



Digital
Health
Europe



TWINNINGS

Knowledge Transfer and Scaling up
of Digital Health and Care Solutions



2021

FOREWORD

Digital technology is changing people's lives. The EU's digital strategy aims to make this transformation work for people and businesses. In her Political Guidelines, Commission President Ursula von der Leyen stressed the need to lead the transition to a healthy planet and a new digital world. The Commission is determined to make the current 10 years Europe's "Digital Decade" through accelerating Europe's digital transformation by 2030.

The Path to the Digital Decade is the Commission's proposal to set up a governance framework to ensure Europe reaches its 2030 Digital Decade objectives. As all Europeans can thrive in a digitalised society one of the goals linked to keeping all European citizens healthy is that they should have access to their electronic health records by the end of this decade.

Digital transformation is more about people than about digital technologies. Hence, this digital transformation should occur in a people-centric way, through technologies that serve people and not the other way round.

Technologies alone will not make society healthier. Successful transformation also requires organisational changes that are people-centric. This is especially so in health and care settings, where the focus is all about people caring about people.

Digital technologies and use of data are the future. However, it is fair to say that despite the recent increased confidence in digital technologies, the biggest challenge to overcome is the seamless integration of technologies and data into our daily lives and into the health and care delivery processes. Only then we will be able to reap the full benefits of the digital transformation and create positive impacts on the lives of all our citizens.

One of the strongest instruments to support this change is twinnings. The European Commission not only supports cities, regions, and countries to achieve successful digital implementations, but – moreover – to share their experiences and knowl-

edge with others who want to adopt successful digital practices. Twinning enables the uptake of successful digital solutions and it strengthens the scaling-up of innovation in the health and care sector.

I am therefore proud and honoured to introduce 21 successful twinning actions selected by the DigitalHealthEurope project, and funded, in 2020-2021. The learnings described in this brochure come directly from the twinning participants and are invaluable treasures of information for us all. They enable us to better understand three key issues: the success factors needed, the added value of any twinning scheme, and the needs of the participating organisations.

I hope that this brochure, with its in-depth insights, will help all interested readers to grasp the richness of the twinning scheme. I hope it will also act as a source of inspiration and stimulate more people to participate in future twinning calls under other Digital Europe or Horizon Europe programmes as well as Horizon Europe partnerships.

There is nothing better for making progress in Europe than strengthen forces and working together so we can address our common challenges at the right levels: build our capacities and exchange knowledge, embrace change, but most importantly act decisively.

25 November 2021



Birgit Morlion

Programme and Policy officer
eHealth, Well-Being and Ageing
(unit H3)

DG CONNECT - Communications
Networks, Content & Technology
Digital Society, Trust and Cyber-
security (H)



INTRODUCTION

Techniques are needed in Europe to help scaling up digital health and care. The primary responsibility for organising and delivering health services and medical care in the European Union (EU) is that of the Member States. Many good practices – solutions, methodologies, processes, strategies, and business models – and associated knowledge about health promotion, disease prevention and patient-centred care originate in Member States, whether at a local, regional or national level. Healthcare systems in Europe and worldwide are continuously under development, due to substantial advances in digitisation and the boom occurring in the digital transformation of systems, processes, and models of care. In such a fast-paced and changing environment, promotion and sharing of best practices is key to avoiding reinvention of the wheel.

Collaborative frameworks are also helpful. At an EU level, the European Commission (EC) supports the healthcare sector through a comprehensive framework for health research and collaboration across the borders between Member States. This collaboration has enabled an astounding

number of partnerships, joint projects, and initiatives. These partnerships have already produced results and generated new health and care solutions and practices, and continue to do so. Many of these practices are successfully exploited by the organisations which participated in the original undertaking.

The transfer of practices has not moved, however, in all cases as substantially or as fast as might have been expected. Despite significant efforts, many practices which are highly relevant for other organisations have not yet reached them. There is a variety of reasons for this lack of transfer. Among them can be listed: poor promotion, lack of ‘findability’, insufficient documentation about the practices, and the associated knowledge needed for it to be applied by another organisation, or lack of knowledge on how to adapt the practice to the conditions of another health-care system.

Twinning is an example of good practice in terms of transferring knowledge and scaling up.

This brochure presents twinning as an ‘instrument’ which contributes to sharing and exchange of already developed, digitally-enabled, good practices in health and care. It does so in a structured way that maximises the practices’ impact and scaling up. It describes what twinings are, how are the different types of twinings, how DigitalHealthEurope has supported twinings, before it offers a short summary of the 21 DigitalHealthEurope-supported twinings.

WHAT ARE THE TWINNINGS?

Twinning is used to describe institutional cooperation and networking. Historically, the scheme was first used in the EU's neighbourhood and enlargement policy to facilitate institutional cooperation between the public administrations of EU Member States and beneficiary or partner countries. Twinning bring together stakeholders with the aim of achieving concrete, operational results through peer-to-peer activities¹.

Step by step, the twinning instrument gained ground in other policy fields, including digital health. Various European projects have been successfully implementing twinning for many years. The European

Innovation Partnership on Active and Healthy Ageing (EIP on AHA) managed several twinning waves between Reference Sites². More than 30 pairs of twins, involving more than 60 regional organisations, received awards. The SCIROCCO Exchange project³ has incorporated in-depth knowledge transfer exercises, similar to twinning. The ScaleAHA study⁴ funded and analysed the results of twinings involving 20 pairs of Reference Sites that were committed to scaling up solutions for active and healthy ageing. The GATEKEEPER project⁵ will carry out similar twinings in 2023.

The DigitalHealthEurope project funded 21 successful twinning applications.

A description of how twinning actions typically work

Common features of twinning schemes

Twinning **share certain features** in common, even if they differ from each other in other aspects. What are the common features of these twinning actions?

Generally, the twins have involved **public health bodies**. The minimum requirement is that the action should have an **originator** and an **adopter**. The originator is the public health body that 'runs' a promising innovative practice, and proposes it for scale-up. The adopter is the public health body which receives the innovative practice and has the commitment to scale it up in its organisation and/or territory.

Numbers of twins can vary. The number(s) of originators and adopters involved in any twinning scheme can be **more than one**.

Activities necessary for the transfer of the digital practice/solution between twins **are funded** by the action. Example activities include meetings, travel expenses, licences, or fees for professional services. The transfer of the practice or solution is closely managed and monitored by the funder of the action. The twinning originator and adopter have to **report regularly** on the progress they make.

The duration of the twinning scheme varies, depending on the ambition of the action. The general length is **between 3 to 12 months**.

¹ https://ec.europa.eu/neighbourhood-enlargement/funding-and-technical-assistance/twinning_en

² https://ec.europa.eu/eip/ageing/reference-sites_en.html

³ <https://www.sciroccoexchange.com/knowledge-management-hub>

⁴ https://www.scale-aha.eu/fileadmin/documents/scaleaha_d5.4_finalstudyreport.pdf (This was a study on support to scaling-up of innovations in Active and Healthy Ageing, prepared for the European Commission DG Communications, Networks Content & Technology by empirica with the support of EuroRec and EUREGHA.)

⁵ <https://www.gatekeeper-project.eu/>

Variety among twinning schemes

For originator(s) and the adopter(s) of twinning schemes to locate each other and to generate inspiration for the twinning idea, the funder(s) of the action can provide tools such as a marketplace or a repository of innovative practices ready to be scaled up.

For funding purposes, the funding comes from either an outside organisation or project that provides the necessary expenses or the twinning can be implemented by using the originator(s) and/or adopter(s)' own budget.

Twinning types

There is a **variety** of twinning types. The type depends on what the originator and the adopter, in their application, commit to achieving in relation to the **'degree' of transfer** of the innovative digital solution. By 'degree' can be understood the measure or level of ambition.

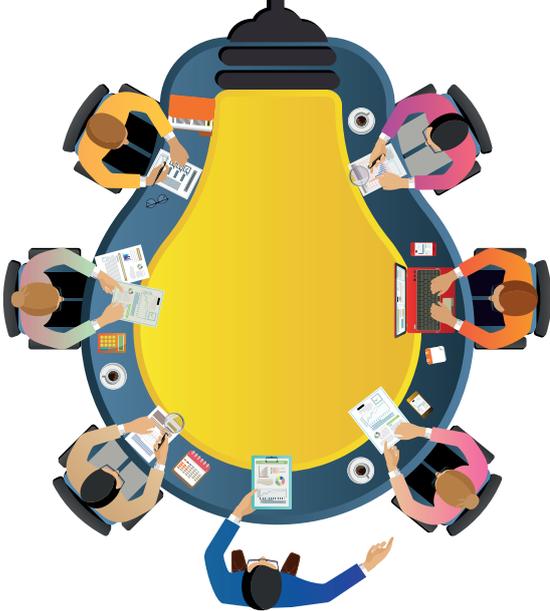
Throughout the whole procedure, whatever the twinning type, it is crucial to **keep the motivation of the originator(s)** to participate high. Therefore, the action has to be designed in a way that the scale-up remains **win-win** for both the originator(s) and the adopter(s).

There are **three most commonly used types of transfer**: knowledge exchange, adoption, and adaptation to local context.

Knowledge exchange-type of twinning

This twinning type is about knowledge exchange. It is usually suitable for local public health bodies that want to learn from other public health organisations **without having to commit to the actual transfer** of a specific digital health practice.

The format of this twinning type enables a health authority to take the **initial steps towards adoption**. These initial steps include knowing better the environment where the identified solution operates; understanding what kinds of conditions and skills the originator has had to ensure to set up the practice/solution; and anticipating the creation



of the same (or similar) conditions in the adopting organisation/territory. The originator and the adopter organise together physical or virtual **meetings** to transfer knowledge. These meetings permit them to draw up **a roadmap**; establish and dedicate **a team** for the potential transfer of the practice/solution; identify potential **outcomes**; and anticipate any potential **challenges**.

The overall expected outcome of the knowledge exchange type of twinning is **capacity building**.

The EIP on AHA promoted the knowledge exchange-type of twinings to its territorial health innovation ecosystems, called Reference Sites. Experience now shows that the knowledge exchange type of twinning can be the **starting point of a long-lasting collaboration** between regions or public health organisations. The collaboration can expand afterwards to **other joint actions**.

Adaptation to local context-type of twinning

This type of twinning is suitable for a scenario when a single originator intends to work with several adopters in **applying the same (or at least very similar) process** in their institutions or territories. Purely as an example, the outcome of such an adaptation could be the translation of an originator's app or the provision of a guide (or guidelines) in a local language.

Adoption type of twinning

These are the most ambitious and complex type of twinning actions. The core issue is **adoption**. In this form of twinning, the originator and the adopter commit to the **partial or full transfer** of the identified digital solution.

Reaching this **level of maturity of collaboration** between the originator and the adopter is usually the result of substantial learning curve. It requires a long track record of collaboration and knowing each other's context and operating conditions.

What are the differences between a partial transfer and a full transfer?

The action is called a **partial adoption** when only certain aspects of the solution are transferred to the adopter due to some differences in the local or national context. In this case, the originator and the adopter provide evidence on the impact of the adoption and the reasons why a full adoption would not be possible. Usually, a partial adoption does not involve any infrastructure transfer. The adopter's local infrastructure is used, perhaps with some adaptation made to the new digital solution.

The action is called **full adoption** when the entire transfer of the identified digital health innovation is feasible between the originator and the adopter, including all the necessary structural, policy, and governance changes. Usually, the full adoption involves two possibilities vis-à-vis **infrastructure**. Either the local infrastructure is adapted to the new digital solution on the adopter's site or the originator's infrastructure is acquired, including any relevant licencing, business model development, or adaptation.

The expected outcome of the adoption-type of twinning is the **partial or full replication** of the solution, and its sustainable operation in the new context, after the funded action has ended.



DIGITALHEALTHEUROPE (DHE)

DigitalHealthEurope provides comprehensive support to the Digital Health and Care Innovation initiative in the context of the Digital Single Market Strategy. The project's approach involves a number of actions that boost innovation and advance the Digital Single Market priorities for the **digital transformation of health and care** (DTHC), as outlined in the European Commission's 2018 Communication⁶ on the topic. The three priorities have concerned:

- citizens' secure access to and sharing of health data across borders
- better data to advance research, disease prevention and personalised health and care
- digital tools for citizen empowerment and person-centred care.

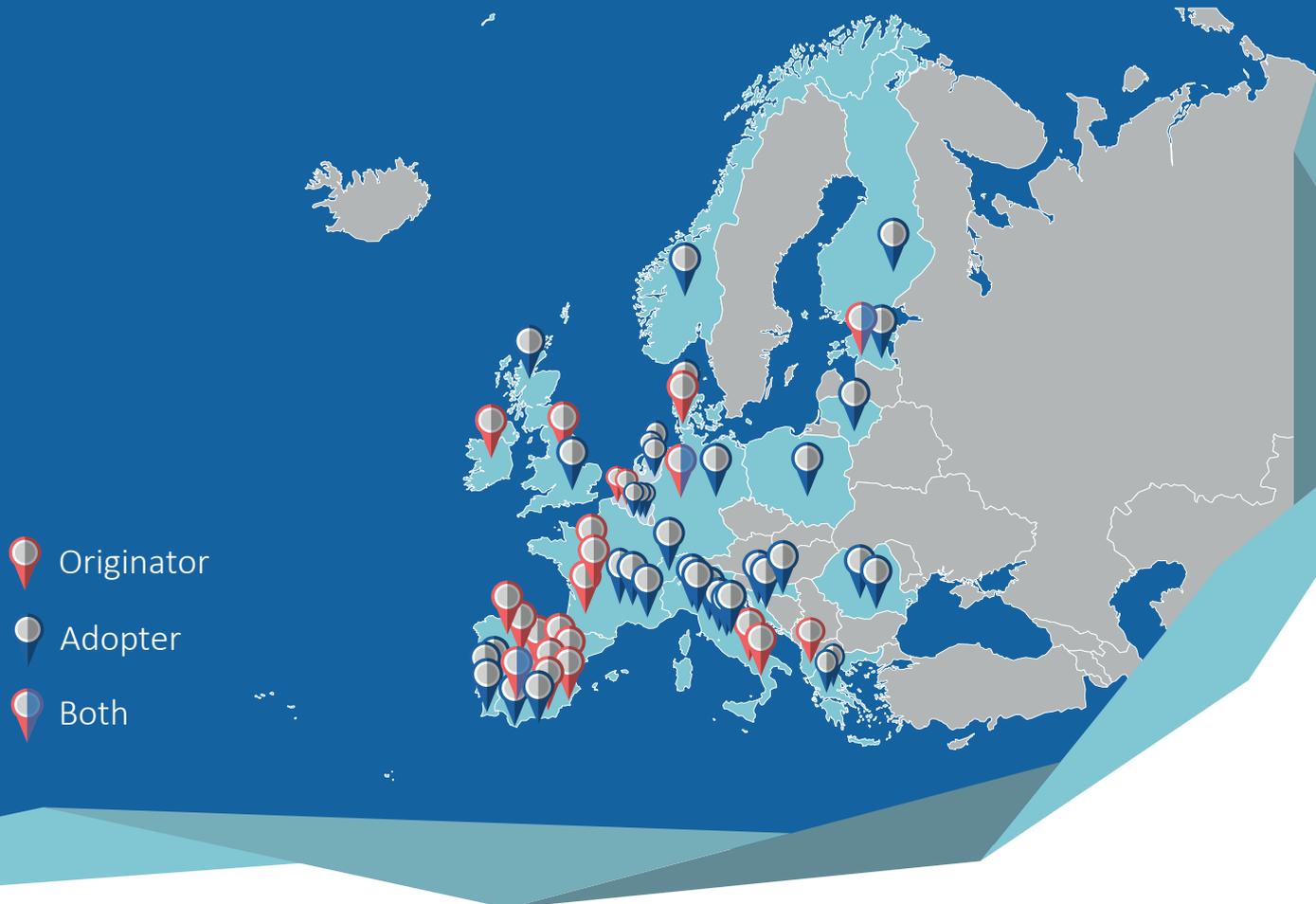
To achieve these three priorities, the project work plan offered two forms of support:

- ▶ support to large-scale deployment of digital solutions for person-centred integrated care
- ▶ support to DTHC innovation through collaboration in multistakeholder communities established around the above-mentioned three policy priorities of DTHC.

Together, they form **a common vision of EU coordination and support for DTHC beyond 2021**. As part of supporting large scale deployment of digital solutions for person-centred integrated care, DHE selected, funded and monitored twenty-five twinning actions.

The project also provided capacity building and funding advice support to the twinings which are also accessible and available to any stakeholder active in and committed to the digital transformation.

⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2018%3A233%3AFIN>



Twinnings funded under DHE

As part of supporting large scale deployment of digital solutions for person-centred integrated care, DHE selected, funded and monitored 21 twinning actions in the period 2019-2021.

The project also provided capacity building and funding advice support to the twinnings which were accessible and available to any stakeholder active in and committed to digital transformation.

The 21 twinnings represent joint efforts by 72 entities from 19 countries⁷. As some twinnings involve multiple adopters, a total 55 adopters were able to implement digital health and care solutions and practices, supported by 24 originators⁸.

⁷ The twinning entities come from Belgium, Croatia, Denmark, Estonia, Finland, France, Germany, Greece, Italy, Lithuania, Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Switzerland, United Kingdom

⁸ In one of the twinnings, the four involved organisations created a network of learning on various topics related to the twinning, leading to all four assuming both roles for different aspects of the twinning

CISMED for better information and decision-making on medicine shortages at supranational level

 Twinning solution:	Medicine Shortage Detection System
 Twinning type:	Knowledge exchange

Medicine shortage imposes high health risks on patients. The twinning between Consejo General de Colegios Oficiales de Farmacéuticos (Spain), Agencia Española de Medicamentos y Productos Sanitarios (Spain) as originators and Associação Nacional das Farmácias (Portugal), Ordre National des Pharmaciens (France), Federazione Nazionale Unitaria Titolari di Farmacia (Italy) as adopters was implemented with the objective to improve the detection, monitoring, communication and reporting on medicine shortages, and explore the possibility and value of exchange information on shortages at EU level. The project has issued recommendations for an effective information system on shortages at supranational level. The twinning's practical value and pertinence is even more understandable in the COVID crisis context when preventing or mitigating shortage of medicine at European level was/would have been particularly important.

 More information: <https://digitalhealthurope.eu/twinnings/dhe-twinning-results/cismed/>

MyPrescription app helps to increase adherence to treatment and reduce adverse cases

 Twinning solution:	mHealth tool for prescription adherence
 Twinning type:	Partial adoption

The main issue with medical prescription is the adherence to treatment and making sure that patients take the medication at the right time and in the right dose. The particularly challenging groups are older persons who often take five or even more drugs to take (poly-pharmacy) and persons with low health literacy. This easy-to-use, hands-on mHealth tool allows better and more reliable self-management. Patients can access a tab of the medication and they are offered the possibility of scheduling notices of the shots. In addition, MyPrescription offers a barcode reader to access all the information about a medication. This twinning was also expected to accelerate the digital health implementation in Campania region (adopter) which suffers huge delays compared to other Italian regions. Due to technical barriers, not the originally targeted mHealth tool was transferred from Fundación Pública Andaluza Progreso y Salud (Andalusia, Spain) but another, similar one with more simple technical characteristics and requiring more modest financial commitment.

 More information: <https://digitalhealthurope.eu/twinnings/dhe-twinning-results/myprescription/>

Standardised scar data collection to reduce chronic pain with ScarPath

-  **Twinning solution:** Digital pathway for standardized scar assessment
-  **Twinning type:** Knowledge exchange

Scar tissue formation can lead to chronic pain, which can be sustainably improved and treated once the scar history and characteristics are available. This is why scar research and data collection are so important as part of multidisciplinary chronic pain management. This twinning aimed at knowledge transfer and capacity building between Oscare (Belgium) as originator and Centre de Rééducation Motrice du Dr. STER (France) as adopter around a digital tool, called ScarPath allowing standardised data collection from objective scar outcomes, from patient reported outcomes and treatments across regions of Europe.

 More information: <https://digitalhealtheuropa.eu/twinnings/dhe-twinning-results/scarpath/>

Transforming oncology treatment with the help of OncologyInMotion

-  **Twinning solution:** Software for breast-cancer patient data collection and evaluation in real time
-  **Twinning type:** Partial adoption

The role of physical activity is often underestimated in prevention and rehabilitation of cancer. Physical activity plays a major role in societal and work reintegration after surgery. 150min of moderate aerobic exercise per week is recommended by the American Society of Sports Physicians. However, after discharge of the patients, it is troublesome to integrate the physical activities recorded in different systems: it is risky to lose data with the download and upload of data, costly because technical specialist have to make the transfer. It is more efficient to collect data directly from the patients in a unified way via an easy and intuitive app. This twinning between IRCCS CRO of Aviano (Italy) and Poliklinika Peharec of Pula (Croatia) developed the software and the app for breast cancer patients, which can be later on scaled up to other diseases as well such as diabetes, chronic hypertension, geriatrics.

 More information: <https://digitalhealtheuropa.eu/twinnings/dhe-twinning-results/oncologyinmotion/>

Because data really matters for enhanced integrated care

-  **Twinning solution:** Technology hubs for patient data gathering and evaluation
-  **Twinning type:** Partial adoption

Integrated, value-based care can only be delivered based on sound data. This holds true for delivery both on the political and governance level as well as on the individual and service level. The Data Matters twinning project brought together four players from three member states (Badalona Serveis Assistencials SA (Spain), CoRe-Net – Cologne Research Network (Germany), Ministry of Social Affairs of the Republic of Estonia (Estonia), The North Estonia Medical Center (NEMC)) that all have taken important steps in relation to integrating data and making it useful for care improvement, but who at the same time saw (and continue to see) a need to learn from each other and improve upon what they are already doing. The particularity of this twinning was that all the organisations were originators and adopters at the same time. The twinning facilitated a collective learning exercise between the partners towards more efficient and improved integrated care services through infrastructure development, integrating relevant data types and analytical measures.

 More information: <https://digitalhealthurope.eu/twinnings/dhe-twinning-results/data-matters/>

Cross-recognition model for mHealth app quality label with AppSaludable

-  **Twinning solution:** Guideline of safe practices for health app developers
-  **Twinning type:** Partial adoption

This twinning was carried out with the objective to increase trust and quality towards mHealth apps amongst the healthcare professionals and citizens in Portugal thanks to refining the existing model in the national system (MySNS Seleccção). The basis for this refinement was the Andalusian mHealth assessment model (AppSaludable) which was successfully transferred from the Fundación Pública Andaluza Progreso y Salud (Spain) to Serviços Partilhados do Ministério da Saúde (Portugal). As a result of the twinning, the Andalusian assessment model was also improved and a cross-recognition model between the two countries was launched which will help to overcome the siloed national or regional app assessment methodologies, will save time for companies and will ease up the choice of trustworthy apps for users.

 More information: <https://digitalhealthurope.eu/twinnings/dhe-twinning-results/appsaludable/>



REHAB-LAB - Patient empowerment through self-designed 3D printed assistive devices

-  **Twinning solution:** Self-designed 3D printed assistive devices
-  **Twinning type:** Full adoption

Digital fabrication in the healthcare sector has many advantages compared to non-digital fabrication. It allows co-design with the users, it is easy to reproduce, cost-efficient, quick, the weight can be controlled, it can use environmental-friendly materials, and many others. 3D printing can be used with and for people with disabilities to let them co-design and co-produce their assistive devices with carers and healthcare professionals. This popular Rehab Lab method in France was transferred in this twinning from the Centre Mutualiste de Rééducation et de Réadaptation Fonctionnelles de Kerpape (France) to three other countries, to the City of Aarhus (Denmark), the Centre Hospitalier Universitaire de Liège (Belgium) and to the Università Degli Studi di Modena e Reggio Emilia (Italy), kicking off a potentially growing European network of Rehab Labs in the future perspectives.

 More information: <https://digitalhealtheuropa.eu/twinnings/dhe-twinning-results/rehab-lab/>

Digital tool for citizen empowerment and person-centred care for rhinitis and asthma multimorbidity MASK

-  **Twinning solution:** Mobile Airways Sentinel Network Allergy Diary
-  **Twinning type:** Partial adoption

Severe asthma is an important global health problem leading to exacerbations, deaths and resource utilisation. Over 80% of direct and indirect asthma costs are incurred by severe asthma. Its phenotype and treatment in old age adults are poorly understood. MASK (Mobile Airways Sentinel Network) is a digital tool for citizen empowerment and person-centred care for rhinitis and asthma multimorbidity. MASK-air® App was transferred from KYOMED (France) to several participating adopters from nine European countries to treat patients suffering of rhinitis of any age group.

 More information: <https://digitalhealtheuropa.eu/twinnings/dhe-twinning-results/listeo/>

eMPowEr allows cancer patients of palliative care to stay longer at home

-  **Twinning solution:** Palliative care tool for cancer patients suffering from Malignant Pleural Effusion (MPE)
-  **Twinning type:** Knowledge exchange

Healthcare services and treatments continue to improve, more people with cancer will be living longer, and will require palliative care to manage their symptoms. Institutionalised palliative care will suffer enormous pressure in the near future. Therefore, trusted and reliable person-centred digital solutions have to be called upon to help and manage symptoms as long as possible at home and allow that clinician to monitor remotely their patients. eM-PowEr is an app developed during the twinning addressing malignant pleural effusion (MPE) or ‘fluid on the lungs’ of metastatic cancer patients. The twinning served as a knowledge exchange and capacity building exercise between the National University of Galway (Ireland) as originator and the Netherlands Cancer Institute/Antoni van Leeuwenhoek Hospital (Netherlands), Deventer Hospital (Netherlands) as adopters.

 More information: <https://digitalhealtheurope.eu/twinnings/dhe-twinning-results/empower/>

Paving the way for digital telecare in Europe

-  **Twinning solution:** Strategic roadmap for digital telecare
-  **Twinning type:** Partial adoption

The critical role of digital technologies, such as telecare, in supporting people to remain living safely at home has been recognized during the COVID-19 pandemic. Yet, only very few regions in Europe have managed the transition from analogue to digital telecare services. The development of new digital infrastructure means that analogue infrastructure will be replaced with digital infrastructure in the next 3 - 7 years. There is little published literature on digital telecare and most regions are trying to work out how best to do this on their own. This twinning between Scottish Government, Digital Office for Scottish Local Government (Scotland) as originator and University of Agder, Grimstad Kommune (Norway), Agency for Social Services and Dependency of Andalusia (Spain) as adopters developed a strategic roadmap for digital telecare and a citizen pathway to support the development of innovative, person-centred service models that improve health and wellbeing outcomes for citizens, whilst promoting independent living.

 More information: <https://digitalhealtheurope.eu/twinnings/dhe-twinning-results/digital-telecare/>

Transition from paper-based administration to EHR in Friuli Venezia Giulia region

-  **Twinning solution:** Advanced digital tools to support integrated care through electronic health
-  **Twinning type:** Full adoption

Digitisation of the healthcare administration in a way that caters for the patients' needs, particularly older persons and persons with disabilities, at the same time is easy to use for the healthcare professionals and on top is secure is not an evident process. The Social-health folder twinning offered the uptake of such an advanced IP technology providing access to social-health, social-welfare, social rehabilitation, social-education type of data of patients. The twinning radically changed the way of operation at the Rittmeyer Institute (adopter) thanks to the well-established digital solution of the Dom Danica Vogrinec (Slovenia – originator) that was transferred during the action. Digitalisation allowed the Instituto Rittmeyer to connect to the regional EHR, the Electrical Installation Condition Report or (EICR) and collaborate with the regional electronic health system.

 More information: <https://digitalhealtheuropa.eu/twinnings/dhe-twinning-results/social-health-folder/>

Learn to SCAN real world data for drug safety decision-making

-  **Twinning solution:** Strengthening the Capacity for the Analysis of Electronic Healthcare Data
-  **Twinning type:** Knowledge exchange

The role of any drug regulatory agency is to protect and improve health. The European Medicines Agency aims to build regulators' capacity for using Real-world data (RWD) to strengthen regulatory decisions and communications, ensuring better health outcomes for EU patients. The adopter, Croatian Agency for medicinal products and medical devices (HALMED) used RWD on occasional basis but the ambition was to make it a routine practice for drug safety decision-making. The objective of the knowledge transfer between HALMED and the originator UK Medicines and Healthcare Products Regulatory Agency (MHRA) was to enable HALMED's capacity to systematically use electronic healthcare data from diverse sources such as EHR, insurance and administrative healthcare databases, registries, etc for drug safety monitoring.

 More information: <https://digitalhealtheuropa.eu/twinnings/dhe-twinning-results/scan/>

Improving large-scale adoption and research infrastructure of Colon Capsule Endoscopy (CCE) technology

-  **Twinning solution:** Colon Capsule Endoscopy (CCE) for prevention and treatment of colorectal cancer
-  **Twinning type:** Full adoption

Colon Capsule Endoscopy (CCE) technology revolutionises colorectal cancer diagnostics. Although clinical trials are conducted, its large-scale deployment would require more data. This twinning action aimed to address this shortcoming by bringing thought leader institutes in this field together from Denmark and Scotland. The objective was to create a joint infrastructure across the two countries and identify new research areas. CCE can contribute to more efficient prevention and better treatment thanks to improved datasets with the potential to apply AI for automatic detection, localisation and characterisation of polyps. The Odense University Hospital (South Denmark) as originator and the Digital Health and Care Institute, NHS Highland (UK) as adopters came together in this ambitious twinning to establish the first ever large-scale European database of CCE videos and advance the prevention and treatment of colorectal cancer.

 More information: <https://digitalhealtheurope.eu/twinning/dhe-twinning-results/cceresearchinfrastructure-2/>

Fewer epileptic emergencies thanks to easy and hands-on two-way communication between doctors and patients

-  **Twinning solution:** Improving the quality of life of epileptic patients through improved patient-doctor-communication
-  **Twinning type:** Partial adoption

Epilepsy is a prevalent disease within neurological pathologies and affects 0.7 – 1% of the general population. At least half of the patients with epilepsy are young and active. These patients need regular follow-ups with hospital Neurology services or Epilepsy Units. The average waiting time for an appointment is 6 to 9 months. Doctors have no sufficient time during the consultation to train and inform patients and their families about the disease. Therefore, the current method of treatment has serious shortcomings. EPICO twinning aimed at the partial adoption between OXIFRAME SL (Spain) as originator and Greek Carers Network EPIONI (EPIONI) (Greece) as adopter of an application which allows better management of epileptic patients by fostering easier, more continuous and hands-on communication between doctors and their patients.

 More information: <https://digitalhealtheurope.eu/twinning/dhe-twinning-results/epico/>

Improved vascular surgery with personalised preoperative patient preparation

-  **Twinning solution:** Mobile app on preoperative patient preparation for Major Ambulatory Surgery
-  **Twinning type:** Full adoption

Waiting times for vascular surgery are long, which results in patients dropping out and finding a surgery appointment faster elsewhere. The Listeo+ multifunctional app transferred from Fundación Pública Andaluza Progreso y Salud (Spain) to Azienda Ospedaliera Universitaria Federico II (Italy) provides personalised preoperative patient preparation recommendations for Major Ambulatory Surgery (MAS) fitted to the patient's clinical conditions. This helps to prepare more informed patients for the intervention. Patients know what needs to be done before and after the surgery and the app also improves the communication between the patients and their healthcare professionals. The cancellation and drop-out rate is reduced thanks to this mHealth app.

 More information: <https://digitalhealthurope.eu/twinnings/dhe-twinning-results/listeo/>

REHAB-LAB-4All

-  **Twinning solution:** Self-designed 3D printed assistive devices in Europe
-  **Twinning type:** Full adoption

Digital fabrication in the healthcare sector has many advantages compared to non-digital fabrication. It allows co-design with the users, it is easy to reproduce, cost-efficient, quick, the weight can be controlled, it can use environmental-friendly materials, and many others. 3D printing can be used with and for people with disabilities to let them co-design and co-produce their assistive devices with carers and healthcare professionals. The twinning builds on the REHAB-LAB twinning implemented in the first cycle of DHE twinnings. This popular Rehab Lab method in France was transferred from Centre Mutualiste de Rééducation et de Réadaptation Fonctionnelles de Kerpape (France) to six other locations this time (Azienda Provinciale per I Servizi Sanitaria, Provincia Autonoma di Trento, Villa Rosa Rehabilitation Hospital, Pergine (Italy); Caserta Local Health Authority – Frailty Department (Italy); Sociedad Española para el Desarrollo de Sistemas de Comunicación Aumentativos y Alternativos (Spain); Dipartimento economia aziendale, sanità e sociale (DEASS), Scuola universitaria professionale della Svizzera italiana (Switzerland); Fundatia Motivation Romania (Romania); Central Remedial Clinic, Clontarf (Italy)), continuing a potentially growing European network of Rehab Labs.

 More information: <https://digitalhealthurope.eu/twinnings/dhe-twinning-results/rehab-lab-4all/>

Digital Health





SoCaTel platform enables co-creation between professional and family carers for the benefit of Alzheimer patients

-  **Twinning solution:** Digital co-creation for existing gaps in the long-term care (LTC) service design and delivery
-  **Twinning type:** Full adoption

Long-term care services which are tailored to patients' and their families' needs produce much better outcomes, higher satisfaction, the relation between the care team members, healthcare professionals and the patients is much smoother and the care itself is more cost-effective. In order to tailor care to the needs, the best method is co-creation. However, it takes a lot of time which family members and informal carers might not have at the same time as the professional care team members and constraints on physical contact as it happened during the COVID-19 crisis might impede this co-creation process. This is why a flexible platform can give enormous added value as the co-creation partners can have access all the time and it is available even when physical meetings are not permitted. This twinning was organised around the full adoption of such a flexible online co-creation platform called SoCaTel for long term care services such as Alzheimer between the Rovira i Virgili University (Spain) as an originator and Istituto per Servizi di Ricovero e Assistenza agli Anziani (Italy) as an adopter.

 More information: <https://digitalhealthurope.eu/twinnings/dhe-twinning-results/socatel-co-creation-platform/>

Cost-efficient, safe, personalised and reliable AI-enabled treatment of patients with multimorbid conditions

 **Twinning solution:** Software solution for cognitive stimulation and training for elderly

 **Twinning type:** Full adoption

The AI tool which was subject of this twinning between FollowHealth SL (Spain) as developer of the tool and originator in the twinning relation and Centro Clínico Académico – Braga, Associação (Portugal) as adopter is a typical good example of how efficacy, personalisation and cost-efficiency of healthcare services can be improved thanks to digital tools. Adherence to treatment, engagement of patients towards their treatment can be easily ameliorated by a simple smartphone app that gathers passive (i.e without the patients' involvement) and active health data (e.g. wearables, medical devices) from the patients and send directly to the doctors. This simple method ensures that reliable, relevant real-life data reach the professionals in a continuous manner and allows for rapid reactions to changes in the patients' health conditions and even prediction of potential changes.

 More information: <https://digitalhealthurope.eu/twinnings/dhe-twinning-results/ai4multimorbidityconditions/>

Food is vital and social. GPFC platform can help to rediscover taste and enjoy food after taste disorder

 **Twinning solution:** Implementation of e-platform for taste control in Italian cancer patients

 **Twinning type:** Full adoption

Cancer patients who follow chemotherapy often experience taste disorders as a side-effect of the treatment. The Gastrology&Primary Food Care Platform developed by PrimFoodCare vzw (Belgium) scaled up to an Italian context by ANT Italia Onlus meant to overcome this medical challenge by analysing the taste alternations and offering personalised recipes to keep the food-intake level stable and to make sure that mealtime preserves its social function in patients' life.

 More information: <https://digitalhealthurope.eu/twinnings/dhe-twinning-results/gpfc-platform/>

Enables patients to quality for driving vehicles again following neurocognitive assessment and rehabilitation via SafeDrive

-  **Twinning solution:** Neurocognitive assessment and rehabilitation
-  **Twinning type:** Partial adoption

Driving requires a set of cognitive skills. Driving tests by the SafeDrive app can be a very clear and reliable indication of cognitive decline or disorder due to e.g an opium-based pain-killer treatment. The original app of the originator IRCCS CRO of AVIANO (Italy) was opened up to a broader health logic and was enriched by new functionalities according to the suggestions of the adopter POLIKLINIKA PEHAREC of PULA (Croatia). Namely, a smartphone app now allows remote monitoring of the patients followed by a rehabilitation programme.

 More information: <https://digitalhealtheuropa.eu/twinnings/dhe-twinning-results/safedrive/>

SoCaTel platform enables co-creation between professional and family carers for the benefit of Alzheimer patients

-  **Twinning solution:** digital co-creation for existing gaps in the long-term care (LTC) service design and delivery
-  **Twinning type:** Full adoption

Long-term care services which are tailored to patients' and their families' needs produce much better outcomes, higher satisfaction, the relation between the care team members, healthcare professionals and the patients is much smoother and the care itself is more cost-effective. In order to tailor care to the needs, the best method is co-creation. However, it takes a lot of time which family members and informal carers might not have at the same time as the professional care team members and constraints on physical contact as it happened during the COVID-19 crisis might impede this co-creation process. This is why a flexible platform can give enormous added value as the co-creation partners can have access all the time and it is available even when physical meetings are not permitted. This twinning was organised around the full adoption of such a flexible online co-creation platform called SoCaTel for long term care services such as Alzheimer between the Rovira i Virgili University (Spain) as an originator and Istituto per Servizi di Ricovero e Assistenza agli Anziani (Italy) as an adopter.

 More information: <https://digitalhealtheuropa.eu/twinnings/dhe-twinning-results/socatel-co-creation-platform/>

Cost-efficient, safe, personalised and reliable AI-enabled treatment of patients with multimorbid conditions

 **Twinning solution:** Software solution for cognitive stimulation and training for elderly

 **Twinning type:** Full adoption

The AI tool which was subject of this twinning between FollowHealth SL (Spain) as developer of the tool and originator in the twinning relation and Centro Clínico Académico – Braga, Associação (Portugal) as adopter is a typical good example of how efficacy, personalisation and cost-efficiency of healthcare services can be improved thanks to digital tools. Adherence to treatment, engagement of patients towards their treatment can be easily ameliorated by a simple smartphone app that gathers passive (i.e without the patients' involvement) and active health data (e.g. wearables, medical devices) from the patients and send directly to the doctors. This simple method ensures that reliable, relevant real-life data reach the professionals in a continuous manner and allows for rapid reactions to changes in the patients' health conditions and even prediction of potential changes.

 More information: <https://digitalhealtheurope.eu/twinnings/dhe-twinning-results/ai4multimorbidityconditions/>

Stay mentally fresh with Kwido Mementia

 **Twinning solution:** Cognitive Rehabilitation – Virtual and Augmented reality for dementia- and moderate cognitive impairment patients

 **Twinning type:** Full adoption

In order to prevent and slow down cognitive decline in seniors of 65+, a platform stimulating the brain and training elderly about new technologies was transferred, translated and implemented between Ideable Solutions (Spain) and Fundatia Ana Aslan International (Ana Aslan International Foundation) (Romania). The twinning raised interesting and relevant issues and brought important learning to the participants related to solutions for the elderly: such as privacy, data protection and ethical requirements and the benefits of obtaining the certification of the tool as a medical device.

 More information: <https://digitalhealtheurope.eu/twinnings/dhe-twinning-results/safedrive/>



The links provided for each twinning in this brochure reveal more details about the twinnings, such as a full list of originator and adopter(s), the outcomes of the twinnings, reflections on added value, barriers and success factors for the twinning implementation, as well as news and updates related to the twinning beyond the DHE project.



Digital Health Europe



DigitalHealthEurope.eu has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 826353



Editor & Design:
empirica
Gesellschaft für Kommunikationsund Technologieforschung mbH
Oxfordstr. 2 · 53111 Bonn, Germany
<https://www.empirica.com>