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Citizen-centered health platform concept for EU cross-border regions

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Abstract

The citizen-centered health platform project is intended to provide a platform that can be used in EU cross-border regions, where social and economic exchange occurs across national borders. The overriding challenges are: (a) social: improving citizen-centered health and care provision; (b) technical: providing a digital platform for networking citizens, service providers, and municipal actors; (c) economic: developing long-term successful (sustainable) business models/value chains. The platform should strengthen and expand existing networks and establish new regional networks. Each network addresses particular challenges and apply them in a region-specific manner. Here, the national boundary conditions and the interregional needs play an essential role. These objectives require sufficient participation of civil society representatives. Furthermore, the platform will establish an overarching, sustainable, and knowledge-based network of health experts. The platform is to be jointly developed and implemented in the regions and follow an open-access approach. Therefore, synergies will be shared more quickly, strengthening competencies and competitiveness. In addition to practice partners, scientific and municipal institutions and SMEs are involved. The actors thus contribute to scientific performance, innovative strength, and resilience.

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1. Introduction

Citizens of all ages have health maintenance needs that can vary greatly depending on their stage of life and family situation. However, the existing information and supply platforms are inadequate for four reasons: (i) The respective municipalities and regions are insufficiently aware of the concrete needs of citizens in their individual life situations. (ii) Services, providers, and information are often unclear or not intuitively accessible to citizens. (iii) Digital participation for older people is poor due to a lack of technical and media skills. (iv) There is a lack of cross-border data-driven cooperation that supports evidence-based action that collects, processes, and evaluates data on a scientific basis so that with the use of artificial intelligence and analytical, predictive tools can be used for decision-makers.

The citizen-centered health platform concept addresses two research questions: (1) How to design an adaptable and citizen-centric digital health platform for cross-border regions? (2) How should the generic health platform be mapped to concrete regions' societal, economic, and political realities?

The need for a data-driven approach is already evident because there is hardly any aggregated data material for cross-border regions. Germany ranked lowest of the three countries in 2018 at position 30 [1]. In 2021, talks with representatives of the cities of Constance (Germany), Dornbirn (Austria), and St. Gallen (Switzerland), confirmed that no data had been collected to date on the topic of "digital health" and that there is also no common platform available that could be shared. Initial regional approaches [2] are derived, among others, from projects, such as Interreg projects² (DACH region-Lake Constance), which can be built upon. Analogies can be found elsewhere in the 27 EU countries, such as in the Alentejo-Algarve-Andalusia Euroregion (Spain-Portugal). There is no coordination of regional cross-national health care; although both countries joined the EU as early as 1986, the insurance card only allows emergency treatment. Or for example in the region Ruse-Giurgiu (Bulgaria-Romania), which accounts for more than 80% of the exchange of goods between Romania, Bulgaria, Greece, and Turkey. With more than 500,000 people in the catchment area, citizens work on both sides of the border, yet there is no significant networking in health care.

2. Relation to EU initiatives and added value of cooperation

The platform project is assigned to the Health cluster of the Horizon Europe Work Program [3]. Suitable topics are Destination 1 (Staying healthy in a rapidly changing society), especially the aspect of "improved evidence-based health policies", Destination 4 (Ensuring access to innovative, sustainable, and high-quality health care), especially the aspect of "cost-effective and people-centered solutions", and Destination 5 (Unlocking the full potential of new tools, technologies and digital solutions for a healthy society), especially the aspect "more cost-efficient solutions with high societal impact". Other possibilities are the regional Interreg programs for sub-consortia, which will start in 2023. The Interreg ABH VI-A program is singled out as an example [4]: The application is classified under Priority 1: Digitization and innovation under the bullet point 2. SC 2 (RSO 1.2): Exploiting the benefits of digitization for citizens, businesses, research institutions, and public authorities. There are also perfect matches in Priority 3: Health, education, culture, and tourism, and then in sub-item SC 7 (RSO 4.5): Ensuring equal access to health care and promoting the resilience of health systems, including primary care, as well as promoting the transition from institutional care to care in the family and the local community. Nevertheless, similar approaches can be found in [5] or initiatives for integrated health care can already be found in the Interreg Project Cross4All³, which also participates in the requested network.

Looking at the Western Balkan region, there is hardly a region in Europe where many national borders have changed in such a short period. Therefore, there is a great need and good opportunities to create common structures from which other regions in Europe can learn. Many disciplines and social sectors contribute competencies: Public administration, public health (health sciences/economics), care management, nutrition, information technology, ethics, social work, pedagogy, business administration, the law as well as associations (e.g., senior citizens' association) or volunteers. The project increases the comparability of the diversity of offers and strengthens the

² IBH-Living Lab AAL – Home Health Living Lab (HHLL): <https://www.home-health-lab.net>

³ Cross-border initiative for integrated health and social services promoting safe ageing, early prevention and independent living for all. Link: <https://cross4all.eu/en>

resilience of cross-border regions. The starting point in implementing the project is a needs analysis that records the requirements and ideas of citizens, service providers, and municipalities. Another task is the technical solution of the conception of the platform with open interfaces, consideration of data protection, data structures, and possibilities for the transfer into an open-data approach. Through new business and usage models, concepts for data collaboration, integration of stakeholders, and a sustainable operating concept beyond the project duration should emerge. The goal is to discuss and evaluate the technology and service concepts that are still to be developed, depending on their application contexts and target groups. The expected results will contribute to a subjective and objective improvement of health, improved digital participation, and break citizens' social isolation.

The increasing demand for health care services has enormous socio-economic and structural effects, which pose significant challenges for politics and society today and in the future. It is planned to organize a comprehensive symposium to prepare the application and the cluster topics for the regions, practical scenarios developed from the user-centered needs and resources analysis, which formulates the citizens needs. This outlined structure allows an iterative needs-based assessment and verification of the correctness and viability of the solution approach. The cluster activities are assigned to three dimensions: (i) work focus, (ii) use cases, and (iii) ethical and societal context. In the project, an adapted agile development method is used. The benchmark for all planned activities and ideas is their positive impact on the region's society, accompanied by a continuous identification and clarification of ethically relevant questions and fields of action.

The starting point for implementing the project is a needs analysis, which records the requirements and ideas of the citizens, service providers, and municipalities. A further activity is the technical solution of the conception of the platform with open interfaces, consideration of the data protection, data structures, and possibilities for the transition into an open data approach. In the activity Business and Usage Models, concepts for data collaboration, stakeholder involvement, and a sustainable operating concept beyond the project duration are developed. The activity Transfer/Data-Coach addresses concepts for improving digital participation, multigenerational interaction, feasibility in practice, and the integration of new partners.

The project addresses relevant societal challenges, such as improving healthcare for citizens in cross-border regions; technical challenges, such as providing a sustainable, cross-border and cross-sector digital platform to connect citizens, service providers, and municipal actors; economic challenges: Developing sustainable business models/value chains and reducing cross-border barriers to service provision.

3. Preparation phase and implementation

In order to launch the open platform project, the following preparation phase to proposed (cf. Fig 1). In WP1 (Establishment of the clusters in Southern and Eastern Europe) regional consortia have to be established first. Therefore, one regional symposium will be held in each region. The venue will be determined according to the preference of the regional partners. Together with the interested/suitable partners, the regional cluster topic will be selected at a later stage and elaborated in a regional workshop. The aim of WP2 is to strengthen the cluster in the DACH⁴ region. Potential partners for a project launch already exist. In WP3 (concept development and cluster networking), in addition to the preparation, a joint workshop of all partners in one location will take place. In this two-day workshop, the networking of the partners beyond their own regional cluster will be promoted and a common objective will be developed.

Workpackages (WP)	Months											
	1	2	3	4	5	6	7	8	9	10	11	12
WP 0: Coordination												M3
WP1: Cluster structure Southern and Eastern Europe						M1a				M2		

Fig. 1. Launching activity workpackages plan

⁴ DACH-Region: Germany, Austria and Switzerland.

WP2: Cluster strengthening in the DACH region					M1b				M2	
WP3: Concept and cluster networking									M2	M3

The following milestones can be identified:

- **Milestone 1a** in M6: Symposia completed, consortia formed, regional cluster workshops completed in e.g. Southern and Eastern Europe
- **Milestone 1b** in M6: Regional cluster workshop completed
- **Milestone 2** in M10: Project is defined on European level and partner networking is completed
- **Milestone 3** in M12: The material is consolidated and an implementation can be started

4. Expected results and scientific added value

The expected results contribute to subjective and objective improvements in health, improved digital participation, and breaking down the social isolation of citizens. Modern technology must create low-threshold and barrier-free access to structured information, advice, and services. The aim is to discuss and evaluate the technology and service concepts still to be developed in their application contexts and target groups. Based on the knowledge gained in this process, the second step will be an ethical-normative investigation of what a good and happy life - in the sense of a successful life according to Aristotelian understanding - can look like and to what extent the technology to be developed can contribute to this. The project increases the comparability of the variety of offers and strengthens the resilience of the cross-border regions.

The project will develop concepts for the sustainable operation of the platform, which will enable the impact on the regions to be maintained in the medium and long term. Cooperations from the same or related disciplines will emerge, remaining usable beyond the project duration. The integration of the local network partners opens the possibility for the potential consortium partners to use the network structures, to get involved, or in the future, initiate applications or co-operate professionally through these contacts. It is planned, to select three pilot regions. The medium and long-term goal is to transfer the platform to other border regions in Europe.

Local and regional institutions play a fundamental role in developing the project. On the one hand, they are the natural access point for citizens to the platform. Municipalities and regions can develop evidence-based strategies by using aggregated data. Open-data portals already exist in some cases, but they do not have health-related data, so there is powerful interest in closing this gap.

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