. Efficiency and speed.

#### 3.2.3.2 Evaluation criteria

The call will provides a clear explanation of the criteria to be taken into consideration in the evaluation procedure.

The following table shows the general evaluation criteria defined by the consortium, but each region is able to make amendments according to its needs.

*Table 5: Evaluation Criteria for the call of solutions*

| Criteria | Explanation (only internal, not be published) | Marks |
|---|---|---|
| *Solution excellence: Fit with the particular challenge* | | |
| 1. Soundness and consistency of concept | Extent that proposed work is ambitious, has innovation potential, and is beyond the state of the art, enhancing the innovation capacity and the integration of new knowledge & the implementation of such innovations to the market | 1 to 10 |
| 2. Solution fit to challenge in an innovative approach and Compliance | Alignment of the solution with the proposed challenge | 1 to 10 |
| 3. Excellence | Viability and cost-effectiveness of the technological solution | 1 to 10 |
| *Potential Impact* | | |
| 4. Solution expected Impact | Clarity and pertinence of objectives and indicators | 1 to 10 |
| *Work Plan viability* | | |
| 5. Credibility of the proposed Work Plan | It fits with the CHERRIES calendar | 1 to 10 |
| 6. Co-creation intensity | Importance given to the co-creation work (objectives and means employed) | 1 to 10 |
| *Team experience* | | |
| 7. Experience and skillset of the team | Appropriateness of the team | 1 to 10 |
| *Business sustainability* | | |
| 8.Market description and commercialization strategy | Expected market and go-to market strategy | 1 to 10 |
| 9.Commercialisation potential: Likelihood of future market exploitation | Effectiveness of eventual implementation plan of the project's results (including explanation of IPR management, if applicable) | 1 to 10 |
| 10. Business commitment | Interest of the company in the solution | 1 to 10 |
| *Responsible Research and Innovation** | | |
| 12. Gender Issues | Does the organization have a gender equality plan? | 1 to 10 |
| 13. Public Engagement | Does the solution contribute to Public engagement? | 1 to 10 |
| 14. Open Science /Access | Does the solution contribute to Open Science? | 1 to 10 |
| 15. Science Education | Does the solution contribute to Science Education? | 1 to 10 |
| 16. Governance | Does the solution imply any Governance issues? | 1 to 10 |

* The score punctuation obtained in this section will only be taken into account in case of tie between two or more solutions. In that case, the punctuation received in this section will be used as tiebreaker.

## 3.3. PHASE 3: The co-creation of solutions

### 3.3.1 Contractual and management aspects

In order to guarantee that the developed solutions are aligned with the values, needs and expectations of society, CHERRIES fosters the engagement of societal actors, professionals and patients. Therefore, the development of the solution needs to include interactions with all the actors (healthcare, professionals and patients) including mainly those involved in the definition of the need. The whole co-creation programme will last a maximum of 10th months, from June 2021 to March 2022 and a Sub-Grant Agreement (SGA) will be signed among the funding partner of the project CHERRIES, the solution provider and a representative of the team that defined the need to be solved. The solution provider will also receive business support by the CHERRIES consortium. The project will consult in questions of business modelling, access to private investors and commercialisation. At pilot end, each solution provider will deliver the solution and deliverables as defined in the sub-Grant Agreement. A local “review committee”.

Contractual and Management aspects start with the solution ranked in the first position with a view to open the pilot phase.

Selected solution providers are requested to sign a Sub-Grant Agreement (SGA) whose main objective is to validate financial and technical operational capacity from the SMEs teams, and to establish some minimum ground rules for receiving support from the CHERRIES project. Acting as a Memorandum of Understanding between the three parties, the SGA settles the specific conditions, rights and obligations for the concession of a grant to the beneficiary for the co-creation phase. Thus, for each solution, such a SGA will be signed between the funding/contracting body and the solution provider.

### 3.3.2 Contract regarding cascade funding

The beneficiary solution provider is requested to provide to the funding/contracting body two signed SGA within 15- calendar days after receiving it. A range of complementary documents are also requested:

- Legal existence: Deed or Articles of Association (corporate statutes)
- Legal representative: Copy of Power of attorney document (if applicable), National Identity Card
- Tax Agency Documentation to evidence the fulfilment of tax obligations.
- Certificate of up-to-date Social Security payments to evidence the fulfilment of obligations.
- Financial statements: P&L, Balance sheets (from previous year). In the case that it is the first year of activity, it will not be asked any further information.
- Bank Account information: IBAN & SWIFT code (if applicable)
- A valid Bank Guarantee (if Solution Provider is willing to access to the advance payment of the Grant)

The provision of the sub-grant agreement duly signed and the above-mentioned documents to the Funding/Contracting body duly constitutes proof of acceptance of the Grant by the Solution Provider.

Once completed the signature process of the Sub-Grant Agreement, the Funding/Contracting Body sends one copy back to the Solution Provider by email. The day of the last signature formally opens the co-creation phase.

Amendment of the SGA is possible during the implementation of the project. In such cases, the request for amendment must be formally issued from the interested parties to the other two parties in written form before the conclusion of the project, by including more precisely:

- Issue to be amended
- Reasons for such an amendment
- Contingency plan with detailed info on the measures to be implemented in order to assure the completion of the envisaged objectives of the project.
- Envisaged date of deliverance of the reporting evidence

Such a request is to be managed by the Funding/Contracting Body who will prepare a formal amendment of the SGA which will be circulated to the other two parties for signature. The flow of signatures will be: Solution Provider– Challenge Proposer – Funding/Contracting Body. In case of need, both Challenge Proposer and/or Funding/Contracting Body may request the Supporter for advice-support.

### 3.3.3 Contract for co-creation

**General Planning & Minimum Requirements**

The General Planning and Minimum Requirements are presented below in the order sequence that need to be taken:

- Initiate discussion with each company on the business model approach to identify the specific needs.
- Set a personalized framework including planning for the co-creation period with the following information: team, calendar, milestones, deliverables, description of the interactions.
- All materials will be prepared in English (to ensure knowledge transfer).
- The implementation may be completed in a local language (Challenge Proposer organisations' requirements for the co-creation language may differ).
- There will be at least 3 support face-to-face interactions coordinated with the co-creation interactions.
- Based on the needs of the sub-granted projects, the Supporter will assist companies to access services provided by consortium partners, such as coaching by experienced and qualified coachers, validation with Business plan experts, support in the definition of a market development strategy and business scaling for target markets, and targeted support to access private capital market.
- Follow-up of the implementation
- When a milestone is reached, a joint assessment will take place and corrective measures, if necessary, are put in place. It is important to discuss these needed measures with all relevant stakeholders.
- Reporting of the co-creation results
- At the end of co-creation, Solution Provider and Challenge Proposer interact to discuss the targets vs results of co-creation.
- At the end of co-creation, Solution Provider and Supporter interact to discuss the potential continuation of the pilot.
- Solution Provider needs to report to the Funder the results and provides those in the set format.

**Regional Adaptation**

The pilot regions adapt the defined Minimum Requirements according to regional resources in creating own regional approach for the experiment implementation. The Regional Approach is required to ensure coordinated actions among Challenge owner, Solution Provider, Supporter and Funding/Contracting body organizations. In the regional approach, the most important activities will be defined (i.e., Project kick-off day for the Solution Provider, Co-creation with users, Group Sessions, One-to-One meetings, Test Trial Period, and the Co-creation Final Event). These Regional Approaches are shared with the rest of the Consortium Partners for feedback, and knowledge transfer.

## 3.4. PHASE 4: The adoption of the solution

The objective of the adoption of the solution is to incentivize the adoption and upscaling of innovative solutions after their successful testing and piloting in the Regions.

- At the end of co-creation, it is good practice to reserve enough time for the discussion of the co-created results with the solution providers and then with the Central Services Management. Regional teams should identify the means to advance the adoption of successful solutions in their own healthcare organisation and other regional healthcare organisations as well as among pilot regions.
- **Building trust and a good working environment is essential not only during co-creation but beyond to achieve future acceptance and adoption of the solution.** Healthcare professionals and management have reported willingness to continue with the solution after CHERRIES, only in those cases in which the relationship among solution providers teams has been good and has ran smoothly during co-creation.
- **Present the future co-creation project to the maximum number of regional stakeholders of the 4P model who are related to this topic**. Early involvement of the different stakeholders will facilitate their participation in the co-creation and increase the adoption success at the end of the project.

**Incentive adoption within the R&D calls for funding**

To overcome the valley of death between the ready-to-go-to-market innovation and its commercialisation, in case of such a demand driven approach based on co-creation, there should be the commitment to future adoption of the successfully tested innovation. Grant calls could explicitly request credible commitment on future adoption, if the innovation is successful. Examples of suitable calls for this request would be **Pre-Commercial Procurement (PCP)**, **cascade funding instruments** or closer-to-market-like **Innovation Actions** (IAs). Applicants should be encouraged to be imaginative about how they will secure commitment to adoption. On the other hand, evaluators should receive concrete guidelines on how to assess the credibility of the commitment stated in the proposals, as the latter should impact the final score.

**Explore new instruments for the adoption of solutions**

PCP/Public Procurement of Innovation (PPI) cover a space and are necessary especially for large projects, but they do not cover all types of needs procurers might have regarding testing and adoption of innovation. CHERRIES model might not be suitable for all types of pilots but, in our opinion, covers the gap of testing bottom-up and close to market innovation with ERDF funds available yearly by the Regional Development Agencies (RDAs). Other new instruments may of course be needed (e.g. for cross-border mid-size projects) and could also be brainstormed and tested.

It may be useful to consider how the (eHealth) community: healthcare providers, IT suppliers, intermediate organizations, etc. could be leveraged to propose and investigate new instruments to achieve the desired outcomes. The suggested action is to directly open the issue to stakeholders and beneficiaries and collect ideas on how to increase adoption (e.g. if successful, use a % of the budget to implement them).

This new public procurement instrument could be an alternative to the **Innovation Partnership** when it is not needed to start from an R&D phase, but directly with an existing prototype or IT framework. The more systematic and systemic the approach to getting this bottleneck solved, the more chances of success. From getting stakeholders to specifically address the issue in a focus group, to devoting a small budget to try new instruments, to brainstorm and/or systematically investigate new approaches to increase adoption, there are a myriad of actions that can be taken.

The CHERRIES model could be considered in this sense. There is no valuable reason to launch a public tender if the public hospitals are satisfied with the result of the co-creation process and want to adopt the solution.

**Develop support measure to adopt innovation**
The need for dedicated training and guidance, exchange of best practices and capacity building in this area become necessary. The **European Innovation Ecosystems** action under Pillar III of the Horizon Europe program or other programs that complement Horizon Europe such as **Digital Europe** provide a unique opportunity to develop such support mechanisms.

# 4. Setting up the experimentation in the territories

## 4.1. The CHERRIES experimentation: a 5-step approach

The CHERRIES project set up its territorial experimentiatons following a carefully designed methodology (see chapter 3) that was set up in co-creative process with the key stakeholders in the terrirtories. It gives coherence to the experimentation process and facilitates its design based on territorial preconditions and the stakeholder landscape, allowing for regional adaptations where needed. In general, the CHERRIES approach to RRI-based policy and innovation experimentation in the healthcare sector can be broken down into five steps.

**Step 1: Analysis of the regional context and potential for innovation**
In order to properly set up the framework for the tailored experimentation processes in the three territories, a comprehensive analysis of the specific regional backgounds was implemented at the beginning of the project. The methodlogy developed for this “mapping exercise”[37] was based on the theoretical interface of innovation policy, RIS3, RRI, and the healthcare sector. The framework consists of mapping exercises within the territories. It covers the identification and classification of stakeholder involvement, the policy ecosystem, provids insights into the current policy mix in the context of RRI, and the innovation support ecosystem and was mapped according to the RIS3 principles.

[37] REFERENCE TO DELIVERABLE FROM WP2

The territorial mapping exercise encloses - as one of the main steps, the definition of the territorial priorities of the regions. In order to achieve this goal, the methodological approach follows the Research and Innovation Strategies for Smart Specialisation method (RIS3 Guide) from the European Commission (2012). The process entailed the adaptation of the steps and actions considered to provide a more specific input required in the context of the CHERRIES project. This version of the strategy established a special focus on Healthcare and Innovation sector. Additionally, the methodology considers using more recent data and information available, if compared with the previous Regional Smart Specialization Strategies.

The steps to describe the territorial context of the regions are as follows:

a. Analysis of regional economic specialisation: We assessed this task using sources such as; EUROSTATS at regional level and R&I Observatory, which contains the country reports from 2017, providing a brief analysis of the R&I system covering the economic context, main actors, funding trends & human resources, policies to address R&I challenges.
b. Analysis of innovative behaviour: An examination of the regional innovative behaviour, capabilities, priorities, needs, and observable trends from the country and regional perspective. The sources used for this activity included the Smart specialisation platform – EU, European Observatory for Clusters and Industrial Change Mapping Tool, European innovation scoreboard, and the regional innovation scoreboard (RIS).
c. Defining type of health care system: The health care system was assessed on its public or private nature and the level of health care provided. We took as a source the Country Health profiles developed by the European Observatory on Health Systems and Policies and the Organisation for Economic Co-operation and Development (OECD).[38]

**Analysis of Scientific and Technological specialisation**

Analysis of the regional knowledge production data based on publications and patent applications. In this section, we communicate the main strengths and capabilities already present in the region from the scientific perspective. Leiden University measured scientometric indicators based on CWTS internal database (Web of Science's (WoS) produced by Clarivate Analytics.

The type of analyses performed considered the following characteristics and sources of data, to build a profile of the current knowledge production in the regions:

- **Societal Grand Challenges:** Knowledge production associated with the SGC. We assessed the average number of publications (normalized by population) of each SGCs category associated with "Health" for the period 2012- 2016. This, characterizing the relationship between Health categories from SGC and the World Health Organization (WHO) priorities (Data source: Knowmak project).
- **Complexity and diversity indicators:** It refer to the variety of knowledge and is measured by the number of scientific subfields with revealed comparative advantage (RCA). Diversity matters because regions are more likely to expand and diversify into new topics and fields that are closely related to their existing activities. The complexity measure looks to explain the knowledge produced in a region combining metrics of the diversity of regions and the ubiquity of the fields to create measures of the

[38] https://www.euro.who.int/en/about-us/partners/observatory/publications/country-health-profiles

relative complexity of a region's scientific portfolio. Hausmann and Hidalgo (2009)[39]. For further details of the methodology applied, please refer to Heimeriks *et al.* (2019)[40].

- **Relatedness:** The relatedness indicator measures the Revealed comparative advantage (RCA) by analysing the fields in which the region has an above-average concentration of publications. Likewise identify which scientific subfields are often found together in the same region, as a representation of the ability of the territory to diversify into related subfields. This analysis was performed for publications in the year 2018.
- **Analysis and characterization of priorities at micro-fields level**: The outcomes from this analysis provide a more detailed characterization of the fields already prioritized in the Relatedness analysis. It provides complementary information in respect to the level of specialization and knowledge production in the territory. We considered the absolute number of publication output and the Relative number of publications to specify the level of specialization in each field. For further details please refer to Waltman & Van Eck (2012)[41]. The sample for each region considers not only scientific articles but also reviews and conference proceedings published from 2014-2018
- **Characterization of the most relevant fields from Biomedical and Health Science:** Using the same methodology as for the micro-level fields. This analysis involves only the key subjects developed in the Biomedical and Health Science field.

**Step 2: Governance - Ensuring participation and ownership**

After setting up the regional frame through step 1, the next step focused on getting governance strucutures in place that allowed creating an inclusive and participative environment for the key stakeholder, ensuring ownership of the process beyond the project consortium. In terms of process, this meant aiming for a wide participation of actors and experts from within region. The most important types of organizations that have been involved are public authorities, universities, and other knowledge-based institutions, investors and enterprises, civil society actors, and Healthcare organizations.

This step has been conducted in accordance with the territorial mapping of the Stakeholders. The process consisted of the following 4 steps: 1) identification of stakeholders from current regional network 2) addition of potential new partners from datasets 3) selection criteria for stakeholders 4) categorize stakeholders regarding their degree of involvement in the project.

**Step 3: Elaboration of an overall vision for the future of the region**

This is a highly political step. Its value mainly rests on getting the political endorsement for the subsequent steps, particularly for the implementation of the prioritized areas. The vision should also include justifications for its relevance in terms of meeting societal challenges, such as providing more healthy living conditions for its citizens, providing new employment opportunities for specific categories of the population, combating social divide, environmentally responsible, etc.

[39] Hausmann, R., & Hidalgo, C. A. (2009). The building blocks of economic complexity. Proceedings of the National Academy of Sciences of the United States of America, 106(26), 10570–10575. doi:10.1073/pnas.0900943106

[40] Heimeriks, G., Deyu, Li, Wout, L., Meijer, I. & Yegros, A. (2019) Scientific knowledge production in European regions: patterns of growth, diversity and complexity. European Planning Studies 27(11):1-21.

[41] Waltman, L., & Van Eck, N.J. (2012). A new methodology for constructing a publication-level classification system of science. Journal of the American Society for Information Science and Technology, 63(12), 2378–2392. (paper, preprint)

**Step 4: Identification of territorial priorities**

This step addresses the results of the analysis performed in Step 1, 2 and 3 and likewise the territorial priorities raised by the regions, as a result of the engagement process with the groups of local actors and stakeholders. It comes up with clearly defined regional needs (through a call for needs as described above) and launches a call for solutions addressing this regional priority per territory.

Ideally, both priorities should be aligned. If the assessment of the regional capabilities and skills present in the region (Step 1) are connected to the priorities defined by each territory as part of the "entrepreneurial discovery" process, the region has a better chance to succeed in that area.

Some of the requisites filled by the current priorities defined in each territory are:

a. Priority level should be smaller than whole sectors, but bigger than single activities for maximal effectiveness.
b. Priorities do not have to fit in one particular sector and can be connected to multiple sectors. This is important because often innovative concepts are formed from a diverse set of capabilities.
c. Concerning the importance of RRI and SDGs in today's society these priorities do not have to carry an economic value only.
d. Stakeholders can formulate their societal visions for the future and collectively integrate these into their smart specialization priorities.

**Step 5: Definition of coherent policy mix, roadmaps, and action plan**

This step is being addressed through the Policy mapping activity. The mapping exercise follows the methodological approach developed within the consortium and aims in the design of territorial RRI-compliant innovation policy mix and the evidence based RRI -compliant development strategies

As already considered under the CHERRIES project framework, it is advised by the EU guidelines to test the new concepts in practice by setting up pilot projects in which can experiment with policy mixes before applying policies on the larger scale. For effective use of these pilot projects, a well-constructed evaluation mechanism should be in place to effectively assess which policy mixes are favourable.

The following chapters present the nature of the CHERRIES experimentation cases in the three pilot territories, describing their key characteristics, set up and implementation status (as of May 2021) according to the outlined 5 step approach.

## 4.2. Experimentation cases

### 4.2.1 The CHERRIES experiment in Murcia

#### 4.2.1.1 Regional background and priorities

**Regional policies**

At the regional level, the institutions responsible for the R&D in Murcia is the Regional System Council of Universities, Business and Research and the Autonomous Community of Murcia. In 2011, both organizations publicly presented the edition of the Science and Technology Plan of the Region of Murcia 2011 – 2014. This strategy, for the first time, brought together scientific research, technological development and innovation under the same framework of action, so that all of them, in a coordinated manner, form part of the same value chain. This Plan provided the necessary tools to intensify the policies aimed at promoting greater interaction, relationships and cooperation between companies, universities and technology and research centres (Council of Universities, Business and Research, 2011).

**Smart specialization**

In the innovation area, the Research and Innovation Strategy for Smart Specialisation for Murcia (RIS3), comprised of integrated agendas for economic transformation of the territory, and is intended to prioritize research and innovation investment and policies from a perspective of knowledge-based economic development.

The Research and Innovation Strategy for Smart Specialisation in the Region of Murcia (RIS3Mur -2014) promotes the evolution towards a new research- and innovation-based growth structure starting with key production sectors and continuing with the promotion of areas in which the Region has considerable potential. RIS3Mur is intended to efficiently concentrate available resources for generation and exploitation of regional knowledge at the service of priorities linked to the Region's competitive advantages and strengths. Thus, research and innovation become increasingly important to increase wealth generation capacity (Autonomous Community of the Region of Murcia, 2014).

**Policy mapping exercise in Murcia**

In the CHERRIES project and as pointed out in the Guideline for Territorial mapping report (section 3.2), this step entails the revision of sectoral policies, strategies, and innovation support, based on the theoretical interface of innovation policy, RIS3, RRI, and the healthcare sector and with a focus on mission-oriented policymaking.

The exercise focuses on existing National and regional policy frameworks for territorial innovation, a selection of research and innovation strategies, and health innovation strategies, as well as other policy mixes at the national and regional scale.

The actions conducted through this policy mapping exercise consisted of the collection of policy instruments by each policy domain at the institutional level and the selection of relevant instruments for the region. The type of documents collected corresponds to executive or administrative policies to Technical/operational instruments, and development plans and strategies. The search effort involved the screening of documents from institutional websites and also reaching key stakeholders, requiring feedback on essential policy tools, particularly regulatory and legal as well as information and suasory instruments. Moreover, the procedure

encompassed the “Snowball Research Strategies” method aiming to map networks of relations between policy actors and policy instruments. The approach begins by analysing the documents of a single organization and follows a chain of references from this point. This is based on the assumption that a significant majority of actors in a policy network are known to each other.

**RRI relevant actors**

Concerning the Open Science actors at the National level**,** FECYT (Spanish Foundation for Science and Technology), is a public institution that works in supporting the National Government in the design and implementation of the open access policy. Also involved in some initiatives for Citizen Science and public engagement.

In the regional context, the Autonomous Community of the Region of Murcia has been responsible for elaborating the Law 12/2002, of December 3, that created the Institute for Women in the Region of Murcia and the Smart Specialization Strategy in 2014.

The Ministry for Science and Innovation launched periodically technical reports that support policy-making decisions and boost excellence, gender equality, and efficiency in research and innovation. It is the case for the “Report – women scientists in numbers 2017” and the “WHITE BOOK: Situation of Women in Spanish Science”.

**Priorities**

The healthcare and research priorities of the SMS and the Ministry of Health are COVID-19, telemedicine, chronic patients, surgical performance, integrated care, epidemiological surveillance, prevention and health promotion (physical activity, tobacco, obesity) empowering patients. Despite this, the SMS has decided not to limit the theme of the challenge proposals, with an open approach since priority is an evaluation criterion that will be applied in a later phase.

**Regional scope**

The call for needs in the region of Murcia was focused on three target groups:

- **Healthcare** professionals of SMS, both sanitary and not-sanitary (IT, administrative…).
- Associations of **patients.**
- Research groups of **universities** (there are three universities in the region of Murcia, two public and one private).

Eligible consortiums could consist of one, two or three representatives of the target groups. However, it was compulsory for each consortium to have at least one healthcare professional from the SMS as it is essential to take them into account to run the pilot if the need is selected.

The regional team of Murcia followed the best practices from previous experience and projects in order to create the culture of intrapreneurship among SMS professionals, supporting them in explaining the content of the call and the preparation of a proposal and through the different processes.

The number of proposals received, 8 proposals, was lower than expected due to the covid situation, which has been the main priority of the SMS professionals.

We paid special attention to the addition of **new stakeholders** (patient associations and Universities) as they were not familiar with the inDemand processes, while the healthcare professionals were.

**Methodological considerations for the call**

Following the best practices of inDemand, we used the same submission template to collect the needs, adjusted to CHERRIES requirements.

The template was uploaded on the SMS intranet using the web tool developed in inDemand. This tool is based on a web shared rewriting tool called "*Orbeon*" which permits to confidentially write, delete and add information both, to the responsible of the proposal and the advisor.

This tool was only accessible for the SMS professional as it was located in the SMS intranet to facilitate the control to the access with the safest conditions. The tool was opened a few days before the second webinar, that took place on November 3rd, 2020, focused on the process of submission of the need proposals. The platform remained opened **for three weeks, improving** the quality of each of the needs' proposals thanks to the frequent interactions of the proposers with the advisor.

#### 4.2.1.2 The need identification and demand definition process

**Regional dissemination of the call**

For the dissemination it was used the date base of the proposers created during the inDemand project as well as the mails of Associations of patients and universities extracted from the EIP on AHA of Region of Murcia and identified for the CHERRIES toolkit and partners disseminated the call in their social networks. Due to the COVID-19 situation instead physical meetings, we organised three webinars.

1. The first webinar had a conceptual scope, introducing CHERRIES project, RRI approach and inDemand as a good practice on healthcare.[October 28th, 2020]
2. The second webinar was focused on the process to write and send a proposal of need, explaining rules, templates and useful tools. [November 4th, 2020]
3. Finally, a specific webinar devoted to RRI was given by an RRI expert. [December 1st, 2020]

76 participants were registered from all different profiles and each webinar was attended by **20-25 people**. A recording of each session was sent to those that had registered to the sessions, but couldn´t attend.


*Figure 4: Murcia call for needs CHERRIES banner*

**needs reported.**

Eight proposals were received during the three weeks the tool was opened, and the advisor helped the proposers to improve their applications. The number of applications was lower than expected in comparison with the previous processes of inDemand, when 68 and 32 proposals were received. The reason was probably due to these two factors:

- The worrying situation of covid outbreak with worst rates and trends of infections each week, to which healthcare professionals were completely devoted to.
- And the added difficulty of building a consortium between healthcare professionals, associations of patients and research groups of universities.

Regarding the **sectors** where needs were received, we could provide the below breakdown.

- The 8 proposals counted with the participation of SMS healthcare professionals, since their attendance was mandatory.
- 3 needs mentioned alliances with Associations of patients but only one was written with an association as member of the regional team.
- 3 needs counted with researchers from universities. In one case, as double role as some SMS professionals are also involved in the University, in another case as a consultant and in only one case, as a co-writer of the proposal.

Regarding to **4P group** where needs were received from:

- The 8 proposals were submitted by the main payor (SMS healthcare professionals), as a mandatory requirement.
- The patients were represented in 3 proposals but submitted directly by only one of them.
- Policy makers were not invited as they were not players of the needs. Their involvement was considered more important during the next phase of the co-creation.

- Providers were no invited to the call for needs, reserving them for the following step, the call for solutions.
- The 3 needs that involved university researchers required further comment because they could be double role, payors and providers. There was a specific discussion during the Evaluation Committee meeting on whether the participation of the universities in the call for proposals for challenges conflicted with the companies as well as on the rights of public entities in the intellectual property of the subsequent results of the co-creation.

**Topics and cluster of needs reported.**
The topics and areas related with the proposals received were:

- Application of voice interface in the health record.
- Emergency IT connection of the triangle (ambulance, coordination center & hospital).
- Last desire ambulance promotion.
- Early detection of progression in Multiple Sclerosis.
- Monitoring of pelvic floor dysfunction.
- Optimization of the nursing rotating team.
- Virtual physiotherapy at home.
- Occupational therapy at Primary Care about post-COVID-19.

**Chosen need and cluster of needs reported**
Finally, after the meeting of the Evaluation Committee, the proposal called Early detection of progression in **Multiple Sclerosis**, with the acronym **CADEM,** was selected as winner. Although the Need was submitted under the acronym of CADEM, during the translation of the need into a challenge, the acronym of the challenge was named **Progress**.

It is focused on **early detection of the progression in Multiple Sclerosis** applying sensors to patients by internet of things (**IoT**) further than current test face to face every 6 or 12 months. The approach is to carry out a **controlled clinical trial** with at least 30 patients for 5 months.

Despite of the challenge of starting from a low level of maturity, the **complementarity** of skills, experience, and commitment of the team involved is a guarantee of success possibilities.

This need was the only one submitted by an association of patients (*EMACC, Esclerosis Múltiple Asociación de Cartagena y Comarca*) in addition with a researcher group of Biomedical Engineering from the Polytechnic University of Cartagena (UPCT) and the Neurology Service of Cartagena Hospital. This was **the most complete RRI approach** among all proposals of needs received.

#### 4.2.1.3 The call for solutions and co-creation requirements


*Figure 5: Murcia call for solutions CHERRIES banner*

In order to guarantee that the developed solutions are aligned with the values, needs and expectations of the society, CHERRIES fosters the engagement of societal actors, professionals and patients, therefore the development of the solution needs to include interactions with all the actors (healthcare, professionals and patients) including mainly those involved in the definition of the need: 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.

#### 4.2.1.4 The need to tackle

The main objective of the challenge is to create and validate a more agile, comfortable, and sensitive solution for the detection of progression in Multiple Sclerosis (MS) based on the daily recording of gait disturbances, manual dexterity and cognitive assessment, and the relationship of the latter with fatigue and mood.

The main aim is to achieve the early detection of the progression in Multiple Sclerosis applying sensors to patients by internet of things (IoT) further than current test face to face every 6 or 12 months. The main aim is to carry out a controlled clinical trial with at least 30 patients for 5 months.

#### 4.2.1.5 Technical implementation of the call

The call for solutions was composed by the following documents uploaded to the Murcia challenge call section of the CHERRIES website:

- Complete description of the challenge
- Murcia call for solutions
- Application form
- Declaration of Honour

All the documents were provided in English although the applicants have to show their capacities to follow the co-creation process in Spanish.
A specific e-mail address has been created to gather all the communications regarding the process between the applicants and CHERRIES team: questions from the interested applicants, acknowledgement receipt, eligibility check, rejection notice...and also with the selection Committee members. This email account is hosted and managed by the Funding/contracting partner.

Furthermore, a list of Frequent Asked Questions was uploaded to the CHERRIES website in order to provide additional guidelines to the potential applicants.

The data received by the applicants were managed directly by the Funding/contracting body, hence only authorised people had access to all the relevant material for GDPR purposes. By the completion of the call for solutions, all material was shared with each evaluator on a drop box folder. Each Evaluator had his/her own folder where he/she upload the confidentiality form and the evaluation templates completed and signed for each of the proposal.

The call was opened for two months (February 15th – April 15th, 2021) and all the Horizon 2020 cascade funding rules and regulations have been applied.

#### 4.2.1.6 Regional dissemination of the call

For the dissemination of the call, it has been decided to use multiple channels through social media as well as bilateral communication with individual potential applicants. That was considered as important to acknowledge the project and the potential impact of the pilot and experimentation in the healthcare ecosystem of Murcia.

**Murcia Challenge dissemination campaign**

- Bilateral interactions between the Funding/Contracting body and the potential applicants. CEEIM had received questions by emails and after, a consultation with the relevant challenge team members, had answered to all of them. The main topic of the questions was referring to technical requirements of the call, since in the case of Murcia, the expected solution is IoT oriented.
- Workshop: SMS, as CHERRIES partner and main participant to the co-creation process, organised one workshop to present the challenge and the call for solutions, together with the regional team. This workshop was held online on the 24th of March and gathered 34 attendees from SMEs.
- Social Media campaign through LinkedIn, Facebook and Twitter accounts from the regional partners.
- Other publishing platforms from partners networks.


*Figure 6: Murcia call for solutions CHERRIES website*

#### 4.2.1.7 Evaluation process

The selection and evaluation process initiates after the application submission and consists of the Eligibility Check, carried out by the Centro Europeo de Empresas e Innovación de Murcia (CEEIM) as Funding partner for the administrative eligibility criteria and by the Universidad Politecnica de Cartagena as IT expert for the technical requirements. Then, a qualitative Evaluation is performed by a Selection Committee for the eligible proposals.

The call evaluation process is structured as follows:

1. **Acknowledgement of receipt.** All applicants who have sent their applications before the deadline of the call are contacted individually and receive an official acknowledgement of receipt.
2. **Eligibility Check**. A first review is performed by the Funding/contracting body, prior to send it to the Committee for evaluation who will check the selection criteria.
3. **Acknowledgement of eligibility check:** As soon as the eligibility process is completed, each applicant is informed whether its proposal is admissible and continues in the selection process or rejected and the reasons for the rejection. **Proposal evaluation**. A Selection Committee evaluates all eligible proposals. Members of CHERRIES – call for solutions - Murcia Selection Committee will evaluate and score each of the submitted proposals by filling the Evaluation Template. They are not allowed to contact the applicants at any stage of the evaluation. Then, all the members of the committee gather and share their results to agree on the shortlist of the three finalists.
4. **Oral presentations**. The three best evaluated applications are invited for oral presentations. Each oral presentation is assessed by the Selection Committee, using the same evaluation template as the one used for written proposals. These presentations are carried out in Spanish, as co-creation language.
5. **Proposal selection**. All the applicants will be informed by Email on the results of the evaluation process which will also be published in the CHERRIES website.

In Table 6, the list of admissible application is presented.

*Table 6: Murcia call for solutions Submissions*

| Solution title and description | Characterization of solution provider |
|---|---|
| CAMINO – DteCt And Measure Multiple Sclerosis progression via an InNOvative and non-invasive approach | **Startup IT** |
| AIMS – Actigraph with integrated IoT for Multiple Sclerosis monitoring | **SME IT consulting** |
| EM-App – EMielina mobile app | **SME IT** |
| Human Digital Twin | **SME Consultancy, Engineering, Outsourcing, Digital T., Architecture** |
| Pre-ProMs – An IoT solution to monitor and **Pre**dict **Pro**gression in **M**ultiple Sclerosis | **SME Healthcare** |
| MScare – Multiple Sclerosis Care | **SME Healthcare** |

### 4.2.2 The CHERRIES experiment in Örebro

#### 4.2.2.1 Regional background and priorities

Life expectancy in Sweden is among the highest in the EU. The health system performs well in providing good access to high-quality care, but at a relatively high cost. While most Swedish people enjoy good health in old age, a growing number of people over age 65 have some chronic diseases and disabilities, thus increasing demands on health and long-term care systems. The health system faces persisting challenges in providing equal access to care to the population living in remote regions, ensuring timely access to health services, and achieving greater care coordination for people with chronic diseases (European Commission, 2019).

It is well known that health problems in form of physical ill-health and disabilities are more common among elderly people in comparison to younger people. The levels of mental ill-health vary between different studies but it is clear that for example depression is very common among the elderly population. There is also a correlation between mental ill-health, mainly depression, and physical ill-health.

Sweden has the third-highest health spending in the EU as a share of GDP (11.0 % in 2017 compared to the EU average of 9.8 %), and the third-highest per capita spending (EUR 3 872 compared to the EU average of EUR 2 884). Most health spending is publicly funded (84 %), a share also higher than the EU average (79 %). The health care is a shared responsibility for the regions and the municipalities.

Health expenditure is expected to grow in the years ahead, with pressures also exerted by growing demands for long-term care. Progress has been achieved in the past decade in shifting activities from hospital to primary and community care, but challenges remain in improving access to primary care and care coordination, in particular for people with chronic conditions. The shift will also lead to a more extensive focus on prevention and health promotion.

The smart specialization priorities within the Örebro region focuses on Advanced manufacturing, Food, Logistics, and Health and social care, and value flows and potential knowledge flows between them. An important perspective in the strategy is inclusive and mobilizing innovation systems. In terms of health care, Örebro set out to prioritize open social efforts, accommodative health care, and general health and healthcare. Additionally, Örebro seeks to improve its capabilities in health robotics in a collaboration between the advanced manufacturing and health care sector. In the context of the CHERRIES project, the focus will be general health as well as the innovation system itself, with special focus regarding inclusive and mobilizing innovations.

The greater Örebro (Östra Mellansverige) region is regarded as an innovation leader in the European landscape. A similar indication of the innovative behaviour of the region is given by the public and business R&D expenditures, which are among the highest in Europe. These indications suggest that Örebro has the experience in its close vicinity for achieving advanced innovation and therefore could try to realize pilots in ambitious fields without taking too much risk.

Shaping the territorial dimension of future policies for sustainable growth requires understanding the territorial diversity – key challenges and development perspectives – of different places as well as formulating policy approaches and implementation tools that can help to maximize their development potentials. In order to specify a place-based approach to smart specialization in times of Grand societal challenges, locally and historically situated discourses and practices need to be taken into account for aligning research and society. CHERRIES approach may assist policymakers in designing and implementing RIS3 strategies that not only promote smart (i.e., competitive) but also inclusive and sustainable regional economic development. By combining information on the relative strength of regional knowledge production activities (e.g., science and technology that is linked to global developments) with information about regional stakeholders, local needs, and policies, we can thus specify priorities that can help to maximize the regional development potentials.

Outcomes from the relatedness indicators show all the fields several fields from Biomedicine and Health Science exhibiting prioritized fields, based on RCA values. Some of these fields are **Surgery, oncology, Endocrinology & metabolism, Urology & Nephrology, Sports science**. Some of the cross-disciplinary fields between Social Science and Humanities, which overlap with the Biomedical and Health Science clusters are **Nursing**, **Gerontology**, **Psychology,** and **Rehabilitation**. As indicated by the regions these fields are considered a focus of analysis.

Also, judging by the proximity of the fields, as the region performs well in terms of the number of publications in **Gerontology**, as it's the case for Örebro, the region would have a better chance to specialize in closer fields such as **Rehabilitation,** that appear adjacent in the map.

The analysis in greater detail using the Micro-level field analysis signaled one of the most prominent micro-level fields emerging from the regional scientific landscape in Mathematics and Computer Science, labeled as "**Automation & Control Systems**" it refers to the expertise and use of **Robotics and Autonomous Systems**. It is worth noting that, despite **Robotics** is a strong field in the region in terms of the level of specialization, of the scientific production and the Research groups developing new knowledge, the most relevant application is related to the environmental risk field and the use of mobile robots for industrial operations. The connection between Robotics and the Biomedical and Health science characterized by the research output appears related to **human-robot interaction** and the treatment of **autism with social robots**. However, we found at the publication level, the use of Mobile Robotic Telepresence for elderly people.

There is also an extensive set of publications whose content is directly connected to the regional priorities. Specially referring to the **well-being**, **care and monitor of elderly people** using **Social Assistive Robots** or **ICT platforms**. Some of the articles also address **socio-technical challenges** in the implementation of monitoring technologies in Elderly Care. Concerning the relevant actors in the field of Robotics, the **Centre for Applied Autonomous Sensor Systems (AASS)** is a strong research environment that performs research on autonomous systems, with a focus on their perceptual and cognitive capabilities. They develop a range of autonomous-systems solutions for elderly care in domestic environments as in *Ängen senior residence facility* in Örebro run by Örebro municipality.

#### 4.2.2.2 The need identification and demand definition process

One of the bearing principles in RRI – and in CHERRIES – is public engagement. This has been an important issue in Örebro. In the need identification process, an important standpoint has been that the Open call should not limit people from reporting needs because they are not established in a specific organisation – everybody is welcome to contribute. This also opens up for incoming needs with very different level of abstraction – one might be extremely narrow and specific while another might be very broad and general.

**Methodological considerations of the call for needs**

The Örebro team has used the call for needs template developed in CHERRIES. However, some adjustments have been made. The adjustments have primarily been based on the fact that the stakeholders, the Örebro team aimed to reach, are not always used to writing this type of material, and thus in order to be open and inclusive towards these stakeholders the form has been adjusted accordingly. The questions regarding scalability (as the call was not limited to one hospital or institution), description of objectives and indicators of the solution, and the commitment (as the call was open for private citizens, who cannot be expected to make that commitment) have been removed from the template.

The Örebro team aimed for simplicity and thus chose to provide the submission form as an editable PDF. Submission have been accepted in digital and handwritten form. The template has been published together with information on call for needs on Region Örebro county's website. The website was open for 3,5 weeks.

**Regional dissemination of the call for needs**

The target groups for the call for needs where broad; civil society organisations, public institutions including healthcare, and general public/private citizens. To reach civil society, the main dissemination channel was the civil society umbrella organisation Möckelnföreningarna. To reach public officials and health care professionals we mainly used our ordinary channels in the region and the municipalities. To reaching private citizens, dissemination was made through information in local radio and through Möckelnföreningarna's communication channels.

Three participatory workshops have been organised to promote the call for needs. The first one primarily targeted civil society organisations and private citizens, the second one has primarily been aimed at professionals, and the third one has had mixed participants. The first of the three has been carried out physically, while the other two events had to be organised online. The workshops provided information about CHERRIES and about call for needs. As experience shows, people tend to go directly to possible solutions without sufficiently reflecting the needs, the focus has also been also on identifying and analysing needs.

Additionally, a webinar introducing RRI approaches has also been carried out during the time the call was open. Although this webinar was not focusing on the call for needs, the call was promoted during the webinar. The submission form was published together with information on call for needs on Region Örebro county's website. Information was also disseminated on Activa's website and in the Region's social media channels, in newsletters and in meetings with stakeholders.

In summary, a number of dissemination actions were made to reach the target groups. Although, there were some difficulties to reach and engage especially healthcare sector and private citizens, which most likely had effect on the reported needs.

**Reported needs**

During the call for needs, six proposals were received. This is a lower number than expected. The assumption is, that stakeholders as professionals and associations were occupied with the ongoing pandemic. On the other hand, elderly people as the main target group, have been hard to reach during the pandemic both physically and digitally.

Further, during the workshops a great deal of commitment could be observed, but the step of filling in a form and submit the need seemed to pose an additional barrier that was not present in sharing during a workshop. In the workshops, the Örebro team has been able to collect many good proposals that were later not submitted in written form. The Örebro team thus chose to take the workshop results into consideration during the assessment of the submitted needs. The workshops have contributed to the understanding of the issue and therefore made it easier to assess the submitted needs. When reporting the number of needs received below, however, only those that have been received via the form are reported.

**Collected needs – clusters and themes**

Analysing the collected needs, a few clusters are shown:

- The need for social contacts among elderly overall
- The need for social contacts among the elderly that are loneliest today
- Technical skills and the possibility to use digital tools among elderly (to counteract loneliness)
- The potential in civil society when it comes to meet the needs – regardless of the need

These themes were also well represented in the discussions during the three workshops. Thereby the workshops can be seen as validation of the collected needs, as the number of collected needs was quite low.

**Selected need**

The evaluation committee consisted of representatives from the local healthcare, Region Örebro län and Activa. There was also an assessment group on standby, in case more extensive analysis was needed, but that never had to be activated.

To support an objective assessment, the committee used an evaluation template with criteria to help assess the collected needs. But since several of the collected needs concerned the same needs and at the same time, several of the collected needs was poorly described, the committee landed in a mutual assessment of the collected needs and, rather than selecting one of the collected needs – one submitter – selected a need

that had more than one submitter. The need selection was also supported by the results of the workshops conducted earlier in the call for needs process.

The collected needs concerned involuntary loneliness and the need for social contacts in various ways as well as the challenge of reaching those most in need. Involuntary loneliness is a concern especially for elderly people that significantly impacts the mental health of some patients. Long-term loneliness could result in self-isolation from social contacts and society in general. Expectations that others will make contact, is rooted in a perception that elderly do not want to be a burden to family and society Therefore, people with the greatest need for social contacts can be difficult to reach with various efforts that aim to break the loneliness and offer a social context. The selected need concerns the need to find new ways to reach these groups.

#### 4.2.2.3 The call for solutions and co-creation requirements

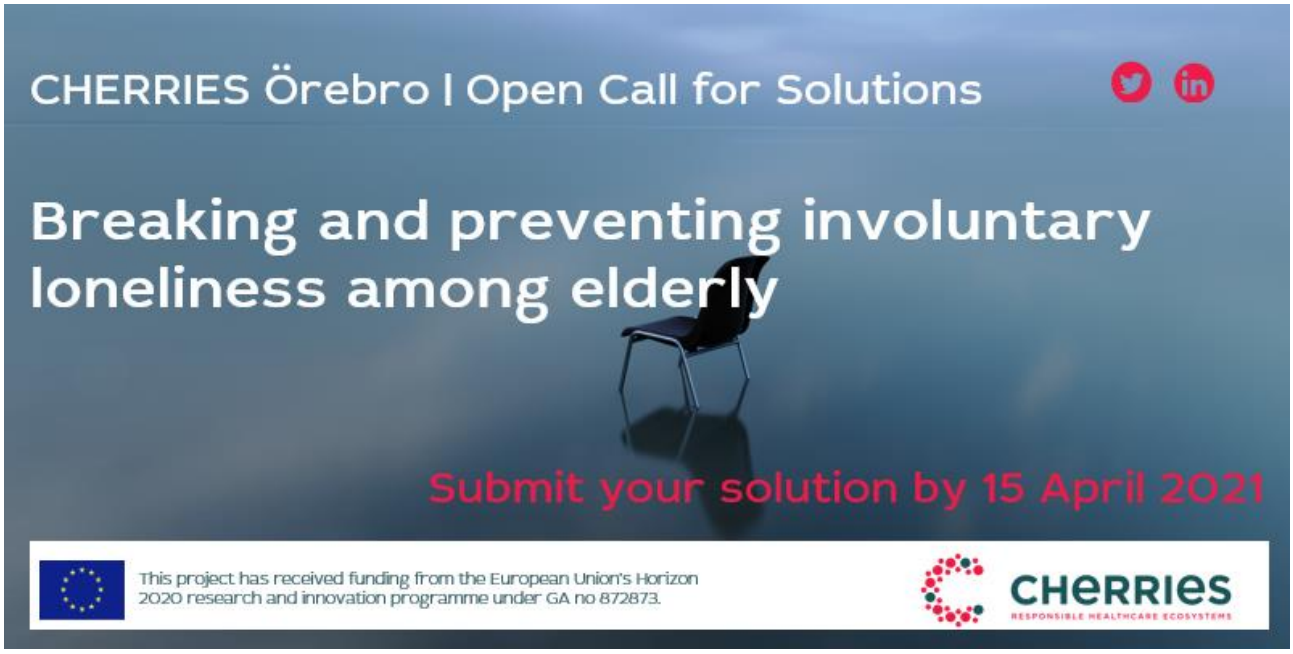



*Figure 7: Orebro call for solutions CHERRIES banner*

Promoted by Region Örebro County and Activa Foundation, the challenge is to find the persons who are involuntary lonely and offer them a social context.

#### 4.2.2.4 The need to tackle

The collected needs concerned involuntary loneliness and the need for social contacts in various ways as well as the challenge of reaching those most in need. Involuntary loneliness is a concern especially for elderly people that significantly impacts the mental health of some patients. Long-term loneliness could result in self-isolation from social contacts and society in general. Expectations that others will make contact, is rooted in a perception that elderly do not want to be a burden to family and society Therefore, people with the greatest need for social contacts can be difficult to reach with various efforts that aim to break the loneliness and offer a social context. In groups that are easier to reach, people have often understood that there is a connection between loneliness and lack of social contacts, and in this perspective, they see a benefit in being involved and participating in various forms of activities.

As described above, involuntary loneliness is often a problem in elderly and thus the demographic development and general aging of European societies will exacerbate this problem in the coming years.

In Sweden, already almost a quarter of the population is over 65 years old. The three municipalities targeted by this call (Degerfors, Karlskoga, Laxå) are even above this national average. The share of people older than 65 is around a quarter and the one older than 80 is around 10% of the total population of these municipalities. Of these elderly people, around 20-30% live at home but receive support of municipality services while another 6-12% of these people life in care homes. While in general, mental well-being is not a problem that only affects people above 65 – on population level, the share of reported problems was even lower than in the population as such – but at the same time high shares of antidepressants, number of suicides, problems with sleeping and anxiety are more pronounced in this groups. These issues can often be tracked down to loneliness and the need of social contacts. There are different kinds of loneliness:

- Existential - we feel that our innermost thoughts and feelings cannot be shared, that no one really listens or understands.
- Social - you lack ties to friends and acquaintances with whom you feel connected or can be entrusted with.
- Emotional - you lack a partner that you can trust in depth.

Loneliness can be voluntary or involuntary. It can be objective or subjective. The feeling of loneliness then exceeds the actual loneliness. The focus of this call is involuntary loneliness and, thus, people who feel lonely but do not want to be.

Social relationships are a basic human need and serve as a protective factor for physical and mental health. Social support includes, among other things, practical and emotional support. Older people with access to social support, are generally in a good position to cope with everyday life. People who have no one to share their innermost feelings with, are predominantly living alone. This is affecting around a fifth of the people of this group. The share of people older than 65 who live alone is approximately 45% in all three municipalities. While these number delimit the group at risk, it, however, does not mean that they are all suffering from loneliness. Living alone can be voluntary or involuntary for the elderly just as much as for the young. In general, older people more often suffer from involuntary loneliness in connection with the death of life partners and friends. Among single people, more than one in three is affected by loneliness, which is a significantly higher share than for people living in a partnership. Even if there are people close (e.g., healthcare staff), people may suffer from loneliness as it is more about the quality of the relationships.

Thus, the challenge in the context of this call is to find the persons who are involuntary lonely and offer them social contacts. While, the activities of associations, civil society organisations, municipalities and the like, offer a variety of services and social gatherings, they often presuppose physical presence and the elderly getting there by themselves. Therefore, we need new approaches to identifying and engaging the group of elderly people, especially the at-risk group, that are often not reached on a daily basis in order to reduce the burden of involuntary loneliness.

#### 4.2.2.5 Technical implementation of the call

In order to make it easier for potential solution providers to apply, the call for solutions was presented in both English and Swedish. The call consisted of:

- Full description of the call
- Application template (fillable PDF)
- Budget calculation template (excel, not for submission only support)

The application template followed the generic version of the application form that was initially proposed through the consortium but was modified to fit the local requirements.

The call was presented on Region Örebro County´s official CHERRIES website, with all the documents listed above in Swedish. The call was also presented at CHERRIES official website alongside the other regional calls, with the listed documents in English. A dedicated email address was created for questions about the call and for submitting proposals. The same email is also used for all further communication with applicants: acknowledgement receipt, eligibility pass, and the result of the Selection Committee. This email account is hosted and managed by the Funding/contracting partner.

Furthermore, a list of Frequent Asked Questions was uploaded to the CHERRIES website in order to provide additional guidelines to the potential applicants.

The received applications were managed by the Funding/contracting body, hence only authorised people had access to all the relevant material for GDPR purposes. For the evaluation of the proposals, all material was shared with the Selection committee in a cloud-based project management tool. The filled evaluations was sent via email to the local coordinator.

Initially the call was open for two months (February 15th – April 15th, 2021) and all the Horizon 2020 cascade funding rules and regulations have been applied.

#### 4.2.2.6 Regional dissemination of the call

Dissemination of the call for solutions were made in several ways.

- Short video on Region Örebro County´s Facebook, promoting the call for needs. Around 940 people have interacted, liked and shared the post.
- Press release, article published in local newspapers.
- Five open digital information meetings held during the first half of February by Region Örebro County and Activa Foundation. The meetings were attended by around 45 people from over 15 different organizations. These meetings also resulted in new collaborations with the aim to submit applications.
- A number of bilateral calls and email contacts with potential applicants.

#### 4.2.2.7 Evaluation process

Before the evaluation process starts, the completeness of documentation and eligibility of each submitted proposal will be assessed. In justified cases, the applicants may be requested to provide additional explanations clarifying some inconsistences of their proposal, but no changes to the application documentation are allowed once the application is submitted. Complementary documentation or information will be electronically requested and submitted via a dedicated email. If so, applicants may dispose on 7-calendar day term to correct or provide documents to complete their initial application.

In the first phase of the evaluation process those applications that fulfil the eligibility criteria will be assessed individually by the Selection Committee. The Selection Committee consists of local CHERRIES partners in Örebro as well as local experts of the field and of innovation.
In the second phase of the evaluation process, the top three applicants will be invited to an online session where they will be able to present to members of the Selection Committee their proposed solutions, and will be able to answer questions from the Selection Committee.

After this session the Selection Committee will meet in order to choose the final solution. The decision of the Selection Committee will be made public and all the applicants will receive a notification of the outcome. In Table 7, the list of submitted application is presented.

*Table 7: Orebro call for solutions Submissions*

| Solution title and description | Characterization of solution provider |
|---|---|
| Diperel – Team based digital personal home care for reduced elderly loneliness | **Alminica AB** |
| Filomena – Fighting Loneliness with Meetings and Activities | **AppsForce B.V.** |
| Finnish-language advice and training on digital services via mobile and computer | **Degerfors municipality** |
| The image of me - The elderly's perspective | **Karlskoga municipality** |
| Elderly leading elderly to a more meaningful and healthier everyday life in Laxå municipality | Laxå municipality |
| The health buffer - volunteers guide seniors to health-promoting activities | **RF-SISU Örebro county** |
| Outdoor training for lonely seniors | **Studiefrämjandet Örebro-Värmland** |
| Dialogue café - collaborative way of working to reach lonely older people and promote contact and social participation | **Örebro university** |

### 4.2.3 The CHERRIES experiment in the Republic of Cyprus

#### 4.2.3.1 Regional background and priorities

The calibre of health care in the Republic of Cyprus is improving in leaps and bounds with new specialized medical services and research, as well as the long-anticipated implementation of a comprehensive general healthcare system (GHS), which is set to make the sector more streamlined and cost effective. Most medical professionals in Cyprus are educated at universities in Greece, Russia, the United Kingdom, the United States of America and Western Europe – an influential factor in the strong development of the country's private sector which boasts an impressive 75 private hospitals and clinics. Cyprus is considered as an ideal destination for

both medical research and new venture development due to Mediterranean Climate conditions, accessibility – in the cross sector of three continents, the low tax and IPR incentives as well as the top-tier medical centres[42].

The long-anticipated General Health System (GHS) has been developed under the governance of the the Health Insurance Organisation - established by virtue of the Law No 89(I) 2001 as a legal entity governed by public law for the implementation of the General Healthcare System (GHS) in the Republic. The HIO's vision is, through the implementation of the GHS, for every Cypriot citizen to enjoy lifelong, equal, and unhindered access to high quality healthcare services. The HIO's mission is to implement the GHS, a people-centred system reflective of modern thinking and practices, which is based on the principles of social solidarity, justice, and universality, both in regard to contributions and coverage. The GHS is a comprehensive and financially sustainable healthcare system aiming at meeting the expectations of Cypriot citizens for equal access to treatment and provision of high-quality healthcare by using, in the best possible way, all available resources.

The Smart specialization strategy developed for Cyprus, considered priorities that encompass the following areas: Tourism, Energy production and use, renewables and hydrocarbons, structured environment and construction, Transport, logistics and shipping, agriculture and nutrition, Environment, ICT, and Health, ICTs and biomedical applications. In the latter category, emphasis was given on digitalisation of medical records, quality and safety management, early warning, diagnosis, and early medical care provision, molecular biology, genetics, diagnosis and targeted drugs, public health and quality-of-life issues, medical tourism.

In the context of the CHERRIES project, the strategy will establish a special focus on Healthcare and Innovation sector or activities, obtaining a deeper understanding and detail for those fields. Additionally, the methodology considers using more recent data and information available, and likewise performing analyses not previously incorporated in the strategies. The prioritization proposed should therefore be seen as an updated and more specified complementarity to the existing RIS3 strategies.

Considering the results of the Societal Grand Challenges with regard to the knowledge production the category with the major number of scientific articles is associated to "**Disease prevention**". The results are aligned with the Health priorities established in the Smart Specialization report from 2014, where the emphasis was placed on early warning, diagnosis, and early medical care provision. In addition, when analysing the publication content under this category, we identified **Oncology** in connection to **Nursing**, as an important topic developed in the publications, and also with the highest scientific impact based on te number of citations. Additionally, HIV, and Adolescent research appeared in the set of studied articles. In relation to the category Active Ageing, we found articles dealing with **Dementia** in the context of and Psychogeriatrics and the Nursing fields.

Outcomes in reference to the Relatedness indicator positioned Cyprus with a scientific representation on **Engineering subfields**. If we look into the Biomedical and Health Science field, we recognize several scientific fields having a Relative Comparative Advantage (RCA). Among them are **Genetics & Heredity, Audiology & Speech -language**, **Pediatrics**, Biological**.** Some of these fields are at the interface of Social Science: **Rehabilitation, Biomedical Social Science, Psychology (Clinical and Applied).**

The micro-level analysis of the scientific fields shows Cyprus' strengths related to the Mathematics and Computer Science, as well as Physics science and engineering fields. The area of expertise **Physics,**

[42] https://www.cyprusprofile.com/sectors/health

**Particles and fields** appears as highly relevant in terms of specialization as in absolute terms. This is in line with the priorities seen from the Relatedness analysis.

When analyzing the fields emerging from Biomedical and Health Science, the most specialized one refers to **Nephrology** in connection to the study of Alport syndrome. An outstanding performance considering both measurements: the level of specialization and the total number of scientific publications can be found in the **Peripheral vascular diseases** (vascular and endovascular surgery) & **Nursing fields** (nursing care -oncology nursing and mental health care).

In connection with the priority raised by the region, based on **Ambient Assisted Living**, the capabilities of the country are developed from the Geriatrics and Gerontology and Neuroscience & Robotics fields. The use of diverse technologies to support seniors stay active and independent ranges from physical training to maintain them emotionally and socially involved when carrying their daily life. A human-cantered approach stand-out from the analysed publications, addressing ethical and clinical requirements.

#### 4.2.3.2 The need identification and demand definition process

**Regional scope**

The call for needs in the region of Cyprus was focused on three target groups:

- **Healthcare** professionals of both private and public sector.
- Associations of **patients.**
- Other public stakeholders (municipalities, organized groups) and citizen representatives.

Eligible consortiums could consist of one, two or three representatives of the target groups. However, it was compulsory for each consortium to have at least one healthcare professional from the AIK as it is essential to take them into account to run the pilot if the need is selected.

We followed our previous **experience with Social Challenges Innovation Platform as well as our experience from running local challenges through our activities over the years** and followed the best practices for generating a momentum and awareness around the scope of CHERRIES and the future potential benefits that will bring to the local ecosystem.

The number of proposals received, 8 proposals, was more or less what was expected based on the wide spectrum that the description of the need was covering as well as the COVID-19 situation and the engagement of individuals to go through the application form.

Special attention has been given in properly explaining the importance of the Need definition and input, with back-and-forth interaction with potential applicants. It can be said that it was more time consuming as expected because applicants needed to provide a detailed description of the need as well as to understand the structure and the methodology that had to be followed.

Overall, it is important to mention that we are satisfied that at the level of the Need application, the majority of the needs reported would cover multiple RRI aspects as well as more than 2 out of the 4 groups of the 4P model.

**Methodological considerations for the call**

The submission template of the call for needs was designed in Microsoft Forms. The submission template followed the generic version of the application form that was initially proposed through the consortium and adjusted to the local requirements of the call. The form was written in English as it is the third official language of the country and is widely spoken in Cyprus.

The form was uploaded on CyRIC Microsoft server and Cyprus created a dedicated section with all the details and description of the call along with a direct link that connected the user to the form (See Appendix 1) .Also, AIK uploaded the relevant communication material for the call for needs in their online media and social network accounts and the ‘’call to action’’ for the application form was diverted through the same link to our cloud based application form.

The data inserted into the application form were only accessible through the CyRIC server infrastructure, hence only authorised people had access to all the relevant material for GDPR purposes. By the completion of the call for needs, all material was extracted in printed form and shared only between the evaluation committee members which are listed below in this report. Initially the call was open for three weeks but over further engagement with stakeholders and the metrics of the participation, they extended the call for another two weeks. During these two weeks the applicants had the ability to enhance their already submitted inputs as well as receive two more applications

**Regional dissemination of the call**

For the **dissemination** of the call, we decided to use multiple channels through our social media as well as bilateral communication with individual potential applicants that we considered important to acknowledge the project and the upcoming call for solutions in the future as well as inform them about the Need collection process and their involvement.

Due to the COVID-19 situation instead physical meetings, we organised.

1. Bilateral calls with stakeholders to inform them about Cherries, the call for needs as well as their potential and future involvement (always following up with emails and attachments of relevant material)
2. Bilateral teleconferences with stakeholders and potential applicants to follow up conversations on current and future implications of their involvement.
3. Social Media campaigns though Facebook and LinkedIn that are mainly active and broadly used in Cyprus with follow up private messages to potential applicants and general awareness of the project itself.

Overall, it is estimated that we hosted 26 bilateral teleconferences and several phone calls with organizations/ individuals/professional and associations.

**needs reported**

**Eight proposals** were received through the duration of the Open call for needs. During this time, CyRIC and AIK personnel were able to interact and guide the applicants through their applications with elaborations, enhancement of the input and generally answering questions related to the subject and the project.

It is worth mentioning that during the interaction with stakeholders, potential applicants, professionals and individuals, more interest was given on the upcoming call for solutions rather than the call for needs, and it was important to clarify the necessity of the demand driven process of the project. Additionally, given the definition of the challenge, it was designed in such a way that it would provide reflection and replicability of the

Need and the upcoming solution in mirror territories. For example, a Need that frames a specific potential solution could either be the basis for solving more than one issues.

Regarding the **sectors** where needs were received, we could provide the below breakdown.

- 1 need was submitted by a patient association. The same need was submitted by an individual and a professional
- 1 need was submitted by a professional that also represents a group of the citizens of the Republic.
- 1 need was submitted by the same professional that represents all the citizens but also this specific portion of the citizens with their need.
- 1 need was submitted by an ex-professional that currently is out of the field.
- 1 need was submitted through a provider (through an individual representing the provider and a population group)
- All 8 needs have described common issues that mostly refer on describing provision of medical services and prescribed medicines to specific patient groups.

**Notes**

Policy makers are already informed on the process and their efforts and interest are expected to be through the co-creation and further sustainability of the project rather than submitting a need.

Special Interest has been given in identifying potential parties for the co-creation process that also represent an association/organization because they might express potential interest to adopt and/or sustain the solution.

**Themes and cluster of needs reported**

The titles of the proposals received are the following:

- “Electronic request of repetitive prescriptions, examinations and other tests needed by patients on a regular basis.”
- “Day Care services for autism patients”
- “Professional and effective SEN and psychiatric support services”
- “Prescribing (Electronic)”
- “A need to develop awareness, communication and distribution of flu and other vaccines via public messaging, private/individual messaging and scheduling”.
- "The need for staff that can understand and handle autistic persons. Give them priority as they are disabled. Disability is not just the wheelchair. At least one trained person on every shift on every hospital or clinic that can be reached on demand. "
- “Telemedicine-Need for remote health care services”
- “Provision of medical services to the Cypriot citizens that live in Northern Cyprus as well as Cypriot citizens that live in rural and remote areas who do not have easy access to healthcare services and prescribed medicines”.


*Figure 8: Cyprus call for needs CHERRIES banner*

***Selected Need***

Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicines.

The aim is to provide as many medical services as possible to the population of our villages (or anybody else with no easy access to medical centres and health professionals) without them having to cross the checkpoint borders to visit a health professional.

Ideas and potential challenges to be solved.

1. Remote visits to the doctor - where the doctor will speak with the patient via VIDEO conference and with the assistance of the local nurse will get the information and data needed for a diagnosis to be made. He will then give (written) instructions to the nurse and patient about the next actions to be made. He will prescribe any necessary medication. The prescription will be forwarded to the Government Office responsible to provide the medication to the village patients.
2. Chronic patients such as diabetics who need monitoring based on daily measurements can, provide, with the assistance of the local nurse, the measurements that will allow the doctor to monitor.
3. Physiotherapy - patients who need to exercise for a specific problem can attend sessions with a physio via Videocalls.
4. Guidelines on how to approach crises such as the one of Coronavirus that we are facing currently.
5. Guidance to the professional care stuff on how to deal with emergencies and accidents until further support arrives.
6. Collecting the needs such as flu vaccine for the vulnerable.

#### 4.2.3.3 The need identification and demand definition process


*Figure 9: Cyprus call for solutions CHERRIES banner*

#### 4.2.3.4 The need to tackle

The purpose of this call is to engage eHealth solutions that provide: “Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicines”.

The aim is to provide accessibility and quality of medical services to the population of the communities and individuals with no easy access to medical canters and health professionals, without them having to travel long distances or cross checkpoint borders to gain access to healthcare services.

Cyprus, an island in the Mediterranean boasts of a plethora of rural and remote idyllic landscapes with villages and communities spread in mountainous areas and seashores. A significant amount of the population of the island lives in these areas whilst the majority of them are adults or elderly. Their healthcare needs are growing over time and the commute for even simple diagnostics or basic medical treatment is becoming increasingly demanding and difficult, especially in the pandemic era where restriction measures and social distancing are strict and inevitable.

Health care in the Republic of Cyprus has been improving substantially with the recent long-anticipated implementation of a comprehensive National Health -care System, which is set to make the sector more streamlined and cost effective.

Major challenges face today’s health care system for which health professionals including public and private hospitals and clinics, must be prepared. There is an immense need for better coordination, communication, and more efficient processes within the hospital but also with the patient experience as well as other key stakeholders of the health care ecosystem. In addition, we have both a culture and organization of care that separate our care into distinct systems such as hospitals, home care, skilled nursing facilities, with little formal communication, relationships, or collaboration between and among those settings.

### 4.2.3.5 Technical implementation of the call

The submission template of the call for solutions was designed in Microsoft Forms (See Appendix 3 attached). The submission template followed the generic version of the application form that was initially proposed through the consortium and adjusted to the local requirements of the call. The form was written in English as it is the third official language of the country and is widely spoken in Cyprus.

The form was uploaded on CyRIC Microsoft server and Cyprus created a dedicated section with all the details and description of the call along with a direct link to apply here [1] on the website. Also, AIK uploaded the relevant communication material for the call for Sin their online media and social network accounts and the ‘’call to action’’ for the application form was diverted through the same link to our cloud-based application form.

The data inserted into the application form were only accessible through the CyRIC server infrastructure, hence only authorised people had access to all the relevant material for GDPR purposes. By the completion of the call for solutions, all material was extracted in printed form and shared only between the evaluation committee members. Initially the call was open for two months (February 15th – April 15th, 2021) and all the Horizon 2020 cascade funding rules and regulations have been applied.

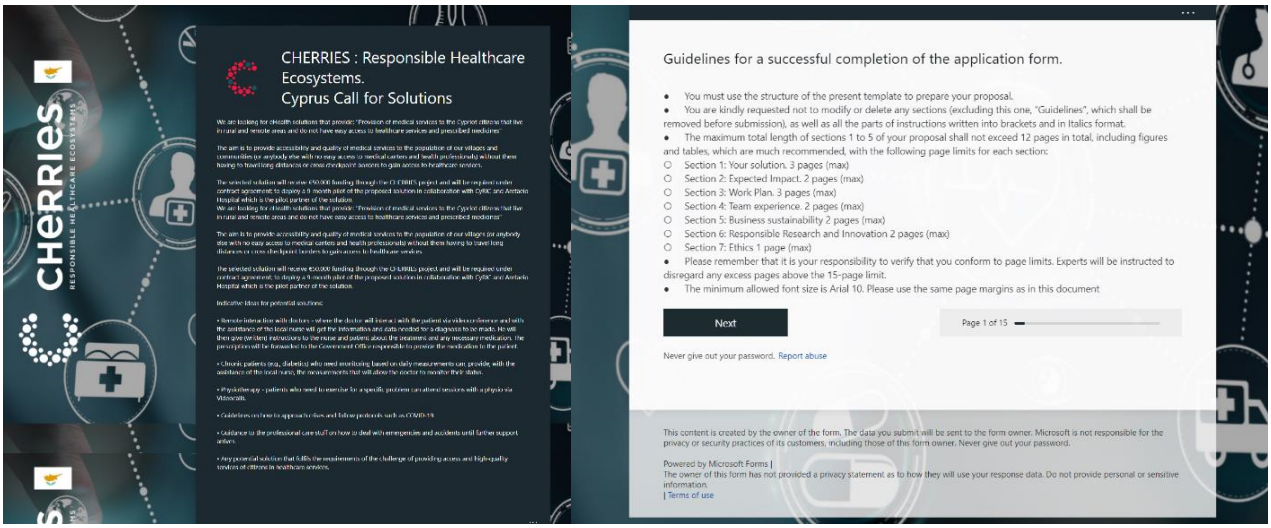



*Figure 10: Onlline form of call for solutions Cyprus Application*

### 4.2.3.6 Regional dissemination of the call

For the dissemination of the call, it has been decided to use multiple channels through social media as well as bilateral communication with individual potential applicants. That was considered important to acknowledge the project and the potential impact of the pilot and experimentation in the healthcare ecosystem of Cyprus.

During the open call for solutions period, we have hosted a plethora of bilateral calls and tele-conferences with potential applicants. Hosting bilateral calls however it is considered essential and beneficial for the solution provider but also for the regional team. The regional team has the opportunity to explain in more detail the call for solutions as well as to assess the potential applicant team, and the potential solution provider has the opportunity to better assess its commitment and eligibility for the call.

Due to the COVID situation instead of physical meetings, the Cyprus team organized:

- Bilateral calls with stakeholders to inform them about CHERRIES, the call for solutions as well as their potential and future involvement (always following up with emails and attachments of relevant material).
- Bilateral teleconferences with stakeholders and potential applicants to follow up conversations on current and future implications of their involvement.
- Social Media campaigns though Facebook and LinkedIn that are mainly active and broadly used in Cyprus with follow up private messages to potential applicants and general awareness of the project itself.
- Other publishing platforms such as local media portals with esteem local media presence both in English and in local language.

Overall, the Cyprus team hosted more than 50 hours of bilateral teleconferences and several phone calls with organizations/ individuals/professional and associations.


*Figure 11: Regional call for solutions promotion in Cyprus both in Greek and English*

### 4.2.3.7 Evaluation process

The selection and evaluation process initiates after the application submission and consists of the Eligibility Check done by CyRIC and Aretaieio Hospital and the qualitative Evaluation performed by a Selection Committee for the eligible proposals.

The call evaluation process is structured as follows:

1. **Acknowledgement of receipt**. All applicants have been individually contacted and received an official and signed acknowledgment of receipt (see Appendix 4 attached).

2. **Eligibility Check.** A first review will be performed by the Funder, prior to send it to the Committee for evaluation who will check the eligibility criteria (see Appendix 5 attached).
3. **Acknowledgement of eligibility check.** All applicants have been individually contacted and received an official and signed acknowledgment of eligibility check to proceed to the evaluation phase (see Appendix 6 attached).
4. **Proposal evaluation.** A Selection Committee will evaluate all eligible proposals based on the evaluator committee guidelines that are applicable for Cyprus (see Appendix 7 attached) by using the individual evaluation form template for evaluators (see Appendix 9 attached). All evaluators have signed and agreed the evaluator confidentiality form (see Appendix 8 attached). Members of a Selection Committee will evaluate and mark each of the submitted proposals by filling the Evaluation Template. They are not allowed to contact the applicants at any stage of the evaluation.
5. **Oral presentations**. The three best evaluated applications of the challenge will be selected for oral presentations. Each oral presentation will be evaluated by the Selection Committee, using the same evaluation template as the one used for written proposals (see Appendix 9).
6. **Proposal selection**. All the applicants will be informed by Email on the results of the evaluation process which will also be published in the CHERRIES website.

In Table 9, the list of submitted application is presented.

*Table 8: Cyprus call for solutions submissions*

| Solution title and description | Characterization of solution provider |
|---|---|
| dSkool - Digitalising infection transmission awareness | **SME Software solutions** |
| HealthForce | **SME - Software solutions** |
| Name: Aceso 4 Cyprus \| Acronym: AC4CY | **Corporate- IT/Software solutions** |
| VItal Signs IoT - NETwork (VISIT-NET) | **University Research Team** |
| Ypsilon, inspired by the first letter of “Υγεία”, the greek word for health. | **Startup** |
| eHealthCY | **SME- Software solutions** |
| 3ACES for Cherries CY (3ACES4CC) | **SME - Software solutions** |
| “Telehealth: Information TEchnology meets health Care” / “iTEC” | **SME - Healthcare solutions** |
| REVITA | **Corporate IT/Software solutions** |
| DoctorsHello - Cherries | **University Spinout (Incorporated)** |
| medbox360 | **SME Software solutions** |
| TRAQBEAT SMART WEARABLE AND CONNECTABLE DEVICES - SMART-TRAQ | **SME - Software solutions** |

# 5. Comparison and concluding remarks

During the implementation of the CHERRIES methodology the three territorial teams experienced and engaged with different approaches and adaptations on applying the several stages of the territorial experimentation. As a matter of fact, the CHERRIES methodology has embodied all regional adaptations during the experimentation phase by providing a universal framework and the degrees of freedom in the implementation of the steps of application whilst ensuring the expected quality outcome without compromising the guidelines and the philosophy that the experimentation was build upon.This is considered to be the CHERRIES methodology contribution, that highlights the principles and the framework with the agility and flexibity in the regions to adapt accordingly in territorial preconditions.

The current document has been constantly updated during the live and ongoing activities of the CHERRIES methodology and approach and identified the key areas to be compared and presented in Table 9. Starting from the Regional Background Priorities to the Need identification process where the first stage of the implementation of the experiment is contacted. Subsequently, the themes and clusters of the needs collection are showcasing the clusters and needs reported and led to the call for solutions. Call for Solution Applications are reported and presented between the regions along with the thematic and areas covered. The Responsible Research & Innovation dimension is presented at a high-level per region. Table 9 summarizes the highlights and main territorial adaptation and experimentation parameters that provide the reader a complete and consolidated review on the comparison between the three regions .

*Table 9: Comparison between the regions*

| **Parameters for Comparison** | **Murcia** | **Orebro** | **Cyprus** |
|---|---|---|---|
| **Regional background and priorities** | 1. COVID-19<br>2. telemedicine for chronic patients<br>3. surgical performance<br>4. integrated care<br>5. epidemiological surveillance, prevention and health promotion (physical activity, tobacco, obesity) through the empowerment of patients. | 1. Health in old age – chronic diseases, disabilities, and mental ill-health -> demands on healthcare systems -> focus on prevention and health promotion<br>2. S3 includes Food, Logistics, Health and social care and health robotics<br>3. Biomedicine, Health Science and Robotics are strong research | 1. Recently Implemented General Health System (GHS)<br>2. Health included as priority in the S3 for Cyprus<br>3. Ambient Assisted Living and Disease Prevention. |

| | | | |
|---|---|---|---|
| **The need identification and demand - definition process** | **Three target groups:**<br>1. SMS Healthcare Professionals (compulsory because the pilot beyond)<br>2. Patient Associations<br>3. Researchers from Universities | **Four target groups:**<br>1. Civil society organizations<br>2. Professionals in health care, social care and public health<br>3. Public officials<br>4. General public/private citizens | **Three target groups:**<br>1. Healthcare Professionals<br>2. Patient Associations<br>3. Public Representatives |
| **Feedback – Communication while disseminating the call for needs** | 1. Difficulty to harmonize the different stakeholders in only one framework for the same project.<br>2. It was harder to involve new stakeholders (patient associations and universities) than SMS healthcare professionals | 1. Engaging stakeholders in discussing needs (generally they rather discuss solutions directly)<br>2. Workshops gave mote input than the call for needs template for submission | 1. Difficulty to communicate RRI concept (Very new)<br>2. Challenging to gain momentum of a call that will be followed by another call (solutions) |
| **Themes and cluster of needs reported** | **Themes & Clusters**:<br>1. Administrative tools for clinicians.<br>2. Access for the patients to the healthcare services.<br>3. Coordination among different healthcare professionals.<br>4. To help the workload due to covid situation. | **Theme:**<br>1. Mental health among elderly<br><br>**Clusters:**<br>1. Social contacts<br>2. Technical skills and the use of digital tools (to counteract loneliness)<br>3. The potential in civil society | **Theme:**<br>1. eHealth<br><br>**Clusters**<br>1. Autism<br>2. Prescribing<br>3. Telehealth |
| **No. of needs Reported** | 8 | 6 | 9 |
| **Selected Need** | Development and validation of a solution for the collection, analysis and monitoring of the daily activity of patients with Multiple Sclerosis. | Counteract involuntary loneliness among elderly – reaching the most lonely and isolated elderly and meeting their need for social contacts | Provision of medical services to the citizens living in rural and remote areas via eHealth |

| | | | |
|---|---|---|---|
| **call for solutions (theme)** | Early Detection of Progressions in Multiple Sclerosis | Breaking and preventing involuntary loneliness among elderly | eHealth – Tele Medicine |
| **Feedback – Communication while disseminating the call for solutions** | 1. Promoting fair and transparent communication with companies, inviting them to use the only channel by oficial email for questions.<br>2. Showing the scalability of the market scenario if the pilot would be a success. | 1. Important topic – especially during the pandemic<br>2. Many interested organizations<br>3. Potential collaborations<br>4. Potential applicants with good ideas not always used to apply for funding – found it complicated and hard. | 1. Very promising.<br>2. Impactful.<br>3. Potential Applicants always want private meetings |
| **Total number of applications received** | 7 | 8 | 12 |
| **No. of applications received from other member states** | 1 | 1 | 4 |
| **Responsible Research Innovation** | 1. It has successfully worked as a next step beyond inDemand experience, opening the innovation further than healthcare professionals. | 1. New concept, introduced through CHERRIES<br>2. Interesting and promising discussions so far | 3. Very Early stage in Cyprus<br>4. Established the first community through the project |

**General comments on the adapted territorial experimentation in Murcia**

In terms of the territorial experimentation in Murcia, several key concluding reeflections can be made addressing the different steps of the CHERRIES approach. Firs, the territorial process followed within the CHERRIES call for needs in Murcia has had a positive local impact even if the pandemic situation hindered the process as foreseen initially. In addition, one of the major difficulties was to harmonize the different stakeholders in only one framework for the same project. For this a dissemination campaign of the project and the call for needs was necessary to raise awareness of the innovative aspect of the project and the possibility for external stakeholders to take part of a decision-making process in terms of health. This campaign had mainly been carried out by the regional project partners and reached a major audience although the pandemic situation did not allow face-to-face meetings, the replacement with webinars worked well.

Second, the proposals received identified urgent needs for local society and despite their diversity andwere embedded in the regional background and priorities: COVID-19, access to telemedicine for chronic patients, improve surgical performance, improve integrated care and epidemiological surveillance, prevention and health promotion (physical activity, tobacco, obesity) through the empowerment of patients. These needs address various themes and can be divided in 4 clusters: administrative tools for clinicians; access for the patients to the healthcare services; coordination among different healthcare professionals and support the workload due to covid situation.

Third, the selected need development and validation of a solution for the collection, analysis and monitoring of the daily activity of patients with Multiple Sclerosis was the most complete and detailed but also the best proposal in terms of RRI. Indeed, the challenge proposer team was composed by Healthcare professionals, researchers and patients' associations, all the relevant stakeholders to support the definition of the challenge and the further co-creation process. This is a key point of this process in Murcia: the success of opening the discussion and the call for needs to the participation of stakeholders from the civil society and the academic sector, opening the innovation further than healthcare professionals, and also involving a range of experts in the selection of the needs.

**General comments on the adapted territorial experimentation in Orebro**

The regional priorities elaborated through the CHERRIES process correspond with the overall needs in the healthcare sector. As reaching relevant stakeholder groups is essential, the experimentation in Örebro has been highly affected by the pandemic. Due to pandemic related priorities and restrictions in healthcare and civil society, it has been difficult to engage stakeholders and target groups the way that was initially planned, which also affects the methodology. Although, the engagement from the stakeholders that has been reached has been rewarding, which indicates potential in future engagements and collaborations. A key priority in Örebro has been focus on the RRI aspect of Public engagement, which had an impact on several methodological choices for the calls as well as the RRI discussions that has been initiated through the project and that will proceed throughout the project.

**General comments on the adapted territorial experimentation in Cyprus**

Health care in the Republic of Cyprus has been improving substantially with the recent long-anticipated implementation of a comprehensive National Healthcare System, which is set to make the sector more streamlined and cost effective. Major challenges face today's health care system for which health professionals including public and private hospitals and clinics, must be prepared. There is an immense need for better coordination, communication, and more efficient processes within the hospital but also with the patient experience as well as other key stakeholders of the healthcare ecosystem. In addition, we have both a culture and organization of care that separate our care into distinct systems such as hospitals, home care, skilled nursing facilities, with little formal communication, relationships, or collaboration between and among those settings. In addition, a significant population of the island live in rural and remote areas across the island or/and away from the highly densed populated areas where the critical infrastructure is situated - including hospitals, healthcare professionals and other relevant services.

All of the above signify that eHealth needs that clearly define the problems and hurdles that individuals or organizations are currently facing in providing high quality medical and health care services. Transforming systems in a way that would give patients and health professionals more of an active role, as users of new technology in the care continuum, is a priority. The call in Cyprus builds upon previous experiences made

in the course of the Social Challenges Innovation Platform project as well as the experience from running local challenges through activities over the years. It followed the best practices for generating a momentum and awareness around the scope of CHERRIES and the future potential benefits that will bring to the local ecosystem. Referring to ''best practices'' in this scope, we mainly refer to the actions taken in order to engage potential applicants not in terms of quantity but in terms of quality.

Main challenges that needed to be tackled in Cyprus is the clarification between the call for needs and call for solutions to the relevant stakeholders and the establishment of the Responsible Research and Innovation awareness in the Healthcare sector but also in general. Through the CHERRIES project and applied methodology in the region we managed to establish the initial foundation of a small community that is RRI relate and aware for current and future development and applications in all the stakeholder groups of the 4P model.

**General comments on the adapted territorial experimentation for all regions**

It has been identified in all the regions that the call for needs and generally the demand driven approach on the innovation process has to be explained and clarified as it is one step before the actual call for solution that directly converts into a co-creation pilot. While in some regions -e.g., Murcia this was more elaborative, in Cyprus stakeholders wanted more detailed explanation and understanding on how the demand driven approach works.

The territorial preconditions in every region are different in many aspects hence the communication and engagement of the stakeholders with the processes varies in terms of approach and resources spend to achieve the expected outcome. The flexibility and agility of CHERRIES has enabled all three regions to proceed almost simultaneously – in different ways, through all the activities within the expected deadlines which is something that ensures and calibrates the adjustability of CHERRIES methodology for adoption in mirror territories. The RRI aspect is also an element that it is complex and approached differently in all the three regions. CHERRIES activities have managed to bring the RRI aspect at the forefront in every region and bring together stakeholers from the 4P model. In Cyprus for example the RRI element of the CHERRIES methodology has set the foundation for the first RRI related community on the island ever existed by bringing together academics, policy makers, healthcare providers and patient associations for the first time.

The impact of the experimentation is expected to be significant as it reflects well accepted and recognized needs. In addition, the translation of the needs into a call for solutions in the regions in combination with the commitment of the partners in supporting the co-creation phase has attracted high quality applications in all the regions.

It is foreseen, ideally, that the CHERRIES methodology will be the vehicle and the ''lead by example'' approach to leverage policy makers for further adoption of the methodology in a frequent and constant manner in the healthcare sector in all the regions.

## Notes

The current section will be updated in case the results of the experimentation per territory will provide any additional input after the co-creation phase is completed in the three experimentation territories. This deliverable was drafted (M12) and updated again (M16) when the ''call for solutions was ended. At the time that this deliverable is written, the consortium and the Regional teams are preparing for the selection of the qualified solutions and the co-creation process.

# 6. Appendices

** Note that the attached appendices were adjusted and adapted per region accordingly. **

## Appendix 1 - call for needs template form that used by partners.

# CHERRIES : Responsible Healthcare Ecosystems Cyprus Call for Needs

Discover CHERRIES call for needs, the first step of our RRI and demand- oriented approach to inform and shape regional innovation policies and strategies (eg. smart specialization) to better meet the current challenges healthcare innovation ecosystems are facing in Europe.

We call patients and citizens, medical professionals, healthcare institutions and other relevant territorial and societal actors to express their needs in eHealth and its applications in providing high quality medical and healthcare services especially in rural and remote locations of the island.

We are looking for specific eHealth needs that clearly define the problems and hurdles that individuals or organizations are currently facing in providing high quality medical and health care services. Transforming systems in a way that would give patients and health professionals more of an active role, as users of new technology in the care continuum, is a priority.

The territorial support actors of the project in Cyprus are CyRIC-the certified EU|BIC of Cyprus and Aretaeion Private Hospital (AIK).

* Required

## Submitter Information

Personal Information of person submitting the form.

1. Submitter's Name *

2. Submitter's Surname *

4/23/2021

3. Email address *

4. Telephone Number

5. I am submitting this need as an: *

- ○ Individual/Professional
- ○ Institution

6. Name of Institution *

7. Title/role/position in institution *

8. Unit/Department *

4/23/2021

9. Type of institution *

- ○ Public Authority
- ○ Private Company
- ○ Third Sector organisation
- ○ Other

10. Role of Institution *

- ○ Patient Organisation
- ○ Healthcare Provider
- ○ Healthcare Policy
- ○ Healthcare Financing
- ○ Other

## The Need

11. Title and Acronym [Max 200 characters] *

12. Description of the need: [Max 4000 characters]
Overview of the actual situation: description in detail of the need and current situation.
- Describe the need
- Describe its causes
- Describe its implications if nothing is done *

13. Describe how the need affects you in your daily work/life [Max 2000 characters] *

14. Describe which community/group/individuals would benefit if you overcome the identified need [Max 2000 characters] *

## Scalability

15. Is the defined Challenge only for your organization? *

- ○ Yes
- ○ No

## Functionality

16. Describe in what way you could address the need, especially any main potential features/functionalities, which could help addressing the need. [Max 3000 characters] *

## Expected Impact

17. Describe the expected situation if a new solution addressing the need is implemented
    - In what way would the solution affect your organization/life
    - In what way would the solution affect the target group
    [Max 4000 characters] *

## Feasibility

18. Describe possible barriers to implement innovative solutions to address the need [Max 3000 characters] *

19. Describe how you could overcome these barriers [Max 3000 characters] *

## Additional supporting material

20. Please attach a link (Dropbox, Google Drive, One Drive etc) with any additional/supporting material you might have related to the need and its description.

4/23/2021

## Commitment

Confirmation of your involvement in the CHERRIES co-creation model and your active participation if your need is selected by the Evaluation Committee

21. I confirm my involvement in the CHERRIES co-creation model and my active participation if my need is selected by the evaluation committee. *

○ I confirm

4/23/2021

## Legal Disclaimer

This is to comply with the European GDPR Regulation

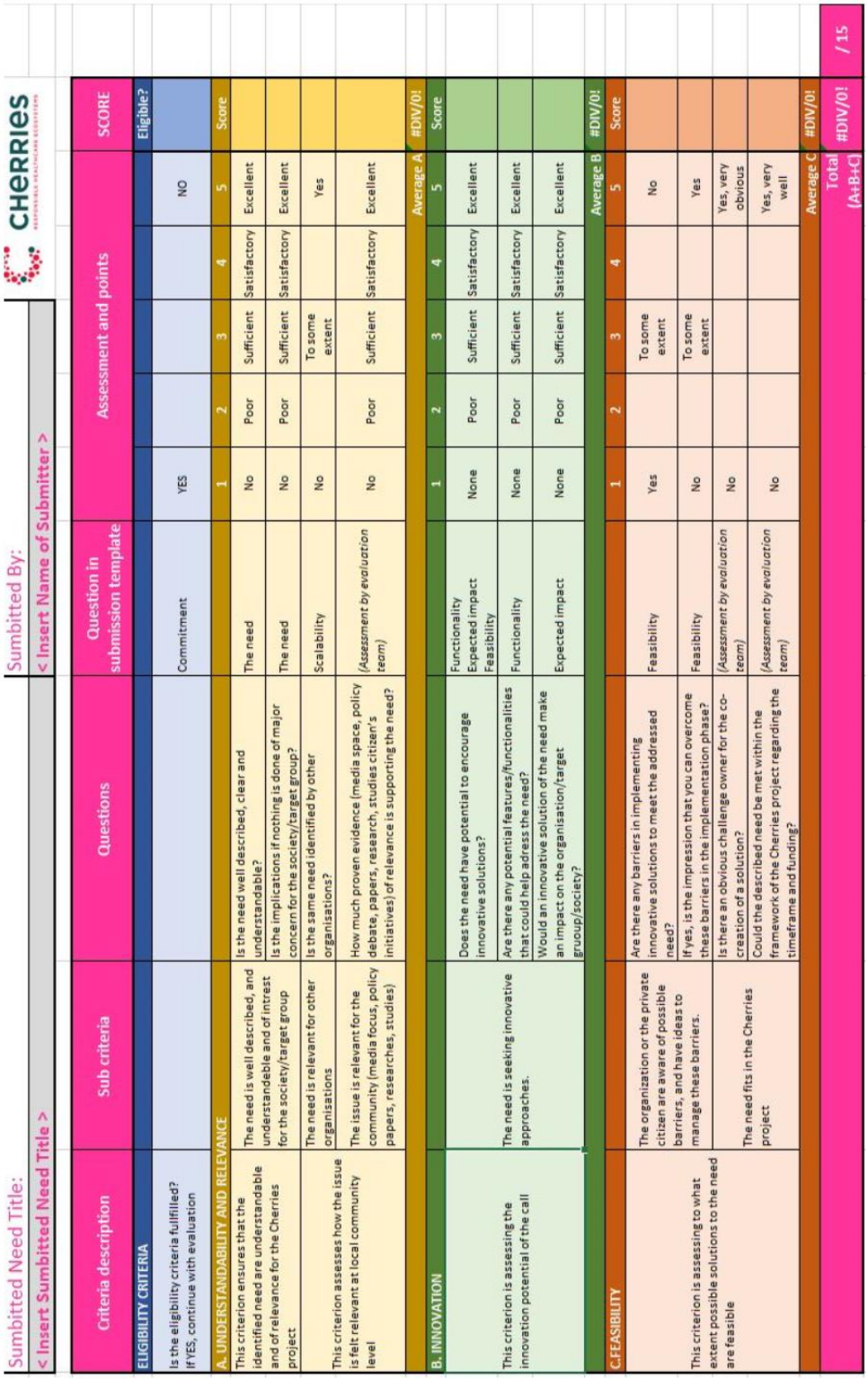
22. I hereby consent to have my personal data processed in accordance to GDPR Regulation *

○ I consent



4/23/2021

## Appendix 2 - call for needs Evaluation form template.



Sumbitted Need Title:
< Insert Sumbitted Need Title >

Sumbitted By:
< Insert Name of Submitter >

CHERRIES

| Criteria description | Sub criteria | Questions | Question in submission template | Assessment and points | | | | | | SCORE |
|---|---|---|---|---|---|---|---|---|---|---|
| ELIGIBILITY CRITERIA | | | | | | | | | | Eligible? |
| Is the eligibility criteria fullfilled? If YES, continue with evaluation | | | Commitment | YES | | | | | NO | |
| A. UNDERSTANDABILITY AND RELEVANCE | | | | 1 | 2 | 3 | 4 | 5 | Score | |
| This criterion ensures that the identified need are understandable and of relevance for the Cherries project | The need is well described, and understandable and of intrest for the society/target group | Is the need well described, clear and understandable? | The need | No | Poor | Sufficient | Satisfactory | Excellent | | |
| | | Is the implications if nothing is done of major concern for the society/target group? | The need | No | Poor | Sufficient | Satisfactory | Excellent | | |
| | The need is relevant for other organisations | Is the same need identified by other organisations? | Scalability | No | | To some extent | | Yes | | |
| This criterion assesses how the issue is felt relevant at local community level | The issue is relevant for the community (media focus, policy papers, researches, studies) | How much proven evidence (media space, policy debate, papers, research, studies citizen's initiatives) of relevance is supporting the need? | *(Assessment by evaluation team)* | No | Poor | Sufficient | Satisfactory | Excellent | | |
| | | | | | | | | Average A | #DIV/0! | |
| B. INNOVATION | | | | 1 | 2 | 3 | 4 | 5 | Score | |
| This criterion is assessing the innovation potential of the call | The need is seeking innovative approaches. | Does the need have potential to encourage innovative solutions? | Functionality<br>Expected impact<br>Feasibility | None | Poor | Sufficient | Satisfactory | Excellent | | |
| | | Are there any potential features/functionalities that could help adress the need? | Functionality | None | Poor | Sufficient | Satisfactory | Excellent | | |
| | | Would an innovative solution of the need make an impact on the organisation/target gruoup/society? | Expected impact | None | Poor | Sufficient | Satisfactory | Excellent | | |
| | | | | | | | | Average B | #DIV/0! | |
| C. FEASIBILITY | | | | 1 | 2 | 3 | 4 | 5 | Score | |
| This criterion is assessing to what extent possible solutions to the need are feasible | The organization or the private citizen are aware of possible barriers, and have ideas to manage these barriers. | Are there any barriers in implementing innovative solutions to meet the addressed need? | Feasibility | Yes | | To some extent | | No | | |
| | | If yes, is the impression that you can overcome these barriers in the implementation phase? | Feasibility | No | | To some extent | | Yes | | |
| | The need fits in the Cherries project | Is there an obvious challenge owner for the co-creation of a solution? | *(Assessment by evaluation team)* | No | | | | Yes, very obvious | | |
| | | Could the described need be met within the framework of the Cherries project regarding the timeframe and funding? | *(Assessment by evaluation team)* | No | | | | Yes, very well | | |
| | | | | | | | | Average C | #DIV/0! | |
| | | | | | | | | Total (A+B+C) | #DIV/0! | / 15 |

| Criteria | Explanation | Response No.1 | Response No.2 | Response No.3 | Response No.4 | Response No.5 | Response No.6 | Response No.7 | Response No.8 |
|---|---|---|---|---|---|---|---|---|---|
| A. UNDERSTANDABILITY AND RELEVANCE | This criterion ensures that the identified need(s) are understandable and of relevance for the Cherries project AND assesses how the issue is felt relevant at local community level | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| B. INNOVATION | This criterion is assessing the innovation potential of the call | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| C.FEASIBILITY | This criterion is assessing to what extent possible solutions to the need are feasible | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | TOTAL | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | | / 15 | / 15 | / 15 | / 15 | / 15 | / 15 | / 15 | / 15 |

## Appendix 3 - call for solutions template form that used by partners.

# CHERRIES : Responsible Healthcare Ecosystems. Cyprus Call for Solutions

We are looking for eHealth solutions that provide: "Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicines"

The aim is to provide accessibility and quality of medical services to the population of our villages (or anybody else with no easy access to medical canters and health professionals) without them having to travel long distances or cross checkpoint borders to gain access to healthcare services.

The selected solution will receive €50.000 funding through the CHERRIES project and will be required under contract agreement; to deploy a 9-month pilot of the proposed solution in collaboration with CyRIC and Aretaeio Hospital which is the pilot partner of the solution.

We are looking for eHealth solutions that provide: "Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicines"

The aim is to provide accessibility and quality of medical services to the population of our villages (or anybody else with no easy access to medical canters and health professionals) without them having to travel long distances or cross checkpoint borders to gain access to healthcare services.

The selected solution will receive €50.000 funding through the CHERRIES project and will be required under contract agreement; to deploy a 9-month pilot of the proposed solution in collaboration with CyRIC and Aretaeio Hospital which is the pilot partner of the solution.

Indicative ideas for potential solutions:

• Remote interaction with doctors - where the doctor will interact with the patient via videoconference and with the assistance of the local nurse will get the information and data needed for a diagnosis to be made. He will then give (written) instructions to the nurse and patient about the treatment and any necessary medication. The prescription will be forwarded to the Government Office responsible to provide the medication to the patient.

• Chronic patients (e.g., diabetics) who need monitoring based on daily measurements can, provide, with the assistance of the local nurse, the measurements that will allow the doctor to monitor their status.

• Physiotherapy - patients who need to exercise for a specific problem can attend sessions with a physio via Videocalls.

• Guidelines on how to approach crises and follow protocols such as COVID-19.

• Guidance to the professional care stuff on how to deal with emergencies and accidents

2/4/2021 until further support arrives.

• Any potential solution that fulfils the requirements of the challenge of providing access and high-quality services of citizens in healthcare services.

* Required

## Guidelines for a successful completion of the application form.

- You must use the structure of the present template to prepare your proposal.
- You are kindly requested not to modify or delete any sections (excluding this one, "Guidelines", which shall be removed before submission), as well as all the parts of instructions written into brackets and in Italics format.
- The maximum total length of sections 1 to 5 of your proposal shall not exceed 12 pages in total, including figures and tables, which are much recommended, with the following page limits for each section:
  - Section 1: Your solution. 3 pages (max)
  - Section 2: Expected Impact. 2 pages (max)
  - Section 3: Work Plan. 3 pages (max)
  - Section 4: Team experience. 2 pages (max)
  - Section 5: Business sustainability 2 page (max)
  - Section 6: Responsible Research and Innovation 2 page (max)
  - Section 7: Ethics 1 page (max)
- Please remember that it is your responsibility to verify that you conform to page limits. Experts will be instructed to disregard any excess pages above the 15-page limit.
- The minimum allowed font size is Arial 10. Please use the same page margins as in this document

## General Information

1. Organization Name *

2. National VAT no. *

3. Website URL *

4. Year of Foundation *

5. No of Employees *

6. Turnover of the last fiscal year

2/4/2021

7. Country that the company/organization is registered *

2/4/2021

Contact Details of the Legal Representative

8. First Name *

9. Last Name *

10. Email: *

11. Phone No: *

2/4/2021

## Details of the coordinating person (if different from the legal representative)

12. First Name *

13. Last Name *

14. Email: *

15. Phone No: *

## Name and Acronym of the Proposed Solution

16. Provide Name and Acronym of the Proposed Solution *

17. Project Summary *

*[Maximum 2000 characters – refer to name and acronym as well as publishable summary of the proposed project]*

18. Maturity Level of the Solution * *

*Please, indicate the Innovation Maturity Level of your solution according to the HealthTech Innovation Readiness Level standard (HIR). Please refer in the downloads area of the call for solutions announcement website page for the table download.**

- ◯ Level 1 - Need
- ◯ Level 2 - Idea
- ◯ Level 3 - Proof of Concept (PoC)
- ◯ Level 4 - Proof of Feasibility (PoF)
- ◯ Level 5 - Proof of Value (PoV)
- ◯ Level 6 - Initial Clinical Trials (ICT)
- ◯ Level 7 - Validation of Solution (Vos)
- ◯ Level 8 - Approval and Launch (A&L)
- ◯ Level 9 - Clinical Use (Use)
- ◯ Level 10 - Standard of Case (SoC)

## The Proposed Solution

19. Solution Description *

*Describe in detail the overall concept. Describe its main characteristics and components. Add graphs or mock-ups to illustrate. Indicate the current stage of development of each key component. In case of challenges dealing with analytics, indicate here your set up and validation strategy for your algorithm and why you consider your choice of algorithm/model superior to other alternatives (You can add a direct link for your designs and mockups)*

20. Solution Fit and Compliance with the Challenge *

*Give a detailed explanation of how your development fits and solves the challenge: list and confirm it will cover all compulsory requirements and which of the desirable ones. Additional functionality or value should also be proposed here. Describe how you plan to address compliance with privacy, security and other technical aspects expected during execution. Provide a link with supportive material if necessary*

21. Excellence *

*Explain what makes your solution excellent and different from your competitors. List the methodology/ies and standards you will use to develop your solution. Describe how usability and/or end user engagement will be enforced to facilitate their quick adoption. Provide a link with supportive material if necessary*

## Expected Impact

22. Objectives and success indicator targets *

*Describe your objectives and success indicators (KPIs) at the end of the piloting phase, that must include those stated in the call. KPIs should be clear, measurable, realistic and achievable within the duration of the project. State also by what means each KPI will be measured. These KPIs will be scrutinized at the final review of the co-creation phase to assess project success. Explicit what else (e.g. added value) will be delivered at the end of the pilot*

## Workplan

23. Planning of Activities *

*Provide a work plan describing your planned key activities within the pilot lifetime. This shall include a timeframe in a Gantt chart with milestones against which progress will be measured. Provide a link with supportive material if necessary*

24. Budget Breakdown *

*Provide a link with supportive material. A table with your budget. Indicate if you have any extra sources of funding you plan to leverage to complete any part not funded by CHERRIES. We are interested to see how you will use the project funding to develop the project as well as the financial plan that you expect this solution to have.*

25. Co-creation expectations *

*Describe your expectations in the co-creation phase with regards to the interactions with professionals, societal actors and users: indicate the number and purpose of the interactions. Describe the importance given to the co-creation work (objectives and means employed). Describe your technological needs*

## Team Experience

26. Team Description. *

*Provide a link with supportive material. For each project participant indicate gender, role and provide a short biography relevant to the project execution, identifying those that are going to be directly involved in the implementation. Indicate who will be the main contact point, and how much knowledge that person has on the language spoken in the Challenger country. CHERRIES reserves the right to require the implication of the team described here. (You may upload a consolidated document including the CV's of the working team and the information of the description above)*

## Financial Sustainability

The punctuation obtained in this section will only be taken into account in case of tie between two or more solutions. In that case, the punctuation received in this section will be used as tiebreaker

### 27. Market description and commercialization strategy *

*Explain your view on the expected market at national and international level. Also, analyze competing solutions or alternatives. Explain your strategy to commercialize your solution after the pilot. Explain your priority customer types, how to reach them and any potential partnerships. Provide a link with supportive material if necessary.*

### 28. Commercialization potential *

*Describe your company: experience in the sector and/or in the proposed challenge. Indicate international subsidiaries, if any. Describe why your company is better positioned to outperform competitors. Provide a link with supportive material if necessary*

29. Business Commitment *

*Describe why your company is interested in developing a (new) business line around this challenge. Why it is important for you to win this project, How do you plan to fund future development and commercialization efforts after the piloting*

## Ethics

30. Ethical considerations *

*Please, explain whether there are any ethical issues to be considered in your proposal. Please see H2020 rule regarding ethics. If your solution foreseen the gathering, the storage and the management of open (health/patient/users) data, do you see sensitive/ethical issues which might hinder the adoption of the solution? Do you see any other ethical/controversial issue which might impact negatively on the societal adoption of the solution? If yes, how do you plan to tackle this issue during the implementation of the pilot? Has your company/organization an ethical Code of conduct concerning the respect of principles and standards for the research (and Innovation) integrity?*

## Responsible Research and Innovation

The punctuation obtained in this section will only be taken into account in case two or more solutions get the same score. In that case, the punctuation received in this section will be used as tiebreaker

### 31. Gender Issues *

*Three objectives underpin the strategy on gender equality in Horizon 2020: 1) Fostering gender balance in research teams, in order to close the gaps in the participation of women. 2) Ensuring gender balance in decision-making, in order to reach the target of 40% of the under-represented sex in panels and groups and of 50% in advisory groups. 3) Integrating the gender dimension in research and innovation (R&I) content, helps improve the scientific quality and societal relevance of the produced knowledge, technology and/or innovation. Has your company/organization a GEP (Gender Action Plan) aimed at removing barriers that prevent women take part in scientific careers paths an in the company decision-making? Do you have any Gender Equality policy or any measure in place to address Gender equality (Code of Conduct, Human resources policy, work-family conciliation services, training/mentoring programs, quotas for Gender balance in leadership position, Gender/diversity indicators, etc.). If yes, please provide a summary of the main measures in place. If not, is your organization planning to set in place some gender equality measures, policies or services for remove eventual barriers (if existing within your organization)or to develop a specific gender Action Plan in the short term?*

### 32. Public Engagement *

*Public engagement (PE) in Responsible Research and Innovation (RRI) is about co-creating the future with citizens and civil society organizations, and also bringing on board the widest possible diversity of actors that would not normally interact with each other, on matters of science and technology. Does your solution contribute to Public Engagement? If so, please explain how*

33. Open Science/Open Access *

*It is now widely recognized that making research results more accessible to all contributes to better and more efficient science, and to innovation in the public and private sectors. Open access to scientific information in research and innovation refers to 2 main categories: 1) peer-reviewed scientific publications (primarily research articles published in academic journals) 2) scientific research data: data underlying publications and/or other data (such as curated but unpublished datasets or raw data). Does your solution contribute to Open Science? If so, please explain how. Regarding to open Access: Are you planning to increase the scientific impact of the results of the Cherries solution to society? If yes, how (open access publications, etc)*

34. Governance *

*Governance of RRI is any form of coordination designed to foster and mainstream Responsible Research and Innovation within an organization or in the interaction with other stakeholders. Will your development foster Corporate Social Responsibility? Or foster RRI in your organization or in the interaction with other stakeholders? If so, please explain how*

## Additional Supporting Material

Hereby you may attach any additional supportive material that endorses your proposed solution application.

35. Please provide a link with any additional supportive material that endorses your proposed solution application

2/4/2021

## Commitment

Confirmation of your involvement in the CHERRIES co-creation model and your active participation if your solution is selected by the Evaluation Committee

36. I confirm my involvement in the CHERRIES co-creation model and my active participation if my solution is selected by the evaluation committee. *

- ○ I confirm

## Legal Disclaimer

This is to comply with the European GDPR Regulations

37. I hereby consent to have my personal and company data processed in accordance to GDPR Regulation *

◯ I consent

38. DECLARATION OF HONOUR for participation in the CHERRIES Call for Solution Providers - Cyprus *

*By applying to this Call, the under-signed hereby confirms that:*

- *The applicant accepts their responsibility on accuracy and veracity of data and documents submitted, and all conditions and obligations stated in the Call.*
- *The applicant is not receiving funds for this project proposal elsewhere*
- *The applicant is not bankrupt, subject to insolvency or winding up procedures, its assets are being administered by a liquidator or by a court, it is in an arrangement with creditors, its business activities are suspended or it is in any analogous situation arising from a similar procedure provided for under national legislation or regulations;*
- *The applicant is not in breach of its obligations relating to the payment of taxes or social security contributions in accordance with the law of the country in which it is established, with those of the country in which the contracting authority is located or those of the country of the performance of the contract.*
- *In case of being awarded, the applicant will:*
  - *Manage in conformity with the applicable H2020 regulations, in particular:*
  - *avoiding conflicts of interest (Article 35)*
  - *Maintaining confidentiality (Article 36)*
  - *Promoting the action and give visibility to the EU funding (Article 38)*
  - *Liability for damages (Article 46).*
  - *Allow the Commission, the European Anti-fraud Office and the Court of Auditors to exercise their powers of control, on documents, information, even stored on electronic media, or on the final recipient's premises*
  - *Provide the following documents:*
    *Deed or Articles of Association (corporate statutes)*
    *Tax Agency Documentation to evidence the fulfillment of tax obligations*
    *Certificate of up-to-date Social Security payments*

◯ I consent

# Appendix 4 - Acknowledgement of receipt

## Acknowledgement of receipt

**CHALLENGE: Cyprus Open Call for Solutions**

**"Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicine"**

Dear

Thank you for submitting your proposal for consideration as recipient of financial support in the frame of the project H2020 CHERRIES grant agreement nº 872873, call for solutions to solve the challenge of "Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicine".

The evaluation of all proposals received will take place in the next few weeks. You will be notified as soon as possible after this of whether your proposal has been successful or not.

On behalf of my colleagues in the project, I would like to thank you for your interest in our activities.

Yours sincerely,

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement nº 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.

## Appendix 5 - CHERRIES administrative eligibility checklist


### Administrative Eligibility Checklist

**CHALLENGE Cyprus Open Call for Solutions:**

**"Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicine"**

| **Company name, address, and contact data:** | **Acronym:** |
|---|---|
| **Solution Provider Proposal Nº:** | |

| ELIBILIGITY OF THE APPLICANT | |
|---|---|
| The Applicant declares that he/she is a legal entity. | YES/NO |
| Is the Applicant located/registered in one of the Member state or H2020 associated country? | YES/NO |
| The applicant declares that it is a legal entity in a situation to receive public funding (Commission Regulation (EU) No 651/2014 of 17 June 2014 | YES/NO |
| Applicant declares that there is no double public funding, even partial, for the foreseen activities within the project (according to the declaration of honour) | YES/NO |
| Is the applicant in capacity to ensure the follow up in English and/or Greek for the co-creation process? | YES/NO |
| **ELIBILIGITY OF THE APPLICATION** | |
| Is the application form submitted within the deadline of the call? | YES/NO |
| Is the application form submitted using the provided template? | YES/NO |
| Is the application form fulfilled in English? | YES/NO |
| Is the application form fully completed, addressing all the relevant sections in the maximum of 15 pages? | YES/NO |
| Does the application include a breakdown of the budget? | YES/NO |

| | |
|---|---|
| Does the application address the ethical principles? | YES/NO |
| Does the application contravene ethical principles or any applicable legislation? | YES/NO |
| Is the declaration of honour duly signed by a legal representative? | YES/NO |
| Does the applicant provide contact details? | YES/NO |
| | |

CHERRIES contracting/Funding body may request applicants to correct or provide documents to complete their initial application via a dedicated email: m.moyseos@cyric.eu / info@cyric.eu

| REQUEST FOR ADDITIONAL INFORMATION | REASONS AND COMMENTS |
|---|---|
| Lack of compulsory documents not attached to the application form although mentioned | **N/A** |
| Lack of information in the application about the applicant, illegibility of data… | **N/A** |
| Lack of conformity of the information of the application with the company documentation | **N/A** |
| Ambiguity of the information included in the application on activities planned to be done, results planned to be achieved or budget | **N/A** |
| Inconsistencies/lack of information in the application which are obvious error | **N/A** |

| Confirmation of receipt | |
|---|---|
| After positive validation, a confirmation email is to be sent to acknowledge the application submission (day & time). | ACHIEVED<br>Date: 16/04/2021 |

Verified by :

| | |
|---|---|
| Name | |
| Position | |
| Organization | |
| Signature | *(electronic signature if possible, or a scanned signed copy)* |

| | |
|---|---|
| | |
| Date | |

# Appendix 6 - Acknowledgement of eligibility pass

CHERRIES
RESPONSIBLE HEALTHCARE ECOSYSTEMS

## Eligibility Pass

**CHALLENGE: Cyprus Open Call for Solutions**

**"Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicine"**

Dear

Thank you for submitting your proposal for consideration as recipient of financial support in the frame of the project H2020 CHERRIES grant agreement nº 872873, call for solutions to solve the challenge of **Cyprus Open Call for Solutions: "Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicine"**.

Your proposal has passed the eligibility check and is now being evaluated by CHERRIES selection committee.

You will be notified as soon as possible after this of whether your proposal has been successful or not.

On behalf of my colleagues in the project, I would like to thank you for your interest in our activities.

Yours sincerely,

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement nº 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.

## Appendix 7 - Evaluator committee guidelines Cyprus

CHERRIES
RESPONSIBLE HEALTHCARE ECOSYSTEMS

# CHERRIES
# Guidelines for selection committee members

April 09th, 2021

# Table of Contents

# INTRODUCTION

This document presents the guidelines that have been defined to support the Members of the Section Committee to evaluate the potential solution Providers to be submitted to the regional CHERRIES Cyprus Open Call for solutions to solve the challenge of ***"Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicine".***

The document provides detailed information about the selection process and the methodology that should be followed by the committee in assessing the proposals.

Finally, these guidelines also describe the composition of the Selection Committee, and the calendar of the selection process.

# 1. EVALUATION CRITERIA

Two different types of criteria have been defined in this call for solutions: 1) Eligibility Criteria (compulsories) and 2) Selection criteria ("scorable").

## 1.1 Eligibility criteria

A set of eligibility criteria has been determined to validate the admissibility of the Solution Providers' applications as marked in the call for solutions and in the description of the challenge.

### 1.1.1 Administrative eligibility criteria

A first administrative review will be performed by the CHERRIES' contracting/Funding body, who will verify the eligibility criteria. It is the responsibility of the CHERRIES' contracting/Funding body to evaluate the completeness of documentation and admissibility of each application submitted through the online portal for application submissions.

This administrative eligibility check will be performed by the CHERRIES contracting/Funding body for the regional challenge, in the case of Cyprus, it is the Cyprus Research and Innovation Centre Ltd

The full compliance with all the eligibility criteria is mandatory and only the potential Solution Providers who will be evaluated positively will pass to the next evaluation step.

In that regard, the CHERRIES contracting/Funding body reviews and complete a first eligibility checklist form per application for the administrative and legal information.

In conformity with the eligibility criteria, in justified cases, the applicants are requested to provide additional explanations clarifying some inconsistences of their proposal but no changes to the application documentation are allowed once the application is submitted. Complementary documentation or information will be electronically requested and submitted via the dedicated email. If so, applicants may dispose on 7- calendar day term to correct or provide documents to complete their initial application.

The administrative eligibility criteria include:

- Applicants must be headquartered in eligible countries legally established as a business and based in an EU member state (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Spain, Sweden and United Kingdom) or H2020 associated country (Iceland, Norway, Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Montenegro, Serbia, Turkey, Israel, Moldova, Switzerland, Faroe Islands, Ukraine, Tunisia, Georgia and Armenia).
- Applicants must be legal entities in a situation to receive public funding (Commission Regulation (EU) No 651/2014 of 17 June 2014 declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 of the Treaty).
- Absence of double public funding. The very same project activities cannot receive other public funds.
- All elements of the application must be submitted in English and must be completed by containing all requested elements specified. The uncomplete proposals will not be taken into consideration.
- Applications have to be submitted before the deadline stated in the call (15th of April 2021; 23h59 CET)
- Applications shall include a declaration of honour duly signed by the legal representative.

### 1.1.2 Indicative Basic Technical Requirements

Later to such verification, in the case of the Cyprus challenge, some indicative basic technical requirements have been established within the call for solution and have to be addressed in the proposed solution. For this, the CHERRIES contracting/Funding body will transfer the full applications to the Technical experts of the challenge to check if the mandatory requirements are fulfilled in the application.

These necessary and mandatory requirements are described in the call for solution and are the following ones:

**Indicative technical requirements:**

The successful candidate shall be responsible for monitoring and performing whatever proactive maintenance is needed to assure that the application / solution will be available 24/7 during the pilot. Any issues arising should be fully resolved within a maximum period of 24hrs.

In addition, the successful candidate shall be responsible for any backups needed and those backups should be contacted with encryption methods due to the sensitivity of the personal data which they include. Backups are necessary also for the recovery of services and related data in case of any kind of disaster / loss / corruption and also for the purpose of minimization of the downtime until all services are restored.

1.GDPR Compliance: The proposed application / solution principles should address the requirements mandatory to GDPR legislation.

2.Data quality and accountability, which include requirements related with integrity, accuracy, and audit.

3.Data breaches, requirements directly related with data breaches and how to proceed in case of a data breach.

4.Data minimization: The system must allow the definition of the minimum of data fields required for processing.

5.Accuracy: The system must allow the update of the personal data whenever necessary.

6.Location of data: The system must be able to identify and locate a subject's data that must be limited inside the system.

7.Integrity and confidentiality: The system must support the adoption of technical and organizational measures that ensure the security of processing, namely, the protection against unauthorized processing or against the loss, destruction, or accidental harm of personal data.

8.Separation of Clinical and Demographic Information

9.Aknowledgement to the parties involved about the usage of the application / solution for the pilot is only for evaluation purposes in order to modify/alter the application / solution to be developed and delivered in such a way to fully satisfy the needs.

10.The application / solution should provide secure access to all necessary partners involved to access their personal data including any historical data entered.

This technical eligibility check will be performed by the expert team, responsible for the challenge. On behalf of AIK would be mr Stylianos Yiallouros (CIO) and on behalf of CyRIC would be Dr Andreas Papadopoulos, IT Manager and Software Solutions.

Once this double check is validated, the admissible applications will pass to the following evaluation stage: the scoring of the selection criteria by the members of the Selection Committee.

## 1.2 Selection Criteria

The selection criteria are the "scorable" ones and rely on the assessment of the selection committee members, first individually and then commonly.

The assessment of those criteria will determine the final ranking of the admissible applications, by appointing the three more promising applications that will be invited to the following stage (oral presentations with the section committee members).

The Selection Criteria will be scored from 0 to 10 following the weighting description established in the table below.

| Point Scale | Explanation |
|---|---|
| - **0-1** | Insufficient: even basic criteria were only met fragmentary |
| - **2-3** | Poor: criteria were met inadequately |
| - **4-5** | Adequate: criteria were just met |
| - **6-7** | Good: criteria were met in essence |
| - **8-9** | Very Good: correspond fully to the defined criteria |
| - **10** | Excellent: criteria were met above expectations |

Table 1 CHERRIES selection criteria scores for the Call for Solution Providers

The Call provides a clear explanation of the criteria to be taken into consideration in the selection procedure. The assessment form is based on the following pre-determined compulsory block of criteria: Solution excellence, potential impact, work viability plan, and team experience, that also include some sub-criteria.

| Criteria | Explanation | Marks |
|---|---|---|
| **Solution excellence: Fit with the particular challenge in Cyprus** | | ***(Out of 30, Threshold: 15 pts)*** |
| **1. Soundness and Consistency of Concept** | The proposed work is ambitious, has innovation potential, and is beyond the state of the art, enhancing the innovation capacity and the integration of new knowledge & the implementation of such innovations to the market. | 1 to 10 |
| **2. Solution fit to challenge in an innovative approach and Compliance** | Alignment of the solution to the proposed challenge. | 1 to 10 |
| **3. Excellence** | Viability and cost-effectiveness of the technological solution. | 1 to 10 |
| **Potential Impact** | | ***(Out of 10, Threshold: 5 pts)*** |
| **4. Solution Expected Impact** | Clarity and pertinence of objectives and indicators. | 1 to 10 |
| **Work Plan viability** | | ***(Out of 20, Threshold: 10 pts)*** |
| **5. Credibility of the proposed Work Plan** | It fits with the CHERRIES calendar – 10-month pilot. | 1 to 10 |
| **6. Co-creation Intensity** | Importance given to the co-creation work (objectives and means employed). | 1 to 10 |
| **Team experience** | | ***(Out of 10, Threshold: 5 pts)*** |
| **7. Experience Skillset of the Team** | Team Competences. | 1 to 10 |
| **Business Sustainability** | | ***(Out of 30, Threshold: 15 pts)*** |
| **8. Market Description and commercialisation strategy** | Convincing go-to-market strategy (or market potential). | 1 to 10 |
| **9. Commercialisation potential** | Effectiveness of eventual implementation plan of the projects' results (including explanation of IPR management, if applicable). | 1 to 10 |
| **10. Business Commitment** | Interest of the company in the solution | 1 to 10 |
| | | |

Table 2 CHERRIES call selection criteria.

Finally, one (1) additional block: Responsible Research and Innovation, will be assessed by each selection committee member according to the following table, although the scores will be considered only in case of a tie between applicants.

| **Responsible Research and innovation**[1] | | ***(Out of 40, Threshold: 20 pts)*** |
|---|---|---|
| **11. Gender Issues** | Does the organization have a gender equality plan? | 1 to 10 |
| **12. Public Engagement** | Does the solution contribute to Public engagement? | 1 to 10 |
| **13. Open Science/Access** | Does the solution contribute to Open Science? | 1 to 10 |
| **14. Science Education** | Does the solution contribute to Science Education? | 1 to 10 |

Table 3 CHERRIES call additional selection criteria.

## 2. COMPOSITION OF THE SELECTION COMMITTEE

The selection Committee will be composed by:

- regional professionals and experts in the challenge topic and members of the organizations that will take part to the co-creation process, especially representatives from the health sector and patients.

- members from the challenge team

- CHERRIES Project Territorial team.

The representatives have been invited following the RRI Policy principles by involving the society in science and innovation and the RRI policy agendas: public engagement, open access, gender equality, science education, ethics, and governance. For this reason, the committee members include actors from the research and education community, policy makers, business sector, and civil society. This composition also ensures to take into consideration the efficiency of the further co-creation process and the assessment of the sustainability of the selected solution.

The selected members will sign a declaration of confidentiality covering the contents of the applications and applicants, and they should also confirm the absence of any conflict of interest with the applicants.

The role of the selection committee will be to oversee the accuracy of the selection process which will be carried out in the light of the same basic principles which govern European Commission calls: i. Excellence, ii. Transparency. iii. Fairness and impartiality. iv. Confidentiality. v. Efficiency and speed.

[1] To be considered in case of a tie between two or more applicants

| Role | Organisation | Expert name |
|---|---|---|
| Evaluator 1 | | |
| Evaluator 2 | | |
| Evaluator 3 | | |
| Evaluator 4 | | |
| Evaluator 5 | | |
| Evaluator 6 | | |
| Evaluator 7 | | |
| Evaluator 8 | | |
| Evaluator 9 | | |
| Evaluator 10 | | |

Table 4 CHERRIES Cyprus Call for Solution Selection Committee Members.

# 3. SELECTION PROCESS STEP BY STEP

As explained before, once the first eligibility check is completed the full admissible applications are forwarded to the Members of the Selection Committee for review, together with the assessment templates and a list of applications by alphabetical order of the name of the applicants.

At that stage, the selection process will proceed to the scoring of the selection criteria, first individually and then in a second time, the members will jointly consolidate the results.

The evaluators are prohibited from contacting any applicant at any stage of the evaluation.

## 3.1 Proposals evaluation

### 3.1.1 Individual assessment

A first individual review of the submitted proposals will be carried out by each member of the committee by filling in the individual Evaluation Form. Each evaluator shall indicate the score obtained for each criterion (see Table 2 of the current document) following the distribution of the score ranging established in the call (see Tables 2 and 3 of the current document).

**Scoring:**

Once each evaluator has finalised his/her individual assessment, the filled in forms should be signed and sent to the regional CHERRIES contracting/Funding body in charge of gathering the feedback from all the selection committee members (CyRIC).

An average score will then be calculated to establish the preliminary ranking to be presented during the collaborative assessment meeting. The individual score will be applied as follows:

- **Excellence**: maximum 30 pts. Minimum threshold: 15 pts
- **Impact**: maximum 10pts. Minimum threshold: 5 pts
- **Work Plan**: maximum 20 pts. Minimum threshold: 10 pts
- **Team Experience**: maximum 10 pts. Minimum threshold: 5 pts

- **Business Sustainability**: maximum 30 pts. Minimum threshold: 15 pts

Furthermore, the evaluators should also score the applications for the additional criteria of **Responsible and Research Innovation** (maximum of 40 additional points). **This score will be considered only in case of a tie between applicants.**

#### 3.1.2 Collaborative assessment

Upon completion of the individual assessment of the submitted applications, the contracting/Funding body (CyRIC) will be responsible for the collection and the consolidation of all results in a dedicated Excel sheet, that will summarise and present the total scoring of all evaluations. The consolidated Excel sheet will then be shared amongst all evaluators in order to ensure and verify the eligibility and transparency of the total scoring in order to qualify the three highest ranked applications.

The three highest ranked applications will then proceed to the interview and oral presentation stage.

## 3.2 Oral presentations

The interview and oral presentation stage will be held in front of the committee (either online or physical setup) in a 20-minute presentation followed by a 10-minute Q&A session.

The objective is to allow the selection committee to refine its evaluation, enabling the resolution of final doubts regarding the work plan or any content that would require clarifications.

The selection committee will use the same evaluation template as the one used for written proposals. These presentations will be carried out in the co-creation language, in the case of Cyprus it would be either English or Greek.

## 3.3 Final selection

After the closure of the oral presentations, the Selection Committee will proceed with the final evaluation and release its decision concerning the awarded proposal.

The results will be integrated in a Territorial Evaluation Report, including the final ranking list, a reserve ranked list and a rejected applications list, together with the reasons of rejection.

The Chairperson of the Selection Committee will sign the territorial evaluation report that will be sent to the regional CHERRIES contracting/Funding body. This body will publish and communicate the results to the awarded solution provider and the reserve list solution providers.

Once the results are published, a claim period will be opened for a duration of 7 calendar days. These claims will be registered and answered by the committee selection before the who will finally ratify its decision.

The awarded solution provider will be then invited to start the co-creation procedure by initiating the Sub-agreement preparation process, described in the call for solutions.

## 4. SELECTION CALENDAR

| | |
|---|---|
| **Closing of the call** | **April 15th, 2021** |
| | |
| Eligibility check | April 23rd, 2021 |
| Individual assessment from committee selection members | April 26th-30th, 2021 |
| 1st collaborative evaluation meeting | May 3rd -7th, 2021 |
| Oral Presentations interviews with the selected companies | May 10th - 14th, 2021 |
| Committee decision provisional | May 14th, 2021 |
| | |
| Claim period | May 17th -21st, 2021 |
| Answers to claims presented | May 26th, 2021 |
| Committee decision final | May 28th, 2021 |
| | |
| **Co-creation kick-off meeting** | **June 1st - 4th, 2021** |

Table 5 CHERRIES Cyprus Call for Solution Selection Calendar.

## ANNEXES

Annex 1: CHERRIES Cyprus Call for Solution

Annex 2: CHERRIES Description of the Cyprus Challenge

CHERRIES Partners



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement nº 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.

# Appendix 8 -Evaluator confidentiality form

## CONFIDENTIALITY & CONFLICT OF INTEREST DECLARATION
## for participation in CHERRIES Cyprus Call for Solutions

*(To be filled out by the members of the Selection Committee)*

I, the undersigned declare that, by participating in the Selection Committee for evaluation of applications submitted under the CHERRIES H2020 Project Cyprus Open Call for Solutions,

- I am not an applicant or do not remain with the applicant in such legal or factual relationship that the result of the evaluation may affect his or her rights and obligations.
- I undertake to treat as confidential all information contained in the applications which I am asked to evaluate, both during the evaluation and afterwards.
- I will not reveal to any third party the identity or any details of the views of my fellow evaluator(s), neither during the evaluation nor afterwards.
- I will not retain copies of any written or electronic information related to the evaluation, selection of projects or verification of project evaluation results.
- I do not, to the best of my knowledge, have any interest in any of the applications submitted in this call, I have not been involved in their preparation and I do not benefit either directly or indirectly from the eventual selection. Should I discover a conflict of interest during the evaluation, I undertake to declare this and to withdraw from the evaluation.

***[name/surname]*** _____

***[job title]*** _____

***[company/organisation]***

_____

***[Place], [date]*** _____, __ __ / __ __ / __ __ __ __

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement nº 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.

## Appendix 9 - Individual Evaluation Form template for evaluators

**Selection Committee**

**Individual Evaluation form**

**Cyprus Open Call for Solutions:**

**"Provision of medical services to the Cypriot citizens that live in rural and remote areas and do not have easy access to healthcare services and prescribed medicine"**

| | |
|---|---|
| **Company name:** | **Acronym:** |
| **Solution Provider Proposal Nº:** | |

| **CRITERIA** | |
|---|---|
| **Solution excellence: Fit with CHERRIES particular challenge in Cyprus** | **Score:** 0 /30 pts *(threshold:15 pts)* |
| **1.Soundness and Consistency of Concept** The proposed work is ambitious, has innovation potential, and is beyond the state of the art, enhancing the innovation capacity and the integration of new knowledge & the implementation of such innovations to the market. | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **2.Solution fit to challenge in an innovative approach and Compliance** Alignment of the solution to the proposed challenge. | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **3.Excellence** Viability and cost-effectiveness of the technological solution. | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **Remarks:**Click or tap here to enter text. | |

| **Potential Impact** | **Score:** 0 /10 pts *(threshold:5 pts)* |
|---|---|
| **4.Solution Expected Impact**<br>Clarity and pertinence of objectives and indicators. | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **Remarks:**Click or tap here to enter text. | |

| **Work Plan viability** | **Score:** 0 /20 pts *(threshold:10 pts)* |
|---|---|
| **5.Credibility of the proposed Work Plan**<br>It fits with the CHERRIES calendar – 10-month pilot. | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **6.Co-creation Intensity**<br>Importance given to the co-creation work (objectives and means employed). | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **Remarks:**Click or tap here to enter text. | |

| **Team Experience** | **Score:** 0 /10 pts *(threshold:5 pts)* |
|---|---|
| **7.Experience Skillset of the Team**<br>Team Competences. | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **Remarks:**Click or tap here to enter text. | |

| **Business Sustainability** | **Score:** 0 /30 pts *(threshold:15 pts)* |
|---|---|
| **8.Market Description and commercialisation strategy**<br>Convincing go-to-market strategy (or market potential). | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **9.Commercialisation potential**<br>Effectiveness of eventual implementation plan of the projects' results (including explanation of IPR management, if applicable). | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **10.Business Commitment**<br>Interest of the company in the solution | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **Remarks:kjkjh** | |
| **TOTAL SCORE CORE CRITERIA** | 0/100 pts |

| **PROGRESS ADDITIONAL CRITERIA**<br>**To be considered in case of a tie** | |
|---|---|
| **Responsible Research and Innovation** | **Score:** 0 /40 pts *(threshold:20 pts)* |
| **11. Gender Issues**<br>Does the organization have a gender equality plan? | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **12.Public Engagement**<br>Does the solution contribute to Public engagement? | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **13.Open Science/Access**<br>Does the solution contribute to Open Science? | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **14.Science Education**<br>Does the solution contribute to Science Education? | ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 |
| **Remarks:**Click or tap here to enter text. | |
| **TOTAL SCORE ADDITIONAL CRITERIA:** **Score:** 0 /140 pts<br>**(To be considered exclusively in case of a tie between applicants once the score of the core criteria plus the score of the optional requirements is calculated)** | |

**Overall remarks**
Click or tap here to enter text.

**I declare that, to the best of my knowledge, I have no direct or indirect conflict of interest in the evaluation of this proposal.**

**Evaluated by:**

| | |
|---|---|
| **Name** | Click or tap here to enter text. |
| **Position** | Click or tap here to enter text. |
| **Organization** | Click or tap here to enter text. |
| **Signature** | *(electronic signature if possible, or a scanned signed copy)*<br>Click or tap here to enter text. |
| **Date** | Click or tap here to enter text. |

## Appendix 10 - call for solutions Evaluation template

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Solution Provider Proposal Nº: | | | | | | | | |
| Company name: | | | | | | | | |
| Project name/Acronym: | | | | | | | | |
| | | | | | | | | |
| CRITERIA | | | | | | | | |
| *Solution excellence: Fit with the particular challenge* | | | | | | | | |
| | E1 | E2 | E3 | E4 | E5 | E6 | E7 | E8 |
| *Total score Solution excellence (out of 30)* | | | | | | | | |
| *Remarks:* | | | | | | | | |
| *Potential Impact* | | | | | | | | |
| | E1 | E2 | E3 | E4 | E5 | E6 | E7 | E8 |
| *Total score Solution expected impact (out of 10)* | | | | | | | | |
| *Remarks:* | | | | | | | | |
| *Work Plan viability* | | | | | | | | |
| | E1 | E2 | E3 | E4 | E5 | E6 | E7 | E8 |
| *Total score Work Plan viability (out of 20)* | | | | | | | | |
| *Remarks:* | | | | | | | | |
| *Team experience* | | | | | | | | |
| | E1 | E2 | E3 | E4 | E5 | E6 | E7 | E8 |
| *Total score Team experience (out of 10)* | | | | | | | | |
| *Remarks:* | | | | | | | | |
| *Business sustainability* | | | | | | | | |
| | E1 | E2 | E3 | E4 | E5 | E6 | E7 | E8 |
| *Total score Business sustainability (out of 30)* | | | | | | | | |
| *Remarks:* | | | | | | | | |
| *TOTAL SCORE CRITERIA (out of 100)* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | | | | | | | | |
| *Responsible Research and Innovation (RRI)* | | | | | | | | |
| | E1 | E2 | E3 | E4 | E5 | E6 | E7 | E8 |
| *Responsible Research and Innovation (out of 40)* | | | | | | | | |
| *Remarks:* | | | | | | | | |

## Summary of scores

| | Average Criteria score from all evaluators (out of 100) | Average RRI score from all evaluators (out of 40) ** |
|---|---|---|
| App. 2 | | |
| App. 3 | | |
| App. 4 | | |
| App. 5 | | |
| App. 6 | | |
| App. 7 | | |
| App. 8 | | |
| App. 9 | | |
| App. 10 | | |
| App. 11 | | |
| App. 12 | | |
| App. 13 | | |

** to be used only in case of an evaluation scoring tie

## CHERRIES Partners

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement nº 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.