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Abstract

This deliverable reports on the data collection and screening activities for the "European DigitalHealthUptake (DHU) Radar" during the first four months since the launch of the Radar. It provides an analysis of the first digital health practices entered in the Radar against key descriptors with a focus on mature solutions. Areas where more effort should be placed in attracting submissions are outlined.

Statement of originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both. Views and opinions expressed are those of the author(s) only and do not necessarily reflect those of DG Connect, the European Commission. Neither the European Union nor the granting authority can be held responsible for them.

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EXECUTIVE SUMMARY

This deliverable adds to the previous Work Package 2 deliverable, 2.1, which presented the vision for the DHU Radar and its design considerations, especially the characteristics and descriptors of uptake practices that it should contain. Deliverable 2.2 reports on the early experience of attracting contributions to the Radar: descriptions of digital health innovations, their uptake so far and any evidence of their benefit.

At the time of writing this deliverable there are 97 entries in the Radar. These are not only descriptions of the technology, but also of its deployment scale, sometimes reference sites and an indication of published evidence of usability, health outcomes and health systems impact, occasionally also economic evaluations.

When this deliverable was originally proposed, in the Description of Action, a smaller number of initial entries was foreseen, to be explicitly documented in the deliverable. Given the number to date, and that this number is growing, it has felt wiser only to list the current practices in an annex of this deliverable but refer the reader to the online Radar itself where the content can more easily be browsed, searched and will be frequently updated. This choice also reduces the size of this document!

This deliverable profiles those 97 practices against the main descriptors. It can be seen that the majority of the practices entered are mature and mostly on the market, with only a small number of pre-products and advanced prototypes. They originate from all over Europe, but the number of entries is too few at present to infer the distribution of innovators across Europe, nor yet to identify if our content has blind spots in certain countries. We will monitor for this. The majority of patient-facing digital innovations focus on the support of remote care, such as telemedicine, remote monitoring and tele-consultations. The majority of those for clinician use include care coordination and care pathway support.

Small modifications to the Radar implementation are indicated from our initial experience, to enlarge the value options for certain information fields, to enable each entry to be as rich and accurate as possible. We will also extend the capability to introduce evidence, as references to publications or websites, or as materials that can be uploaded.

The major work that is needed is to intensify the targeted promotion of the Radar to individual digital health innovators, companies and advanced stage projects and initiatives, and to other national and European hubs and incubators. It is also important to strengthen promotion of the Radar to direct B2B and B2C adopters of digital innovations, funders of uptake and end users, to make the Radar useful, stimulate digital transformation enthusiasm and thereby grow the market.

1 Implementation of the European DHU Radar

The European Digital Health Uptake (DHU) Radar was launched on the 5th of April 2023 on the DHU Portal. As a key pillar of the DHU Project, the Radar facilitates the continuous collection, monitoring and analysis on the uptake and use of Digital Health practices in Europe. As described in D2.1, the Radar has three different functions supported by three components, the **Radar Repository**, the **Radar Analytics** and the **Radar Spotlights**, which are summarised in Figure 1.

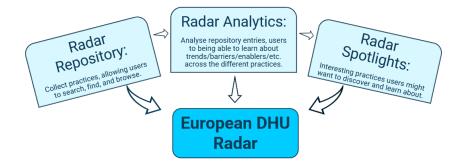


Figure 1. Overview of Radar components

The DHU Radar is accessible via the DHU Portal: https://digitalhealthuptake.eu/radar/. While the Radar Repository is fully functional, including the submission and editing of entries by external contributors, the Radar Spotlights and insights on Radar Analytics are yet to be featured on the website. This is an immediate priority to be resolved as soon as possible.

1.1 Promotion and strategic partnerships

The first stage of the DHU Radar implementation between April and July 2023 primarily focused on the promotion of the Radar, especially the Radar Repository function and the collection of practices, as well as first high-level Radar Analytics. Work is ongoing for a deeper analysis of the Repository entries and selecting and featuring Radar Spotlights.

The DHU Radar promotional campaign was launched in the beginning of April 2023 and disseminated via several channels: the DHU media channels (e.g., LinkedIn, Twitter, DHU Portal), the European Commission Futurium subgroup "Active and Healthy Living in the Digital World" with its associated Twitter (@Digital4AHL) and LinkedIn group, and the DHU partners' media channels and networks.

Furthermore, the DHU Radar was promoted by partners at several events, including:

- ▶ HealthTech Summit, Leuven, Belgium, 23rd March 2023,
- ▶ HIMSS Europe, June 7 9, 2023,
- Radical Health Festival Helsinki, June 12 14, 2023,
- Towards a sustainable, innovative and digital health system, Girona, Spain, 5th July 2023.

More details on the communication and dissemination relating to the DHU Radar will be reported in Work Package 5 deliverables D5.3 and D5.4, first and second report on communication and dissemination activities.

In addition to the promotional campaign, the DHU consortium actively sought out synergies with other EU projects, initiatives, and partnerships to leverage their strengths and expertise towards achieving common goals in the health and care transformation sector. This includes initiatives and projects such as the SHIFT-HUB project and the Partnership for Transforming Health and Care Systems (THCS) among others. Several meetings were held with these projects and initiatives discussing collaboration, dissemination and outreach opportunities promoting the DHU Radar and other activities. In addition to this, the DHU consortium took over the management of the European Commissions' Futurium subgroup "Active and Healthy Living in the Digital World" (Digital4AHL).

1.2 Technical updates

Since its launch, the DHU Radar was continuously updated and improved based on feedback received from users and the DHU consortium. Primarily, these updates related to aspects improving the clarity and usability of the Radar Repository webpage. Table 1 below gives an overview of these updates.

Change implemented	Rationale
Number of entries showed on Repository page limited to 10	Avoid endless scrolling
Collection and display of practice owner	Improve clarity
Entering up to five key words per practice	Facilitate searchability and finding of practices. Users can see if a practice is interesting for them at a glance
Add tag for practices from other repositories	Immediately show collaboration with other repositories
Minor design changes	Improve design

Table 1. Overview of implemented changes

2 Collection and screening

Information on relevant digital health solutions and resources feeding into the DHU Radar Repository is identified through desk research conducted by consortium members as well as through input from external stakeholders submitted online or offline via the collection template. To incentivise external contributions, a communication package was created by WP2 and WP5 partners. Simultaneously, the WP2 lead prepared some Radar Repository entries in collaboration with partners focusing on a few successful practices by (re-)connecting with solution owners in their network, thereby providing external stakeholders interested in the Radar with good practice examples. The collection of these successful practices is also an incentive for external stakeholders to provide their own individual contributions. This process is explained in more detail below.

Following the launch of the Radar, the DHU team consulted established repositories of successful digital health implementation cases. In D2.1, a first list of the key sources that would be consulted in desk research was presented. As of July 2023, the DHU Radar Repository leverages and consolidates previously published catalogues and repositories, namely: the Digital Health Europe (DHE) Catalogue of digital solutions supporting the digital transformation of health and care¹, the DHE Catalogue on digital solutions for health and care management in times of Coronavirus², and the Repository of Innovative Practices of the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA)³.

The following table shows how many practices, cases or solutions were analysed for each secondary source included in the scope of the research. In many cases, the same practice was represented in multiple repositories. Duplicates were avoided in the DHU Radar. The practices submitted in the DHU Radar from existing repositories were selected and uploaded by the DHU Radar team based on their relevance in terms of scope (i.e., digital health solution, tool / methodology, strategy / policy for the uptake of digital health solutions) and timeliness. For the latter, good practice cases which were clearly outdated and for which no public information other than the repository could be retrieved were excluded. The below table shows the number of practices screened in the initially consulted repositories.

Source analysed	Number of good practices or solutions screened	Number of selected practice owners contacted	Number of practices entered in the DHU Radar
EIP on AHA Repository	167	33 ^a	12 ª
Digital Health Europe (DHE) Catalogue on digital solutions	64	36	35
Digital Health Europe (DHE) Catalogue on digital solutions in times of COVID-19	42	18 ª	17 °

Table 2. Secondary sources

^a excluding duplicates with DHE Catalogue on digital solutions

Success cases that have been submitted by the DHU consortium partners via the DHU Admin account from key sources can be later easily transferred directly to the owners of the practices once they have registered on the DHU Radar. This allows the practice owner to update their entries later. To facilitate this, the DHU WP2 lead directly contacted owners of practices that were selected from established

¹ https://digitalhealtheurope.eu/catalogue/

² https://digitalhealtheurope.eu/covid-19/

 $^{^{3} \}qquad https://futurium.ec.europa.eu/sites/default/files/2021-10/Catalogue% 20-\% 20 Repository \% 20 of \% 20 innovative \% 20 practices _ 0.pdf$

repositories with a link to the respective entry in the DHU Radar. As a result, several practices entered by the DHU Admin account could already be transferred to their owners.

In the future, further links to existing repositories, such as the HosmartAI (Hospital Smart development based on AI) marketplace or the European Innovation Radar are planned. Exchange on this linkage has already been initiated.

After the submission of several success cases by the DHU consortium partners, a call for external contributions was launched in April 2023, encouraging external stakeholders to submit their own practices to the DHU Radar Repository. The submitted success cases were used to incentivise external contributions in several ways. External stakeholders could see how their information would be displayed in the Radar and the continuous growth of the Radar Repository demonstrated a "living repository" which is frequently updated.

The call was disseminated via the DHU project's website, Twitter, and LinkedIn, as well as through the consortium partners' networks. This included supply side partners F6S and DIGITALEUROPE reaching out to industry representatives and SMEs in their networks, such as the F6S COVID-X community, while demand side partner RSCN reached out to their Active and Healthy Living Reference Sites for good practices.



Figure 2. Radar launch promotional material

In the following section, the digital health practices entered in the Radar as of July 2023 are analysed, leading to the exploration of options to close identified gaps moving forward.

3 Analysis of Radar practices

The structure and choice of indicators used in this analysis of practices entered in the Radar are directly connected to the key objectives and the design characteristics of the Radar. As such, this regular analysis of the content will become a method for monitoring progress of capturing information across all relevant topics, across the maturity spectrum, and identifying areas where efforts need to be intensified in order to attract submissions.

As the Radar becomes increasingly known and widely used by innovation holders and the volume of its contents is grown, the information is anticipated to become increasingly representative of what is currently available as good and relevant practices and solutions across the EU. A second use of this analytical framework will then be to draw information on the growth and uptake of digital health technologies, policies and solutions across Member States and digital health domains and in particular:

- > An overview of digital health practices in regions, Member States and associated countries;
- > The health outcomes impact, and fortification of health systems efficiency and resilience;
- > The economic value and impact of the solutions to both patients and health and care systems;
- > A view across Europe of barriers and success factors for uptake, including examples of good practice;
- An overview of available indicator tools and toolkits, such as tools to measure the solutions' uptake, assess their impact, maturity, degree of policy integration, health information reliability, required skills and literacy to ensure end-users (e.g., patients, health professionals, informal caregivers, etc.) are empowered;
- An analysis of investment gaps, opportunities, and good examples of cost-effective implementation, financing, and reimbursement models.

It should be however stated that at the current state of population of the Radar, the focus has been only on evaluating the use and identifying the areas where more effort should be placed in attracting submissions.

3.1 Number of Radar practices and users

As of mid-July 2023, **97 digital health practices** were submitted to the DHU Radar. Of those, 64 were included from secondary sources (i.e., EIP on AHA Repository, DHE Catalogue).

Further, **58 users** registered with the Radar as of July 2023. Tables 3 to 8 show an overview of all Radar entries per the main classifications of the Radar Repository: Type of practice, maturity level, geographical scope, countries of deployment, practices related to clinicians and care practitioners, and practices related to patients and citizens.

Type of practice	Number of cases
Policy and strategy	0
Digital solution and service	84
Supporting tool and methodology	6
Other	7

Table 3. Type of practice, all Radar entries (N = 97
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Table 4. Maturity level, all Radar entries (N = 97)

Maturity level	Number of cases
1. The idea has been formulated and / or research and experiments are underway to test a "proof of concept"	3
2. Proof of concept is available: it works in a test setting and the potential end- users are positive about the concept	9
3. There is evidence for economic viability and / or of benefits to the target group of the practice. Further research/ development is needed for routine use.	23
4. The practice / case / tool is "on the market" and integrated in routine use. There is proven market impact, in terms of job creation, spin-off creation or other company growth	56
Not applicable	6

Table 5. Geographical scope, all Radar entries (N = 97)

Geographical scope	Number of cases
Local	16
National	24
Regional	28
European	19
International	10

Table 6. Country of deployment, all Radar entries (N = 97)

Country of deployment	Number of cases	Country of deployment	Number of cases
Spain	33	Austria	4
Italy	31	Czechia	4
United Kingdom	23	Norway	4
Other (please specify)	16	Switzerland	4
Netherlands	14	Türkiye	4
Portugal	14	Bulgaria	3
Greece	13	Finland	3
France	9	Hungary	3
Germany	9	Latvia	3
Sweden	9	Liechtenstein	3
Ireland	8	Luxembourg	3
Belgium	7	Malta	3
Cyprus	6	Slovenia	3

Denmark	6	Estonia	2
Poland	6	Iceland	2
Croatia	5	Lithuania	2
Romania	5	Slovakia	2

Table 7. Practices related to clinicians and care practitioners, all Radar entries (N = 97)

Practices related to clinicians / care practitioners	Number of cases
Clinical team care planning and collaboration tools (e.g., digital shared care plan)	27
Health data analytics (Artificial Intelligence, algorithm development and calibration, machine learning, risk stratification tools, etc.)	26
Clinical decision support	19
Care pathway tracking and adherence	19
Regional and national Electronic Health Record systems	18
ICT support for management of frailty, and/or falls prevention	9
Regional, national and local Integrated Care Record systems	9
Other (please specify)	9
Alerting systems for abnormal test results	8
ePrescription solutions	7
eLearning for workforce development	4
Escalation systems tracking home monitoring data streams	3
Virtual reality surgery	1

Table 8. Practices related to patients and citizens, all Radar entries (N = 97)

Practices related to patients / citizens	Number of cases
Telehealth and telemedicine	34
Remote monitoring apps, health outcomes tracking	24
Sensors, wearable devices	20
Health promotion and wellness apps and wearables, virtual coaches	17
Reminders, Alerts	15
Self-management, ICT supporting adherence to medication and care-plans	15
Personalised prevention apps	14
Health data analytics (Artificial Intelligence, algorithm development and calibration, machine learning, risk stratification tools, etc.)	13
Digital tools to support health education (health literacy), digital health literacy	12
Other (please specify)	12

Digital tools to support patient feedback and reporting of outcomes and experiences	9
Home care	8
Smart homes, independent living support, ambient assisted living technologies	6
Smart workplaces	3
Robotics (e.g., companion robots)	2

3.2 Maturity of practices

Based on classifications from established repositories, maturity levels of digital health practices were defined for classifying and filtering in the DHU Radar Repository. The Repository includes practices of all maturity levels. However, only practices of higher maturity, set at levels 3 and 4, will be considered for the Radar Analytics and the selection and promotion of Radar Spotlights. The level of maturity of a practice is assessed as shown in Figure 3 below.

Level 1	Level 2	Level 3	Level 4
The idea has been formulated and/or research and experiments are underway to test a "proof of concept"	Proof of concept is available: it works in a test setting and the potential end-users are positive about the concept	There is evidence for economic viability and/or of benefits to the target group of the practice. Further research/ development is needed for routine use.	The practice/case/tool is "on the market" and integrated in routine use. There is proven market impact, in terms of job creation, spin-off creation or other company growth

Figure 3. Maturity levels for classifying practices

As of mid-July 2023, the majority of the 97 practices in the Radar (n = 56) was classified in level 4 as mature and being integrated routine use (Figure 4). For almost one quarter of practices (n = 23), owners or authors indicated that evidence for benefits is available, but that further development or research was required. Proof of concept was indicated to be available for nine practices, and to be tested for three practices.

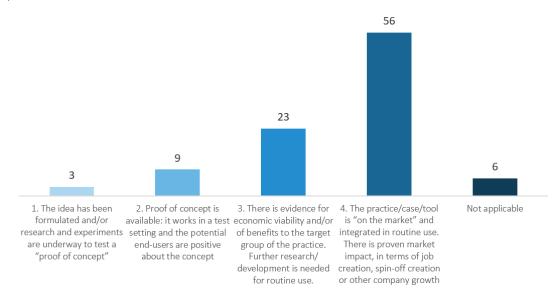


Figure 4. Maturity of practices in the Radar, July 2023

3.3 Frequently used keywords

When submitting a practice to the DHU Radar, users are asked to provide up to five keywords that best describes the practice. Users can select existing keywords and add new ones, which can lead to duplicates if various synonyms are added. Therefore, the DHU Radar Admins continuously monitor the entered keywords and merge them where necessary to avoid duplication.

The most frequently used keywords are an indication of the specific contents of the digital health practices. Table 9 below lists the twenty most frequently used keywords across all submitted practices.

Keyword	Number of cases
Telemedicine	13
Electronic Health Record (EHR)	11
Telemonitoring	11
Telehealth	11
Communication	10
(Clinical) Decision Support Services	9
Elderly	9
Appointment Management	9
Diabetes	8
Access to Health Data	8
Telecare	8
Digital Application	8
Digital Health Services	7
Active and Healthy Ageing	7
mHealth	7
Chronic Diseases	7
Patient Empowerment	6
Disease Management	5
Assisted Living	5
Integrated Care	5

 Table 9. Most frequently used keywords across all Radar entries

3.4 Types of practices

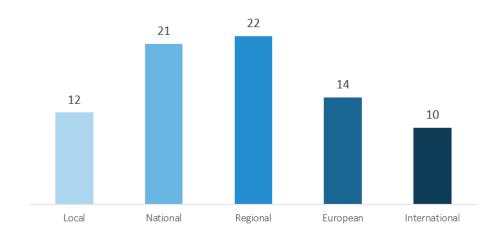
Of all Radar practices, the following types were submitted:

- Digital solution and service: 84
- Supporting tool and methodology: 6
- Other: 7

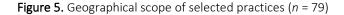
Other types of practices were, for instance, specified as training, care model, guideline or guidance.

As of mid-July, no policy or strategy document on the digital health solutions and services has been submitted yet.

In the next sections, only practices classified as level 3 and 4 will be further analysed (n = 79).



3.5 Geographical scope and countries of deployment



The countries of deployment of the Radar solutions that were classified as mature are listed below:

Spain: 25	Ireland: 6	Bulgaria: 2	Estonia: 1
Italy: 23	Belgium: 5	Czechia: 2	Iceland: 1
 United Kingdom: 19 	Cyprus: 5	Finland: 2	Lithuania: 1
 Other (please specify): 15 	Denmark: 5	Hungary: 2	Slovakia: 1
Greece: 10	Poland: 5	Latvia: 2	
Portugal: 10	Romania: 4	Liechtenstein: 2	
Netherlands: 9	Austria: 3	Luxembourg: 2	
France: 7	Croatia: 3	Malta: 2	
Germany: 7	Norway: 3	Slovenia: 2	
Sweden: 7	Switzerland: 3	Türkiye: 2	

Almost one third of mature solutions were indicated to be deployed in Spain (approx. 32%) and Italy (approx. 29%). This is followed by 19 solutions in the United Kingdom and 15 solutions in countries other than the ones listed. Where "other" was specified, it was referred to: United States, Australia, New Zealand, South Africa, Canada, "some Latin American countries", Europe, worldwide.

3.6 Practices relating to clinicians and care practitioners

Where applicable, users entering Radar practices are asked to select what their digital innovation for clinician or care practitioner use focuses on. For this classification, multiple answer options are possible. Figure 6 presents an overview of the submitted answers across the mature solutions.

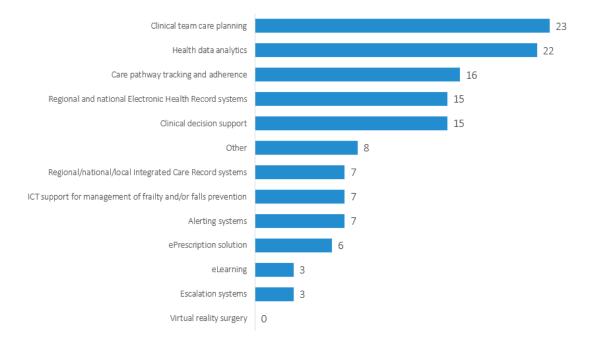


Figure 6. Selected solutions relating to clinicians and care practitioners (n = 79)

The majority of digital innovations for clinician use focus on supporting care coordination, providing health data analytics and supporting care pathway tracking and adherence. Where specified, "other" solutions than the ones listed included: real time health monitoring / telemonitoring, video consultations, innovative care model, neuropsychological assessment and rehabilitation system, national treatment registries / European registries, health information system.

3.7 Practices relating to patients and citizens

For patient-facing digital innovations, users are also asked to select which aspect(s) their practice focuses on. Multiple answer options are possible and are presented in the figure below.

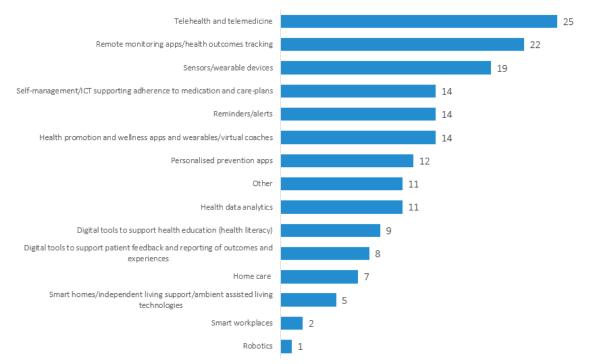


Figure 7. Selected solutions relating to patients and citizens (n = 79)

Accordingly, the majority of solutions focus on telehealth and telemedicine, remote monitoring and health outcomes tracking, followed by sensors and wearables. Where specified, "other" solutions included: Communications and evidence management, tools and services supporting independent living, neuropsychological assessment and rehabilitation system, clinical appointments / appointment scheduling / appointment systems, personal health record, citizen / patient portal, collection of patient related treatment outcomes / treatment adherence, ePrescription, augmented reality, serious games.

3.8 Gap analysis

3.8.1 Conclusions and recommendations

1. Maturity of solutions:

The great majority of the solutions are of maturity level 3 and 4 representing a high prevalence of submissions that are ready or close to ready for deployment. This is in line with the objectives of the Radar and in particular for its role in supporting digital health uptake. However, less mature practices – while not presently encouraged – may be also useful in identifying good cases for early cooperation such as in pre-commercial procurement projects. We could therefore also invite European Commission projects that have developed digital health innovations that are close to market to contribute to the Radar, and for companies to use this as a source of pre-market innovations to take up and commercialise. These forthcoming addition celebrations also provide helpful indicators of the direction of travel to expect in the marketplace.

Recommendation: Consider diversifying the searches and the respective response of the system according to purpose of use, allowing more options. Consider directly targeting final year EC projects on relevant topics.

2. Information model:

All information fields have been found useful; however, the available choices have not always been sufficient.

Recommendation: Consider expanding the list of categories of solutions by also including: Communications and evidence management, tools and services supporting independent living, rehabilitation, appointment management systems, personal health record, citizen / patient portal, patient reported outcomes, treatment adherence, ePrescription, augmented reality, serious games.

3. Geographical coverage:

Available information exists for all EU countries (and some beyond the EU) and typologies of scope (local, national, regional, EU); however, the current capture of information is insufficient to draw any further conclusions.

Recommendation: Proactively target national incubators and innovation hubs in countries where submissions are persistently low.

4. Thematic Coverage:

There has been an evident weakness of the practice collection approach in terms of attracting submissions from the demand side players. This may come down to the extent of engagement there has directly been to date with policy makers; this is not surprising as the immediate focus has been to engage more with providers of services and the technology suppliers rather than the policy makers who set the agenda.

Recommendation:

It is recommended that the specificities of this target audience are considered and addressed through a strategy employing a stepwise approach. As a first step, the RSCN could be invited to undertake desk research on the 4th Call for AHA(L) Reference Site applications to identify potential regional Digital Health and Care strategies and policies listed. This would result in a baseline level of population of this thematic area in the Radar, enough for contributors to feel that they are contributing to something that has been used before, even at a small scale.

As a second step, Reference Site coordinators from the relevant regions could then be contacted and invited to inform their public authorities and health and care providers to upload the appropriate policies and strategies to the Radar. This would further increase the "pump priming" volume of content which might then make it attractive for other policy makers and health and care providers to identify and upload relevant policies and strategies to the Radar.

To help stimulate future interest in DHU, through WP3, a webinar could be organised specifically for policy makers, CIOs, CTOs, etc. One of the "selling points" to them is being able to access the Radar to help in their digital health and care policy reviews or when developing new policies and strategies.

5. Typology of submissions:

Submissions so far are skewed towards digital health solutions and services with an apparent lack of policies and strategies. This is largely due to the bias introduced by the repositories that have been used for pump priming the Radar. This is particularly evident also in the prevalence of telemedicine related entries (including remote monitoring, wearables and mHealth Apps) amounting to about 75% of all entries).

Recommendation: Prioritise DHU activities, such as events on the demand enabling side, to incentivize this type of good practice contributors; at the same time use other sources such as the Study on Capacity Building for the Primary Use of Health Data ("CapacityHD" study with empirica and IHD as partners) with the collection of information from Member States to identify good practices in several policy and strategy areas.

6. Uptake of the DHU Radar:

About one third of the current entries have been directly entered by members of the community with two thirds being entries by the DHU team. While this is a promising result, there is still a huge gap to be covered in terms of the number of entries to meet the goal of 3,000 entries by the end of the project. Approaches for closing this gap are explored in the following section.

3.8.2 Forecast and natural growth

Rogers' Diffusion of Innovation Theory explains how, over time, people adopt a new idea, behaviour or product. The new idea in this case is using the DHU Radar to uptake and use of digital health technologies.

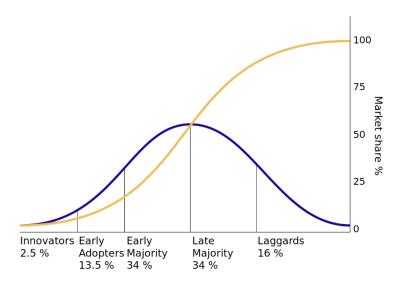


Figure 8. Adopter categorization defined within the Diffusion of Innovation Theory by Rogers

Not all people will buy into a new idea from the start. Rogers distinguishes five categories: innovators, early adopters, early majority, late majority, and laggards (see Figure 8). Five main factors influence adoption or uptake of an innovation. The extent to which each of these factors matter differs per adopter category. These factors have been contextualized in DHU in the table below. They are then used as a guide to assess different options for closing the gap.

Factors influencing adoption of the Radar	General	DHU context
Relative advantage	The degree to which an innovation is seen as better than the current idea or solution.	The degree to which the Radar is seen by the various digital health audiences as a more efficient source of information than the currently existing sources.
Compatibility	The consistency of the innovation with the values, experiences and needs of potential adopters.	The consistency of the Radar with the values experiences and needs of potential adopters (objective, non-discriminatory, highly trusted, representative,).
Complexity	Refers to how difficult the innovation is to understand and/or use.	Refers to how difficult it is for the users of the Radar to submit and to find relevant and highly specific to the purpose information (maximise signal to noise ratio).
Trialability	The extent to which the innovation can be tested before a commitment to adopt is made.	The extent to which at first encounter with the Radar the users will be able to quickly and efficiently navigate the different functions and retrieve content that matches expectations.
Observability	The extent to which the innovation provides tangible results.	The extent of positive experiences in finding tailored information to their needs when trying out different searches.

Table 10. Comparison of impact across the five adoption factors

3.8.3 Closing the gap

A number of options for accelerating adoption and use of the Radar are explored below. These are not mutually exclusive. In fact, a combination of all three may be a realistic scenario.

A. Broaden maturity tolerance – lower-end

Encourage less mature solutions, pilots, final year EC projects etc. to become part of the Radar.

Pros: Number of entries will be increased through more innovation holders submitting solutions; it may also increase potential uses of the information along the uptake trajectory and support early twinning between innovation developers and the demand side.

Cons: This may impact efficiency of searches and eventually negatively impact adoption of the Radar if it results in a lower signal to noise ratio in search results; it may also impact the uniqueness of the Radar in being THE source supporting UPTAKE of mature solutions.

Mitigation: Optimize search filters and in parallel "compartmentalize" results according to their maturity level.

B. Broaden maturity tolerance – high-end

Encourage solutions already in the market to become part of the Radar.

Pros: Number of entries will be increased through solution providers being able to showcase their products in the Radar and promote them to potential users and buyers.

Cons: This is likely to alter the character of the Radar as an objective source of information, completely free of market interests and competition.

Mitigation: Identify and connect to other existing repositories holding products placed in the market, while informing the user that they are transferred to another environment, external to DHU. Actively promote the Radar as a catalogue of procurable solutions and capture data on its usefulness, to also encourage developers to enter their products into it.

C. Evolve the Radar into an Information Hub

Progressively connect to and become a one stop shop for more and more existing, trustworthy and sustained repositories of known quality and purpose. Options A and B may then be seen as sub cases of Option C.

Pros: The number of searchable records will increase exponentially as users will be able to simultaneously search several sources of information of known quality and characteristics. Duplication of effort will be avoided. Maintenance of the information for information providers will be optimized.

Cons: As more repositories of information are connected the degree of control and supervision of quality of entries for DHU will be decreased. This strategy may also prove not affordable for DHU.

Mitigation: This will require a thorough analysis of the needed collaborative environment and synergetic framework and the mechanism for leveraging on several currently independent repositories and maximising the potential of applying a "once-only-principle" in pursuit of maximising efficiency and sustainability potential. As a first step, the DHU project will explore such potential in practice through the collaboration with the HosmartAI repository.

Table 11 aims to compare the impact across the five adoption factors per the options mentioned above.

	Options		
Factors influencing adoption of the Radar	А	В	С
Relative advantage	+	+	+++
Compatibility	+	-	+
Complexity	-	+	+
Trialability	+	+	+
Observability	+	+	+++

Table 11. Comparison of impact across the 5 adoption factors per option

4 Next steps

As has been indicated above, the next steps in the development of the Radar should be two-fold:

- Small modifications to the Radar product are indicated from our initial experience, to enlarge the value options for certain information fields, to enable each entry to be as rich and accurate as possible. We will also extend the capability to introduce evidence, as references to publications or websites, or as materials that can be uploaded.
- Consider the options for increasing the rate of growth of the content and intensify efforts and adopt a properly balanced approach and strategy.

The major work that is needed is therefore to intensify the targeted promotion of the Radar to individual digital health innovators, companies and advanced stage projects and initiatives, and to other national and European hubs and incubators. It is also important to strengthen promotion of the Radar to direct B2B and B2C adopters of digital innovations, funders of uptake and end users, to stimulate digital transformation enthusiasm and thereby grow the market. The discussion and collaboration with HosmartAI will also test the assumptions and possibilities of establishing connections to other repositories and creating a seamless access layer for users.

In addition, the following two areas, are part of current discussions and due to be operationalised asap:

Radar Analytics and Radar Spotlights: We are currently outlining a plan for selecting and promoting Radar Spotlights. Spotlighting outstanding practices and solutions is considered as one of the strengths of the Radar. Reporting on the early Spotlights that we have featured will be done in the next version of this deliverable.

Continuous monitoring and collection: Upcoming and continuous liaison with the EU Innovation Radar, HaDEA projects, HosmartAI marketplace, digital health Hubs, etc.

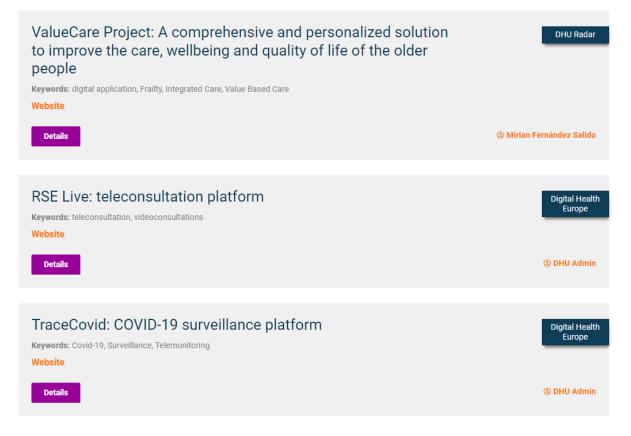
Task 2.4 will be responsible for further updates to the Radar, continuous monitoring and collection, selection of Spotlights, etc. Radar Analytics (Task 2.3) will be undertaken regularly and be published in the second Radar Report (D2.3).

5 Annex

Since the Radar Repository is continuously evolving and growing, a detailed presentation of each Repository entry as of July 2023 is not attached. The latest content in the Radar can be accessed via this link: <u>https://digitalhealthuptake.eu/radar-repository</u>

5.1 Submitted practices in the Radar Repository as of July 2023

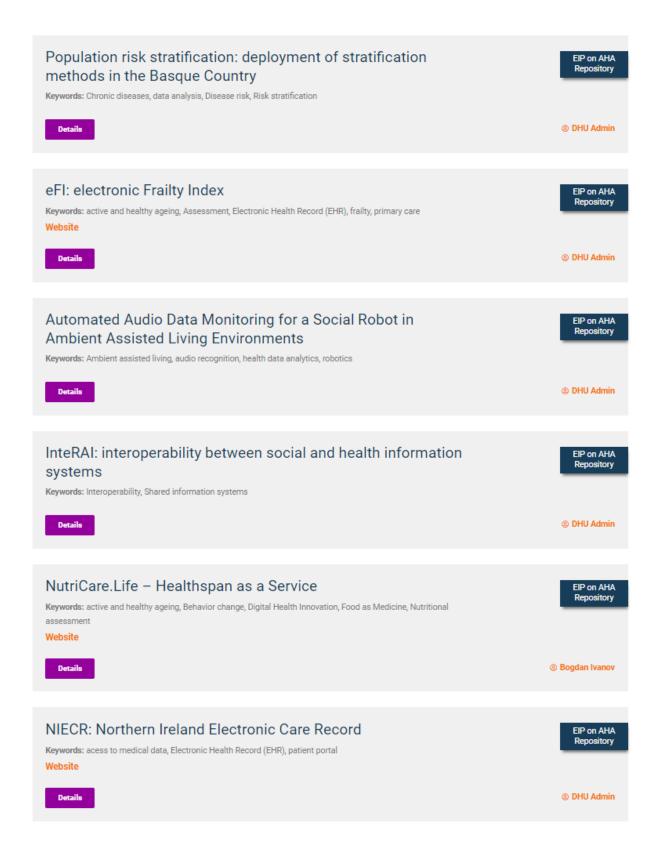
The below screenshots depict the Radar Repository list of practices as of mid-July 2023.





Workflow automation for hospitals Keywords: Care plans, Digital integrated care management, virtual care planning Details	DHU Radar @ Martha Zachariadou
Clinical Decision Support Keywords: Clinical Decision Support Services, Digital health tools, medicine management, Multimorbidity Website	DHU Radar
Details 10 keys for unmet needs identification Keywords: Demand-driven innovation, Guidance, Unmet needs identification	Martha Zachariadou DHU Radar
Website Details	(a) DHU Admin
Refer-to-Pharmacy: fully integrated hospital to community pharmacy referral system Keywords: pharmacy, referrals, transfer of care Website	EIP on AHA Repository
ParaGå: time management registration system	(a) DHU Admin EIP on AHA Benesitary
Keywords: Administration, Monitoring Details Details	@ DHU Admin

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Project ECHO NI: Extension of Community Healthcare Outcomes Northern Ireland Keywords: eLearning, Networks, Peer Support, Telementoring Website	EIP on AHA Repository
VirtuALL: symbiosis between innovation, aging and quality of life Keywords: Active aging, Augmented reality, cognitive stimulation, Physical activity, Social Innovation Website	EIP on AHA Repository
Details	@ DHU Admin
Base Poblacional de Salud: Andalusian Health Population Database	EIP on AHA Repository
Keywords: Administration, data analysis, Electronic Health Record (EHR), Health information system, Medical record linkage Website	
Details	@ DHU Admin
SNS24: online service of the Portuguese National Health Service (SNS)	Digital Health Europe
Keywords: acess to medical data, citizen portal, teleconsultation Website	
Details	@ DHU Admin

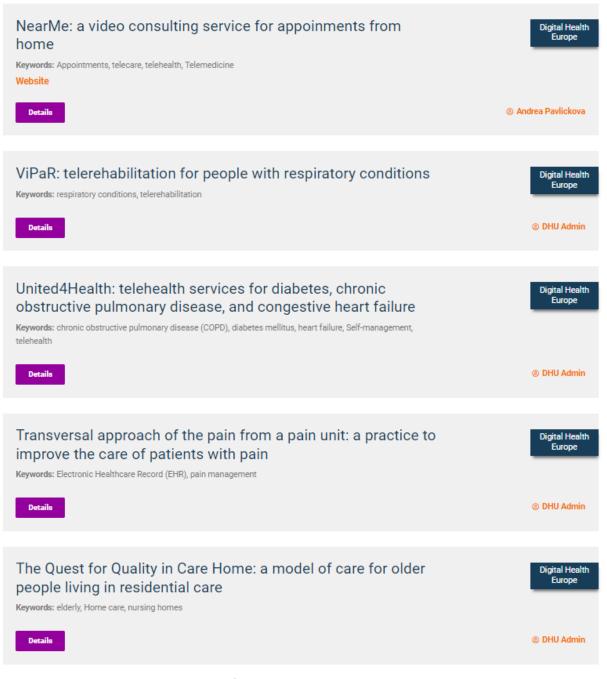
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QUIBIM Precision®: transforming imaging data into actionable predictions Keywords: data analysis, diagnostics, Imaging, Prediction Website	Digital Health Europe
	© DIO Addimi
Attend Anywhere: video consulting service Keywords: teleconsultation, videoconsultations Website	EIP on AHA Repository
Details	Andrea Pavlickova
MASK-air: a mobile app to manage allergic rhinitis Keywords: allergy, asthma, digital application, Disease management, mHealth Website	Digital Health Europe
Details	© DHU Admin
Linkcare: health information sharing platform for integrated care Keywords: Information sharing, Integrated care, Patient engagement Website	Digital Health Europe
Details	② DHU Admin
Kwido Mementia: digital cognitive stimulation programme Keywords: cognitive stimulation, telecare Website	Digital Health Europe
Details	Iñaki Bartolome
IANUS: Electronic Medical Record Keywords: acess to medical data, Electronic Medical Record (EMR), ePrescription Website	Digital Health Europe
Details	② DHU Admin

BI Hospitalar: dashboard with availability of national hospital beds Keywords: Coordination, Resources, Surveillance Website Details	Digital Health Europe
DIRAYA: Andalusian eHealth Strategy & system Keywords: acess to medical data, Appointments, Electronic Health Record (EHR), ePrescription	Digital Health Europe @ DHU Admin
ENTstatistics and Eye Clinic Manager: health database systems for department tailored electronic medical records, or multicentric national or international registers. Keywords: acess to medical data, Clinical data, clinical decision support, Electronic Healthcare Record (EHR), patient-health professional communication Website	DHU Radar
Details	Michel Hoen
Italy.Telerevalidatie: IT-supported adapted physical activity for chronic disease patients Keywords: adapted physical activity, Chronic diseases, Digital Health Services, Digital health tools, health promotion Website	DHU Radar
Details	Maddalena Illario

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My Patient Data: a mobile app to track and transfer health data to health records Keywords: digital application, Electronic Healthcare Record (EHR), health data Website	DHU Radar
accuRx: remote monitoring and telecare platform between carers, professionals, and patients Keywords: Appointments, referrals, telecare, teleconsultation, telemonitoring Website	Digital Health Europe
Andalusian Telecare Service Keywords: elderly, emergencies, telecare Website Details	Digital Health Europe
Covid-19: a remote assessment in primary care – videoconsultations Keywords: Covid-19, telehealth, Telemedicine, videoconsultations Website Details	Digital Health Europe
DrDoctor: a mobile app and platform for the coordination of care Keywords: Appointments, Patient engagement, referrals Website Details	Digital Health Europe

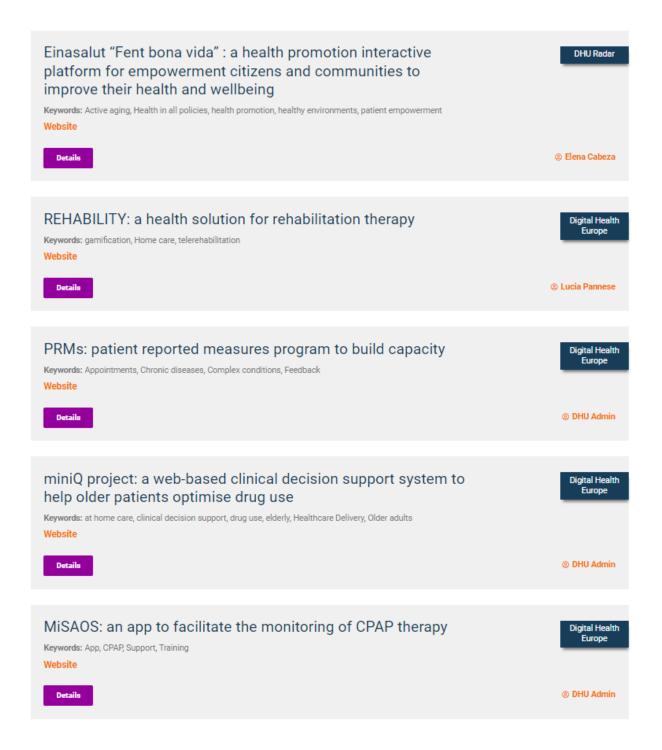


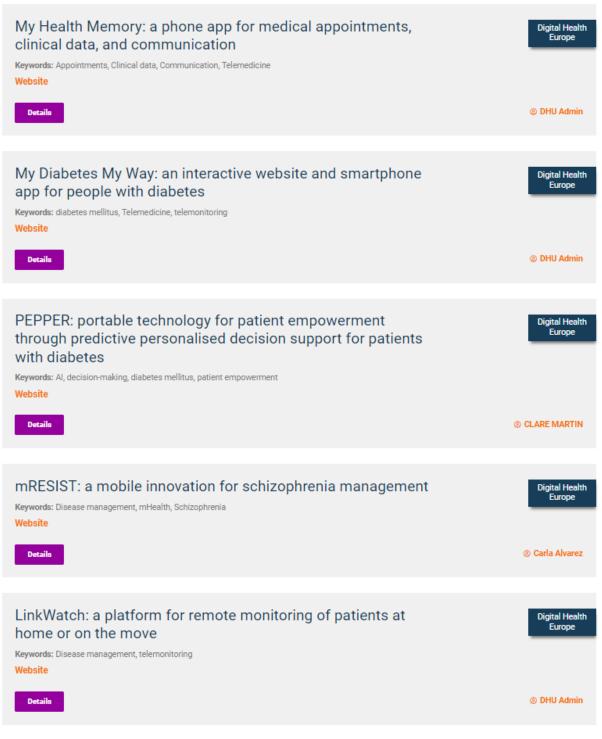
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The Nevermind System: a system to empower those suffering from depression Keywords: depression, mental health, Sensors	Digital Health Europe
The HealthOne Mount Druitt: a virtual community health hub for older adults	Digital Health Europe
Keywords: elderly, telecare, Telemedicine, virtual care planning Details	② DHU Admin
Telescopico: a telemonitoring systems for patients with chronic diseases Keywords: Chronic diseases, teleconsultation, telemonitoring	Digital Health Europe
Details	@ DHU Admin
Telemedicine IMPACT PLUS (TIP): a virtual team of professionals for patients with complex conditions Keywords: Chronic diseases, Telemedicine	Digital Health Europe
TeleHomeCare Project: technological support to improve the quality of care at the patient's home	Digital Health Europe
Keywords: Home care, telecare, telemonitoring	© DHU Admin
Telehealth service for patients after AMI and on anticoagulation treatment Keywords: acute infarct of myocardium (AMI), anticoagulation treatment, diabetes mellitus, telehealth,	Digital Health Europe
Telemedicine	@ DHU Admin

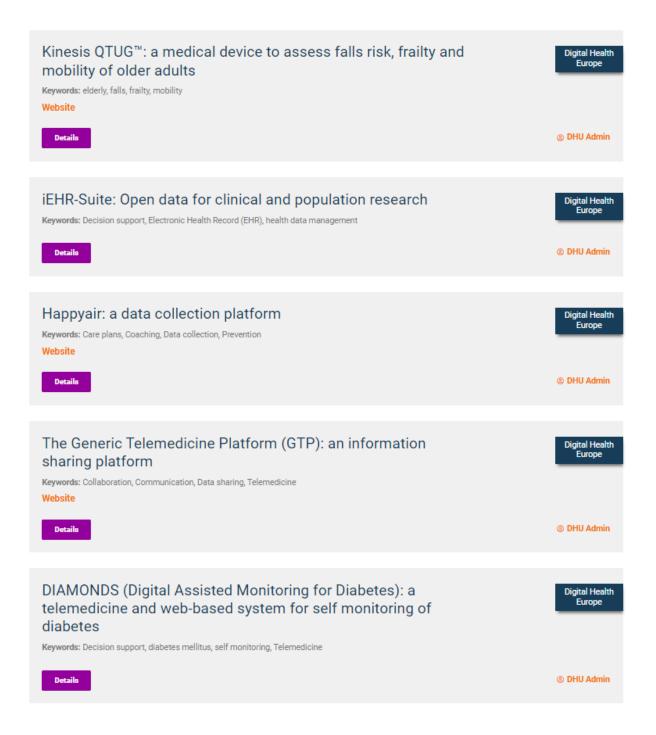
STEPSelect: a tool for pharmaceutical selection Keywords: medicine management, medicine optimisation, pharmaceutical selection	Digital Health Europe @ DHU Admin
STAT-ON: a personalised monitoring device for Parkinson's disease disease Keywords: Disease management, Parkinson's Disease, telemonitoring Website	Digital Health Europe
Details Sensara: a sensor technology for nursing home rooms	OHU Admin Digital Health Europe
Keywords: Active and Assisted Living, alarms, frailty, nursing homes, Sensors Website Details	@ DHU Admin
SalusCoop: a data cooperative of health data Keywords: health data, research innovation Website	Digital Health Europe
Details	③ Joan Guanyabens

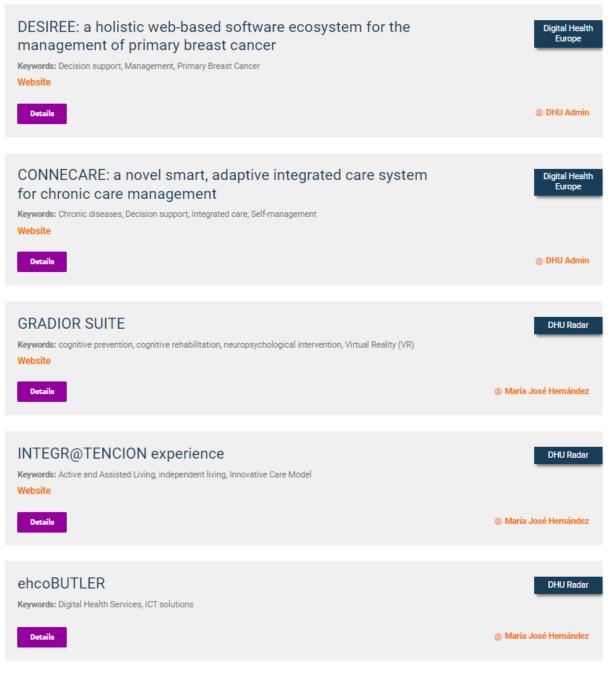




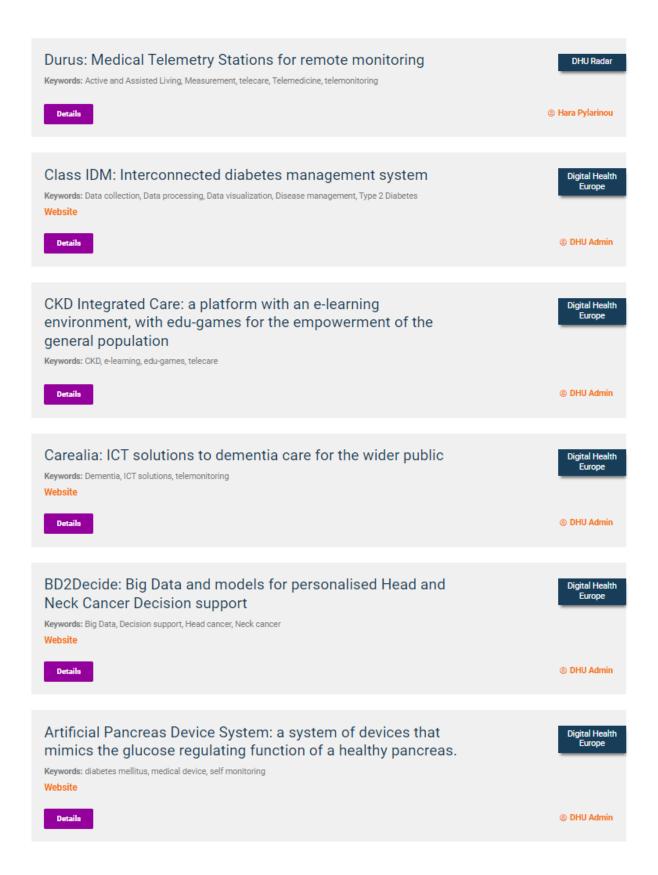


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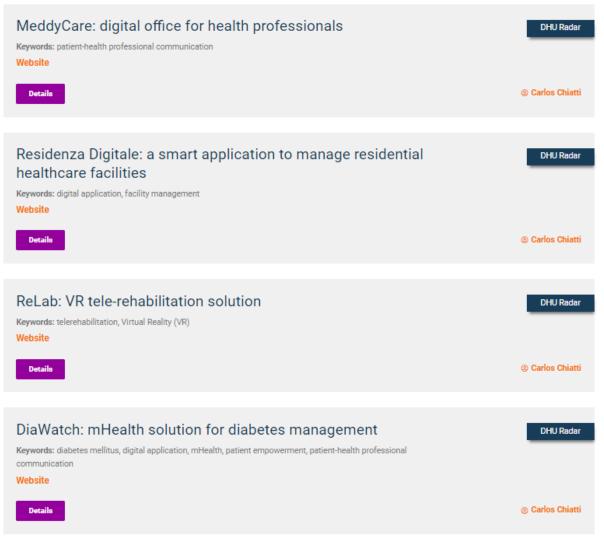
ApneaBand: a screening solution to detect and measure sleep apnea Keywords: Detection, Measurement, Sleep Apnea, Wearable Website Details	Digital Health Europe
Alzheimer's Disease Prediction Service (ADPS): a smartphone test to predict whether someone is likely to develop Alzheimer's Keywords: Alzheimer's Disease, mHealth, Prediction Website	Digital Health Europe
Momentum: a Blueprint for Mainstreaming Telemedicine Deployment in Daily Practice Keywords: Assessment, Digital Health Services, Implementation, Multistakeholder, Success Factor, Telemedicine Website	DHU Radar © Marc Lange
National Healthcare Information System Keywords: Electronic Healthcare Record (EHR) Details	DHU Radar © Ines Obradovic

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TreC Diabetes and TreC Cardiology Keywords: Digital Health Services Website	DHU Radar
Details	③ Olivia Balagna
TreC+: training meetings with the population (October 2022 – May 2023) Keywords: Digital Health Services	DHU Radar
Details	© Olivia Balagna
MANAGEMENT TRAINING RETRAINING Artificial intelligence and Big Data in healthcare Keywords: AI	DHU Radar
Details	② Olivia Balagna
CORēHealth: Operating Center of Telemedicine for Chronic Diseases and Clinical Networks of Apulia Region Keywords: Digital Health Services Website	DHU Radar
Details	② Vito Petrarolo
Andaman7 Keywords: Digital Health Services Website	DHU Radar
Details	② Andaman7 Project Manager
BioAssist: an online platform for patient monitoring, data collection and analytics, and provision of healthcare services Keywords: independent living, patient empowerment, telemonitoring Website	DHU Radar
Details	() DHU Admin

CareCardia: holistic management of patients with heart failure Keywords: heart failure, patient empowerment	DHU Radar
Details	② DHU Admin
HSmartBPM: an intelligent digital clinical pathway towards the proactive management and smart monitoring of hypertension Keywords: hypertension management, mHealth, patient-health professional communication, telemonitoring Website	DHU Radar
Details	@ DHU Admin
eHealthPass: state-of-the-art multifunctional data digitization and reuse platform Keywords: health data management, patient-health professional communication Website	DHU Radar
Details	@ DHU Admin
DM4all: integrated mHealth management system for patients with diabetes Keywords: diabetes mellitus, digital application, mHealth, patient empowerment, patient-health professional communication	DHU Radar
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