

Project number: 101070756 Project name: CONNECTing the dots withIN diGItal HEALTH Innovation Ecosystems Project acronym: CONNECTINGHEALTH Call: HORIZON-EIE-2021-CONNECT-01 Type of action: HORIZON Coordination and Support Actions

Deliverable title	Map of the digital health ecosystems in Europe and beyond				
Version number	1				
Status	Final				
Dissemination level	Public				
Due date of deliverable	14/12/2022				
Actual submission date	15/12/2022				
Project officer	Christina Nanou				
Work package	WP2				
Lead partner	ECHAlliance				
Partner(s) contributing	PBN, SeAMK, SE				
Authors					
Main author name	Organization				
Karolina Mackiewicz	ECHAlliance				
Robyn Freiheit	ECHAlliance				
Contributing authors	Organization acronym				
Juliana Ascolani	ECHAlliance				
Adriana Diaz	ECHAlliance				
Ines Lujan	ECHAlliance				
Andy Bleaden	ECHAlliance				
Klaudia Keringer	PBN				
Sami Perälä	Seamk				
Desmond Mansfield	SE				
Sagarika Gnanaolivu	SE				
Reviewers					
Reviewer name	Organization acronym				
Carina Dantas	SHINE2Europe				





Co-funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or EISMEA. Neither the European Union nor the granting authority can be held responsible for them.

This deliverable contains original unpublished work except where clearly indicated otherwise.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.



# **Version Tracker**

Date	Version number*	Change
22/11/2022	0.1	Editing document and formatting (RF)
29/11/2022	0.2	Table of content (RF/KM)
6/12/2022	0.3	Addition of content (RF)
7/12/2022	0.4	Content review, alignment, and additions (RF/KM)
8/12/2022	0.5	Further content additions, alterations to ToC (RF/KM)
13/12/2022	0.6	Sending the document to the reviewer (RF)
14/12/2022	0.7	Incorporating reviewers' comments (RF/KM)
15/12/2022	1.0	Submission



# **Table of Contents**

1. CONNECTINGHEALTH Project Overview	6
2. Deliverable	6
2.1 Deliverable objective and scope	6
3. Definitions	7
3.1 Digital health	7
3.2 Digital health ecosystems	9
4. Background Analysis	10
4.1 Desk search	10
4.2 Summary of the desk search	19
4.3 Added value of CONNECTINGHEALTH map	20
5. CONNECTINGHEALTH Map Strategy	21
5.1 Map content	21
5.2 Map design	22
6. Digital Health Ecosystems Mapping	25
6.1 Mapping of the digital health ecosystems	25
6.1.1 Survey	25
6.1.2. Summary of the results of the mapping survey	25
6.1.3 Ecosystems engagement and outreach	27
7. Results & Next Steps	29
8. Conclusions	30



# **List of Figures**

Figure 1: Digital health definitions according to the HIMSS classification in "A Framework for Healthcare Transformation" Figure 2: CONNECTINGHEALTH interpretation of digital health ecosystems Figure 3: European Digital Innovation Hubs website re: Member State Representatives Figure 4: Active European Digital Health funds mapping by Karista Figure 5: The most well-funded digital health startups in Europe Figure 6: The most active digital health investors in Europe Figure 7: Speedinvest DACH Digital health startup map Figure 8: HolonIQ 2021 Europe digital health 2022 Figure 9: eHealth hub initiative website homepage Figure 10: Scottish Health Research and Innovation Ecosystem Figure 11: Innovate UK Health funding map Figure 12: European Investment Bank map Figure 13: Previous ECHAlliance map of ecosystems & community (2019) Figure 14: DigitalHealth story map Figure 15: GoogleStudio Dashboard mockup example Figure 16: GoogleStudio metrics Figure 17: Initial mapping mockup brainstorm slide Figure 18: Initial email send-out template

Figure 19: Follow-up email template

# **List of Abbreviations**

Abbreviation	Full terminology
ECHA	European Connected Health Alliance
EDIHs	European Digital Innovation Hubs



# **1. CONNECTINGHEALTH Project Overview**

CONNECTINGHEALTH is a two-year preparatory action funded by Horizon Europe that aims to foster interconnected inclusive innovation ecosystems across Europe and maximize the value of innovation in the sector of digital health.

The overall objective of CONNECTINGHEALTH is to foster interconnected and inclusive innovation ecosystems across Europe and maximize the value of innovation in the digital health sector, with a long-term and sustainable vision.

The specific objectives of the project are:

- To map the landscape of the digital health ecosystems in Europe and beyond including their stakeholders, resources, initiatives, projects and political frameworks.
- 2. To explore the current and future opportunities for growth of the digital health sector, and its competitiveness.
- 3. To engage a wide range of stakeholders from governments, industry, academia and society in the development of the multi-year action plan for the sustainable and thriving digital health sector in Europe.
- 4. To connect and interconnect the existing regional and thematic digital health ecosystems for better cooperation, learning, exchange of best practices and wider impact.

# 2. Deliverable

## 2.1 Deliverable objective and scope

One of the objectives of WP2 is to focus on the mapping of the digital health ecosystems landscape. This task includes:

- A thorough mapping of the landscape of digital health ecosystems in Europe and beyond, in order to identify their composition, key initiatives, projects, networks, and governmental, societal, academic and industrial partners.
  - Note: this work is conducted in parallel with WP5 identification of key stakeholders.
- A desk search, complemented by interviews and exploratory mapping workshops with key and associated partners.



Thus, this deliverable documents the process and its results, as well as the next steps. It is important to note that the mapping of the digital health ecosystems in CONNECTINGHEALTH will continue and the final map will be released only in the second year of the project. Thus, this document should be considered as a starting point and the mapping itself as a work in progress.

# 3. Definitions

At the start of the CONNECTINGHEALTH project, it was established that a clear definition of the necessary terminology was required to be determined and agreed upon in order to justify the content of the map and provide it with necessary scope and framework, along with communicating it to project stakeholders in order to ask for their collaboration during the mapping process and throughout the project.

# 3.1 Digital health

Through the completion of literature review (online based, search words: "digital health", review of 50 sources), it was concluded that there are at least three types of definitions of digital health (Snowdon, 2020)

- 1. In terms of digital technologies used
- 2. Focused on improvement of healthcare delivery
- 3. As a strategy for health system transformation



Figure 1 Digital health definitions according to the HIMSS classification in "A Framework for Healthcare Transformation"



With regards to definitions in terms of digital technologies used, the following definitions were found:

- Digital Health is a term that is frequently adopted to encompass a wide range of technologies related to health and medicine (Lupton, 2014).
- Digital Health is the use of information and communication technologies (ICT) to treat patients, conduct research, educate healthcare professionals, track diseases and monitor public health (European Society of Cardiology, 2019)
- Using technology to help improve individuals' health and wellness (Best, 2019).

Regarding definitions focused on improvement of healthcare delivery, the following definitions were recorded:

- Digital health is the application of new technology in a healthcare setting. Whether this be telemedicine, mHealth, or wearable technology, digital health is changing the life sciences and healthcare industry from being in the hands of the practitioners to being in the hands of the patient (Gardiner, 2019)
- The term 'digital health', which includes both mHealth and eHealth, describes the general use of ICTs (digital, mobile and wireless) to support the achievement of health objectives (Unicef, 2018)
- The broad scope of digital health includes categories such as mobile health (mHealth), health information technology (IT), wearable devices, telehealth and telemedicine, and personalized medicine. These technologies can empower consumers to make better-informed decisions about their own health and provide new options for facilitating prevention, early diagnosis of life-threatening diseases, and management of chronic conditions outside of traditional care settings (FDA, 2018)

Finally, in consideration of definitions that see digital health as a strategy for health system transformation, we took a note of the following definitions:

- An improvement in the way healthcare provision is conceived and delivered by healthcare providers through the use of information and communication technologies to monitor and improve the wellbeing and health of patients and to empower patients in the management of their health and that of their families (Iyawa, 2016).
- The cultural transformation of how disruptive technologies that provide digital



and objective data accessible to both caregivers and patients leads to an equal level doctor-patient relationship with shared decision- making and the democratization of care (Mesko, 2017).

Based on the above, the the following proposal was submitted for the project consortium for discussion:

Digital health is the application of Information Technology in a healthcare setting and includes both mHealth and eHealth.

The goal of digital health is to help improve individuals' health and wellbeing by:

- Empowering citizens in the management of their own health as well as the promotion of their wellbeing and the prevention of diseases.
- Fostering the shared decision-making processes between citizens and healthcare providers.

The final definition of "digital health" agreed upon for the use in the CONNECTINGHEALTH project is as follows: **Digital health** is the application of Information Technology in a healthcare setting, and includes the concepts of both mHealth and eHealth. As such, digital health aims to prove individuals' health and wellbeing by: (1) empowering citizens in the management of their own health as well as the promotion of their wellbeing and the prevention of diseases, and (2) fostering the shared decision-making processes between citizens and healthcare providers.

## 3.2 Digital health ecosystems

When it comes to the definitions of the digital health ecosystems, the following definitions were detected in the search:

- ECHAlliance ecosystems are regionally-focused, permanent, multi-stakeholder partnerships committed to working together to implement innovative solutions that improve the quality of health and wellbeing of citizens, the effectiveness of the healthcare system and the scope for wealth creation and business opportunities.
- Digital health ecosystem, is a new architecture and collaborative environment that extends beyond traditional human reach, provides an interactive community, rich data and information, value-add customer and agent services, high connectivity, cross-disciplinary learning and flexibility, and orients



around self-empowerment of users (Chang, E. & West, M, 2006) (Janjua, N. Huddain, M. Afzal, M. Ahmad, H, 2009) (Heintzman, 2015).

For the purpose of the CONNECTINGHEALTH project, the consortium partners agreed that the **digital health ecosystems** can be defined as multi-stakeholder partnerships, focused on a region or a theme. They are committed to working together to implement innovative digital health solutions that break down silos, transform healthcare and create economic opportunities by connecting needs with solutions.

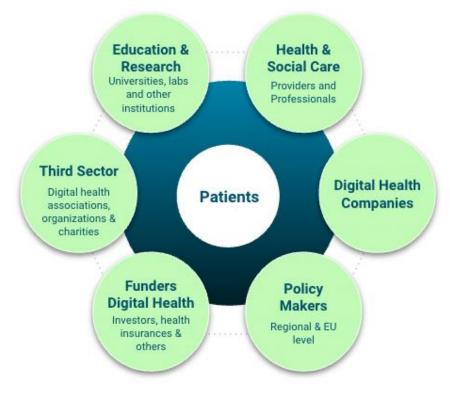


Figure 2: CONNECTINGHEALTH interpretation of digital health ecosystems

# 4. Background Analysis

## 4.1 Desk search

Through the process of conducting the above referred desk search, to determine what has been previously conducted in the field, what is ongoing, and how this project's mapping efforts can develop and build off or complement pre-existing tools, a list of relevant resources was generated prior to developing our own map.



#### • European Digital Innovation Hubs:

- The European Digital Innovation Hubs (EDIHs) are "one-stop shops supporting companies to respond to digital challenges and become more competitive" by providing appropriate access to technical expertise and testing, as well as granting the possibility to 'test before invest,' allowing supporting companies to improve business/production processes, products, or services using digital technologies. In addition, EDIHs can provide innovation services, including financing advice, training, and skills development which are deemed as central to successful digital transformation. EDHIs combine benefits of a regional presence with the opportunities available to a pan-European network, and as such, leave them well-placed to provide the services local companies need through local language and innovation ecosystems, which facilitate the exchange of best practices across hubs in different countries, and accommodate the provision of specialized services across regions when needed skills are not locally found. Many of the EDIHs are based on existing clusters.
  - <u>https://digital-strategy.ec.europa.eu/en/activities/edihs</u>



NEWS ARTICLE | Publication 12 June 2020

140

### Member State Representatives for the European Digital Innovation Hubs

European Digital Innovation Hubs (EDIHs) were selected through a two-step process. First Member and Associated States preselected their candidate entities, which were then eligible to participate in a European call.

The outcome of the process at country level is available in a <u>catalogue</u> developed by the Joint Research Centre of the European Commission

In the following list, you will find the contact persons for all EDIHs across the different member states.



Figure 3: European Digital Innovation Hubs website re: Member State Representatives





### • Digital Health Funding:

- Representing the first attempt of a European mapping of Digital Health investment funds (known as "e-health"), this tool was created in respond to the rapid growth of the digital health sector. The design of this map was intended to evolve and be updated continuously over the duration of the first months. Funds with global headquarters in France, Germany, Spain, Italy, United Kingdom, Netherlands, Austria, Luxembourg and Belgium were included, and public information (i.e. websites) were utilized to collect information regarding all funds that invested in a minimum of 3 companies belonging to the Digital Health sector in Europe.
  - <u>https://www.karista.vc/stories/active-european-digital-health-funds-mapping-by-karista</u>

EARLY S	STAGE			LATE	STAGE			DEDICA	TED FU	INDS	
teres and	Cons hoves	📀 elaia	newfund	kitomat	Turnit		sparrow	EARLY	TAGE		
investinte	BO CATTA	The Rep Loss	0	PARAMIA	sep				77		
serena	daphni	noshaq	100 viertunes	MULT	-STAGE			hpilment	KARISTA		Re
inventuresit		Second	wikipagangan	🕿 partech	ADA Vaniante Paritante	Str 1989	C salar		đếx.	/ 🚔	BARRE
	Λ	D.	- CO.	4 BIDE SORIE	DEC GESTREN P	A. Domention	leops <sup>®</sup>	CAREVOLUTION		#LEO TANKS	EXtens
😴 yabeo	PLP VENTURES	to v	ATLANTIC	MIG	* weighter	AlbionVC	<b>0</b> 1000	Quanta	•		
1000 2810 Bu	ASARYS	PICUS CAPITAL	red dpine	REPORTA	Minashan	Agare Vertures	Hourselen	tennes		LATE S	TAGE
CONNECT	Ascension	Balderton.	BCV/E	Soundage	P	41 DELET MANE	1070pm				
-	No. Manada			70 Mar.	atomico			US VC	COMING	TO EUR	OPE
		MMC	NURTIDANE					OBVIOUS	Accel	SUSV	· James

Figure 4: Active European Digital Health funds mapping by Karista



#### • The Most Well-Funded Digital Health Startups In Europe:

- This particular tool mapped out the top-funded digital health startups in every European country by using their own data. By defining digital health to include companies in the healthcare space that use technology and software as key differentiators, their analysis aimed to rank companies based on total disclosed equity funding, and only considering digital health companies that have raised equity funding since 2015. Subsidiaries and majority-owned startups were excluded from this mapping.
  - https://www.cbinsights.com/research/europe-digital-health-startups-map/



THE MOST WELL-FUNDED DIGITAL HEALTH STARTUPS IN EUROPE Our analysis ranks companies based on total disclosed equity funding, and only includes companies that have raised since 2015. Data is as of 5/18/20.

#### Figure 5: The most well-funded digital health startups in Europe



#### • The Most Active Investors In Europe's Digital Health Ecosystems

- This tool utilized their own data in order to identify the most active investors in Europe-based digital health startups, based on the total number of companies backed. With consideration to their definition of digital health including companies in the healthcare space that use technology and software as key differentiators, they were able to create a tool which visually highlights the headquarter countries, investor, and investments portfolios.
  - <u>https://www.cbinsights.com/research/most-active-europe-digital-health-investors/</u>



#### THE MOST ACTIVE DIGITAL HEALTH INVESTORS IN EUROPE

Figure 6: The most active digital health investors in Europe



### • Digital Health Start-Up Map:

- This mapping tool identifies startups and identifies macro-level trends which hope to give a comprehensive overview of the state of digital health in the DACH (German-speaking) region consisting of Germany, Austria, and Switzerland. As seen in the image, the map is divided into sections outlining numerous different health themes such as mental health, digital therapeutics, screening, diagnostics, and deeptech, and more.
  - <u>https://www.speedinvest.com/blog/digital-health-in-europe-record-breaking-2021-for-founders-and-investors-in-dach</u>

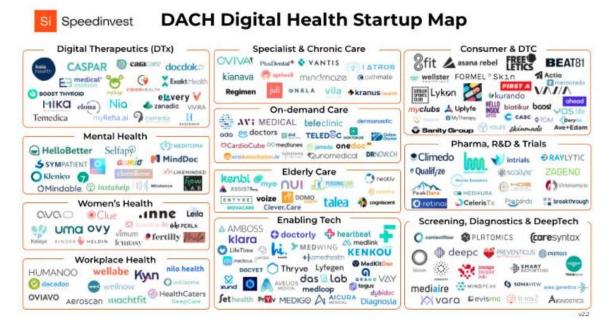


Figure 7: Speedinvest DACH Digital health startup map

#### • HolonIQ 200 List

 This inaugural list displayed 200 of the most promising digital health startups across Europe that are aiming to transform health and wellness through the application of new technology or scientific knowledge. Determined by the HolonIQ platform's Intelligence Unit and market experts, they selected these particular 200 digital health startups out of a list of over 1000, with consideration to specific criteria, and basing their decisions on a scoring system including aspects of market, product,



team (including diversity, capital and momentum. The list is divided into different sub-sections outlining: (1) research and clinical development, (2) connectivity, (3) screening and symptoms, (4) diagnostics, (5) treatment and monitoring, (6) wellness and workplace, (7) chronic care and home health, (7) data integration and analytics, and finally (8) health markets and finance.

www.holoniq.com/notes/2021-europe-digital-health-200/

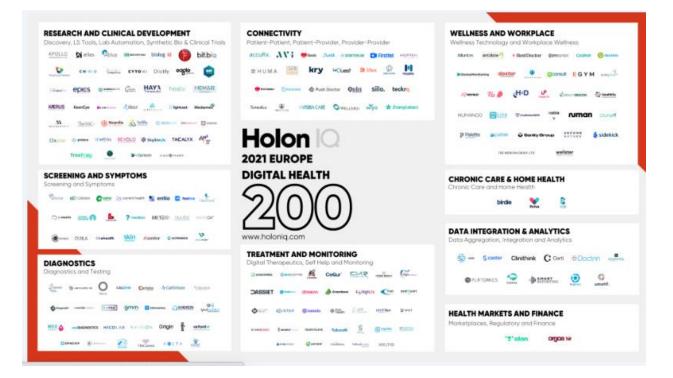


Figure 8: HolonIQ 2021 Europe digital health 2022

### Previous digital health EU funded projects:

#### • eHealth Hub Platform

This platform is a free, online catalogue mapping the ecosystem of IT companies, investors, and other stakeholders such as experts, corporations, and business supporters active in the European digital health landscape in order to more easily identify key players in the ehealth ecosystem .The platform utilized different types of European actors active in the ehealth sector such as small and medium



enterprises, investors, healthcare organizations, legal and regulatory service providers, pharmaceutical companies, and business supporters. Overall, this hub aimed to enhance transparency in the sector and help enable stakeholders' interaction to promote and accelerate business growth.

- <u>https://digital-strategy.ec.europa.eu/en/news/ehealth-hub-platform-map-european-digital-health-ecosystem</u>
- https://ehealth-hub.eu/ehealth-hub/

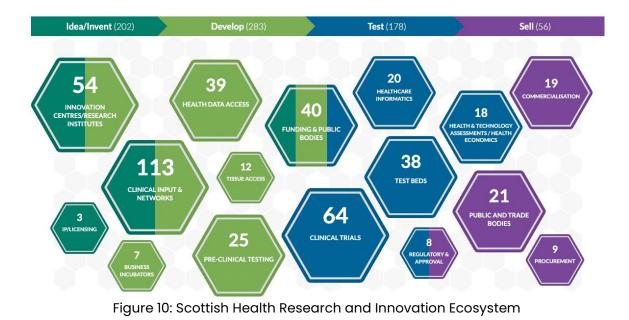


Figure 9: eHealth hub initiative website homepage

#### Scottish Health Research and Innovation Ecosystem

- This particular directory aims to help companies navigate the health research and innovation landscape in Scotland including the NHS, clinical, academic and trade organizations. It is a heavily visual tool including visual searches for development stage, technology, and the therapeutic area, and provides detailed and interactive information for the user for a pleasant user experience.
  - <u>https://lcshome.directories.scot/</u>





Innovate UK Health Funding Map

- This particular mapping tool was developed by KTN and the Biolndustry Association with the assistance of a wide range of funders with the ultimate goal to aid in the navigation of the complicated world of health innovation funding. Providing clear instructions for use, this highly visual tool allows the user to navigate through various stages of health funding in relation to concept, feasibility, prototype, and product.
  - https://ktn-uk.org/programme/health-funding-map/



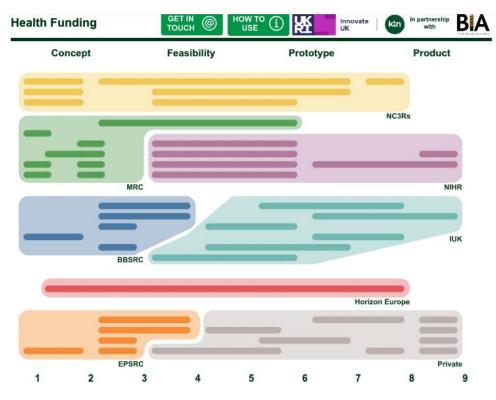


Figure 11: Innovate UK Health funding map

## 4.2 Summary of the desk search

The purpose of this work was to determine what stands out in the past or current work within the digital health realm described in detail in section 4 of this deliverable, and more specifically within the lens of digital ecosystems.

The main points that arose from the desk search included:

- There are a multitude of mapping tools currently available in the European region outlining funding, investors, start-ups, however, less existing for the purpose of enabling and promoting multi stakeholder interaction in the digital health sphere (with the exception to country-specific tools).
- User experience is prioritized throughout many of the pre-existing mapping tools, and showcases the need for considering the design of any upcoming developments of an equal importance to the content itself for optimal interaction and use.
- A ecosystem mapping tool created in a more broad sense for Europe as a whole could fill in pre existing gaps of what is available in the digital health landscape,



and a tool such as what the CONNECTINGHEALTH project is suggesting could be an innovative concept for the continent and industry.

### 4.3 Added value of CONNECTINGHEALTH map

Through investigating pre-existing mapping tools on the market, it is evident that mapping tools do exist in the European region, however, those that are active appear to be primarily focused on funding, investors, and start-ups, as opposed to tools catered to enabling and promoting multi stakeholder interactions across the digital health domain. Certain, country-specific tools also exist, although observable gaps remain with regards to the existence of an overarching, European-wide mapping tool that could be put forward – with consideration to prioritizing user experience, a like other current mapping tools found within our desk search. Furthermore, an overarching global mapping tool could be an objective in the future to create a transparent and equitable solution to be effectively utilized.

When finalised, the CONNECTINGHEALTH Ecosystems Map will engage previously established ECHAlliance ecosystems together with other health ecosystems while providing added value to the project goals in a number of ways. These added values include:

- An interactive map with the possibility to filter results and refine searches in order to enhance the usefulness of the tool.
- Having the ecosystems map hosted on the ECHAlliance website in order to ensure sustainability.
- Automatic updates should be applied with every new and voluntary data entry, and new ecosystems had the possibility to fill in an online form prior to an internal review and approval process being conducted, and ultimately, being added to the main database.
- By employing our connector abilities, connections between ECHAlliance Digital Health Ecosystems and other health ecosystems will be made.
- Overall, the idea of digital transformation and sustainability of digital health will be fostered for abundant results.



# 5. CONNECTINGHEALTH Map Strategy

# 5.1 Map content

Based on the gaps in information provided by the existing maps, a proposal for the Digital Health Ecosystem map content was determined by the partners after the consultations. In the map it was proposed to identify:

- Digital Health Ecosystem Name
- Location (including country, region/city)
- Digital health topic priorities (i.e., artificial intelligence, digital therapeutics, telehealth, etc.)
- Other digital health topics of interest
- Stakeholder focus areas
- Stakeholder types included in the particular digital health ecosystem
- Added value statement
- Current and previous projects and/or initiatives in the domain of digital health
- Financing mechanism
- Multistakeholder collaborators and champions within the area of digital health
- Digital health challenges and opportunities
- Contact person

Predefined options to segment and aggregate the digital health ecosystems in terms of digital health topics was proposed, and included:

- Digital therapeutics & digital pharma
- Telehealth & remote patient monitoring
- Virtual clinical trials
- Digital health softwares & platform solutions
- Reimbursements & financial mechanisms
- Digital health governance & regulation
- Digital health workforce
- Digital health data

For the digital health focus area of the map content, predefined options to segment and aggregate the digital health ecosystems was proposed to include:

- Mental health
- Preventable diseases



- Women's health
- Ageing
- Health in the workplace
- Oncology
- Housing and health

The added value statement of the map content was proposed as considering each ecosystem to have the possibility of adding a short statement (120 words max.) to showcase the ecosystem's added value, focusing on their relevance for the context of digital health.

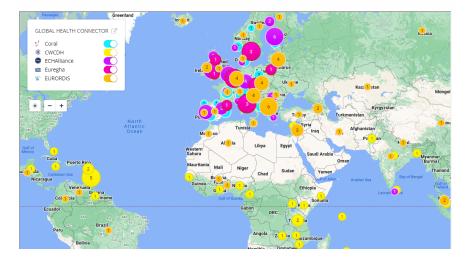
### 5.2 Map design

Described as a preliminary idea that will be further explained and expanded in the future, the initial inspiration for the Digital Health Ecosystems Map design was generated from the following three examples:



Figure 12: European Investment Bank map





### **ECHAlliance Group's Community**

Figure 13: Previous ECHAlliance map of ecosystems & community (2019)

Sobycenter	biovotion	CardioSecur 🌾	Clue	cohero health	00000			
BabyCenter	Biovotion	CardioSecur	Clue	Cohero Health	DomoSafety			
A daily guide to your body and your baby-on-the- way.	Monitoring in motion: Vital signs, Medical grade, Anywhere, All the time,	CardioSecur takes your uncertainty away. Monitor your heart health anytime, anywhere – with your	Clue is designed to make tracking your fertility accurate, fast and friendly. Keep track of your	At Cohero Health, we're transforming respiratory care through smart mobile devices. CoheroHealt	Enhancing the way we take care about each other.			
	<pre></pre>		mottify cycle by entering data about your period. pan, mood, faid, sexual activity and personal notes.	empowers respiratory patients to actively engage in their own care. Our sensor-based technology and engaging platform improve	glooko	Digital Health Storymap Welcome! Use our storymaps and find the Digital Health solution more suitable for you provided by startups and other players globally!		
Endotronix Endotronix creates cliptal health solutions that will enhance the quality of life.	Fitbit When it comes to reaching your fitness goals, steps are just the beginning.	Gromp it		HeartWatch medication adherence and care coordination between patients and ther care providers.				
improve outcomes, and lower costs, especially for the 20 million people worldwide who suffer from congestive heart	Fitbit tracks every part of your day-including activity, exercise, food, weight and sleep-to help you find your fit, stay	Invasive tool to take care of your loved ones wherever you are, reducing the time required in care	Hear tike tichHQ HeartWatch detects potential heart and	🤎 Hello Heart	easier. It strives to provide refevant insights to users to help make data-driven treatment decisions.	A project by healthware"		
falue.	motivated, and see how small steps make a big impact.	1	respiratory problems just by using a camera that looks at a person's face.	Hello Heart	HOMETEAM			
JAWBONE'	Colores a	honor	wn .	monitor blood pressure & understand your health.	Honeteon			

Figure 14: DigitalHealth story map

After consultations with the partners, the Google Data Studio dashboard was selected as a potential tool for the visual representation of the CONNECTINGHEALTH map. It could be embedded into the ECHAlliance website and was assumed to look similarly to the below examples:



#### D2.1 -Map of the digital health ecosystems in Europe and beyond

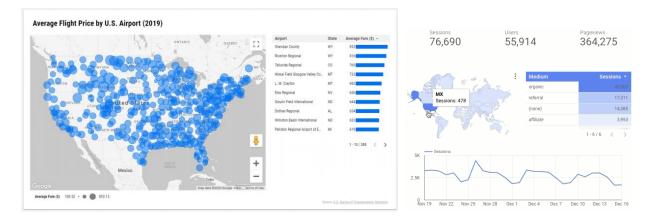


Figure 15 (Left): GoogleStudio Dashboard mockup & Figure 16 (Right): GoogleStudio metrics example

It is important to note that at the current moment, in December 2022, the partners don't have yet the full understanding of the functionalities and costs associated with the Google Data Studio and will further explore this opportunity.

The initial idea was to map out specific digital health ecosystems while also noting current projects, previous projects, key areas of interest, partners (government, societal, academic, and industrial), financing mechanisms, etc. Below is a mockup image outlining the initial idea.



Figure 17: Initial mapping mockup brainstorm slide

In order to validate the approach, various steps were employed. Amongst project partners internally, the following steps were taken with consideration to an internal feedback process approach:



- 1. Agree on the definition of digital health
- 2. Agree on the definition of digital health ecosystems
- 3. Complete a desk search
- 4. Define map added value, content and design

External consultations continue and remain as a work in progress.

# 6. Digital Health Ecosystems Mapping

# 6.1 Mapping of the digital health ecosystems

### 6.1.1 Survey

Based out of the EU Survey portal, the <u>CONNECTINGHEALTH project ecosystem survey</u> was aimed at collecting information for the mapping of digital health ecosystems in Europe and beyond, to identify and connect them, and to foster the future of digital health in Europe. This questionnaire included 10 questions to be completed by participants (in free text format and also in multiple choice format) – requesting information regarding the following:

- Digital health ecosystem name
- Digital health ecosystem location
- Ecosystem's main topic of interest
- Other topic of interest for the ecosystem
- Ecosystem's main area of focus
- Other areas of focus for the ecosystems
- List of stakeholders included in the digital health ecosystem
- Previous or current important projects/initiatives the ecosystem participates in
- Short added value statement
- Contact person name
- Contact person email address

### 6.1.2. Summary of the results of the mapping survey

Until the end of November 2022, twenty-eight ecosystems have completed the survey. Thus, it was decided that the survey will remain open and the project will continue collecting the submissions. Preliminary results of the survey conducted thus far are presented as follows:



- The data shows that Finland, Scotland, and Spain are the countries with the greatest country ecosystem representation. The number of ecosystems from each country which have already completed the survey are as follows:
  - o Canada: 1
  - o Denmark: 2
  - Finland: 5
  - o Greece: 1
  - Hungary: 1
  - o India: 1
  - o Ireland: 3
  - Portugal: 1
  - Scotland: 5
  - Slovenia: 1
  - Spain: 4
  - Turkey: 1
  - Uruguay: 1
  - Wales: 1
- A wide variety of main focus areas was reflected in the participating ecosystems, however the largest proportion consisted of:
  - Healthy ageing
  - Preventable diseases
  - Mental health
  - Health and social care integration
- All digital health priorities listed in the survey were selected, however the top priorities indicated amongst the provided list included:
  - Digital Health Softwares & Platform Solutions
  - Digital Therapeutics & Digital Pharma
  - Telehealth & Remote Patient Monitoring
  - Digital Health Governance and Regulation
  - Virtual Clinical Trials
- Ecosystems indicated interest in other topics such as:
  - Artificial intelligence in healthcare
  - Medication management



- Personalized nutrition
- Promotion of citizen health and wellbeing
- Senior care
- Dementia Care
- Postsurgery care
- Video Anonymization on Telehealth
- Green/sustainability

### 6.1.3 Ecosystems engagement and outreach

Regarding the actions taken to engage stakeholders, two email campaigns were set up to send to the ECHAlliance Ecosystem Coordinators Mailchimp Mailing List regarding CONNECTINGHEALTH and the mapping – one was framed more generic (on 28th September 2022), and the other more specific (on 14th November 2022). This Mailing list includes 137 subscribers from 34 countries worldwide. Additionally, in regular meetings with the Ecosystem Coordinators, the ECHAlliance team members highlighted the topic of CONNECTINGHEALTH engagement, encouraging them to become involved in the project however they could.

Following this, two personalized emails were sent to each of the ECHAlliance clusters which were counted as ecosystems within the CONNECTINGHEALTH project. This represented 19 individuals from 12 different European countries, who were listed as Ecosystems within the CONNECTINGHEALTH project. The first email (sent on 10th October 2022) included the main messaging regarding the project and an encouragement to engage with the project, both in terms of joining the digital health ecosystems mapping, and by also participating in the future workshops. The second email (sent out 1th November 2022), served as a follow-up/reminder.



Dear Joan,

From ECHAlliance we are very happy to have you in our network and to see your hard work in Digital Health. That is why we connect you in this opportunity to tell you more about the **CONNECTINGHEALTH project** and invite you to join the initiative!

CONNECTINGHEALTH is a two-year EU-funded project, coordinated by the ECHAlliance, that seeks to facilitate the networking of digital health ecosystems in and around Europe to strengthen and coordinate the future of Digital Health. CONNECTINGHEALTH will develop

A map of digital health ecosystems in the region

📅 A multi-year action plan that fosters collaboration and drives the future of digital health, including funding & investments in the sector

If you would like to know more about the CONNECTINGHEALTH project click here.

To succeed, we count on your expertise in Digital Health. We invite you to participate in the following activities:

**Mapping:** We want it to be **as useful as possible for people like you** who may need to search for information and connect with digital health ecosystems with the same interests or in the same areas. That's why **we would like to hear from you as a potential user.** This will take you less than 10 minutes, and will help us to guarantee you one more tool to support your work on digital health! <u>Click here to participate</u>.

T Multi-year action plan: Don't miss this opportunity to give your opinion on the challenges, opportunities and ideas in digital health for the region during the series of futures workshops. Your input will contribute to the agenda that the European Union will consider a priority 😦 Click here to register.

If you have any questions or comments do not hesitate to write to us.

See you soon at the workshops!

Adriana Díaz Communities Manager ECHAlliance +33 784 80 91 45 Skype @adrianadiaz100

#### Figure 18 (Above): Initial email send-out template

Dear <<First Name>>,

I am contacting you with an opportunity to give additional visibility to your ecosystem across Europe and beyond.

As we have previously presented to you, we at ECHAlliance are leading **CONNECTINGHEALTH**, a two-year EU-funded preparatory action that seeks to facilitate the networking of digital health ecosystems in and around Europe to strengthen and coordinate the future of Digital Health.

In order to be able to directly connect with other ecosystems and clusters working in similar topics than you beyond our network, we highly recommend you to join the project's Digital Health Ecosystems Mapping.

How? It's easy: fill in this short survey here (5 minutes) and you will get featured in the final mapping, which will eventually be made public.

#### The deadline to join the map is the Wednesday 30th of November 12:00 CET.

You can find out more about CONNECTINGHEALTH here.

Should you have any question, don't hesitate to contact me.

Have a nice week,

Adriana Díaz Communities Manager ECHAlliance

Figure 19 (Above): Follow-up email template



# 7. Results & Next Steps

Gaps in the survey responses collected appear to exist and support the need to continue survey collection in order to gain more representation in regions such as North America, South America, Africa, Asia, and Oceania, and additionally, it would be ideal to also incorporate more responses from ecosystems which fill in the gaps of main topics of interest or focus areas.

Based on the learning from the process of engaging the digital health ecosystems for mapping, the desk search as well as the results of the mapping collected to the date and conversations with the project partners and in the Advisory Board, the following steps will be taken at the start of 2023 to further the initiative:

- Updates on the CONNECTINGHEALTH workshop communication and marketing strategy including modified graphics, promotional efforts on social media platforms and email outreach materials to attract more submissions,
- A fresh set of reminder emails to the Ecosystems to encourage them to to join the Digital Health Ecosystem Map,
- Further review of the Google Data Studio solutions for the visualisation of the map, incl. the review of the budget, technical specifications and internal processes for this work,
- Further efforts will be made to reach out to additional ecosystems in regions where gaps exist in the data.

The focus will be on the wider outreach and engagement of the digital health ecosystems from Europe and beyond. The project will further build on its own network of networks as well as on the network of the other projects financed under the same call and engaged within the Advisory Board.





# 8. Conclusions

The aim of the ecosystems mapping in the CONNECTINGHEALTH project was to collect up-to-date information about the existing and emerging digital health ecosystems, as well as their area of work and collaboration interest. We reviewed the different definitions of *"digital health"* as well as *"digital health ecosystems"*, and developed the strategy for the mapping of the ecosystems. The survey was widely disseminated through the partners and their networks.

The results display that although a great foundation has already been laid down in the mapping research and data-collection efforts, there are further opportunities to pursue for continued results. Regional gaps in data collection provide a chance for greater inclusion, collaboration, and utilization, which can potentially be mitigated through directive communications and marketing campaigns, and by means of the continuation of meaningful, and directive stakeholder engagement.

We are aware that the approach taken, which is an opt-in approach, where the ecosystems are invited to join the map, is a more challenging one than the simple mapping, and requires a lot of effort to reach out to the ecosystems and encourage them to submit the survey. For this reason, we decided to keep the survey open, beyond the initial M6 of the project, and continue collecting this valuable information in 2023. We will also aim to visualise the map so that it can serve the community and create the real-life connections between the ecosystems.