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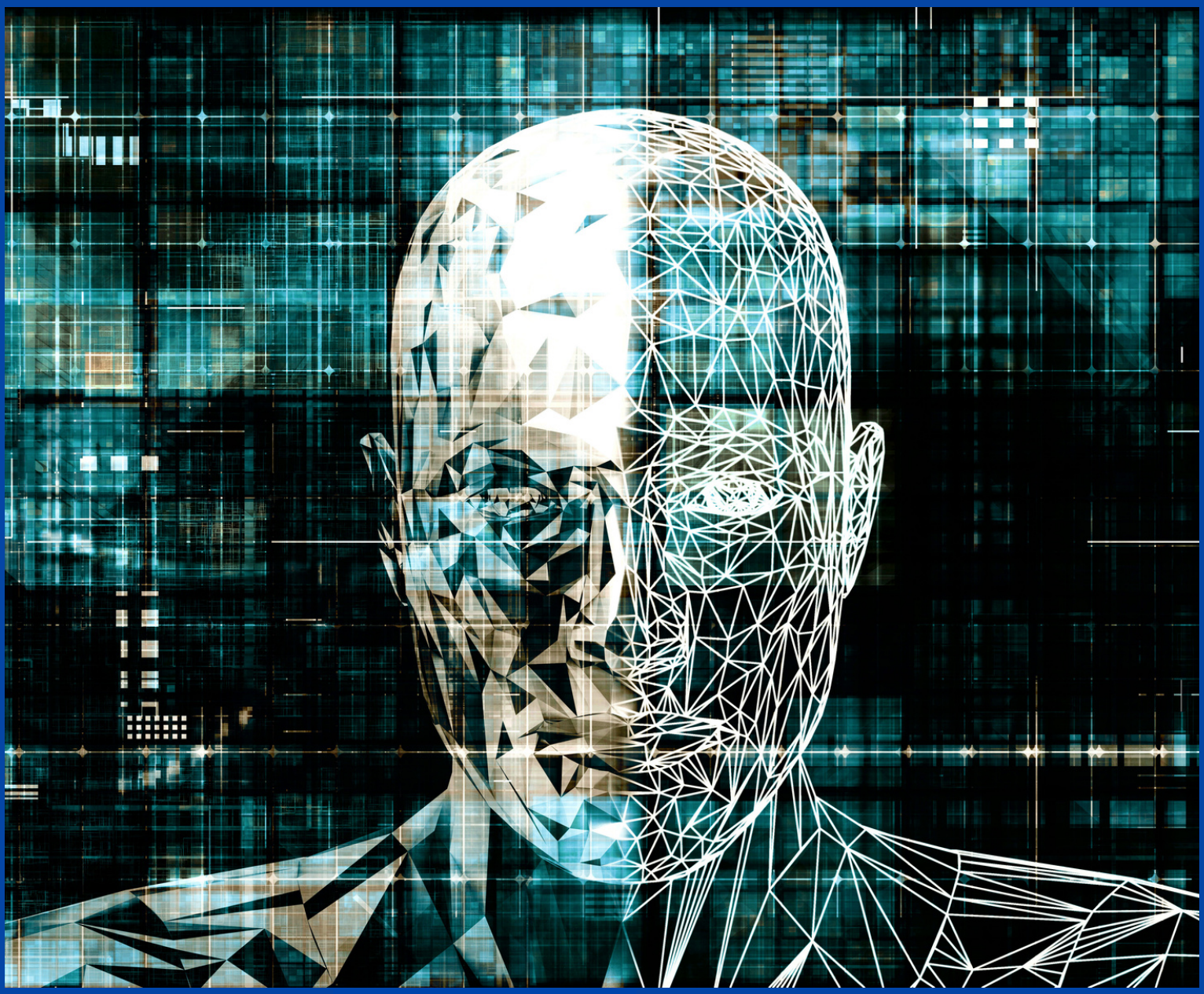

DIGITAL HEALTH

Trends and desirable progress in the emerging regions

Morning Health Talks White Paper | EIT Health InnoStars | April 2022

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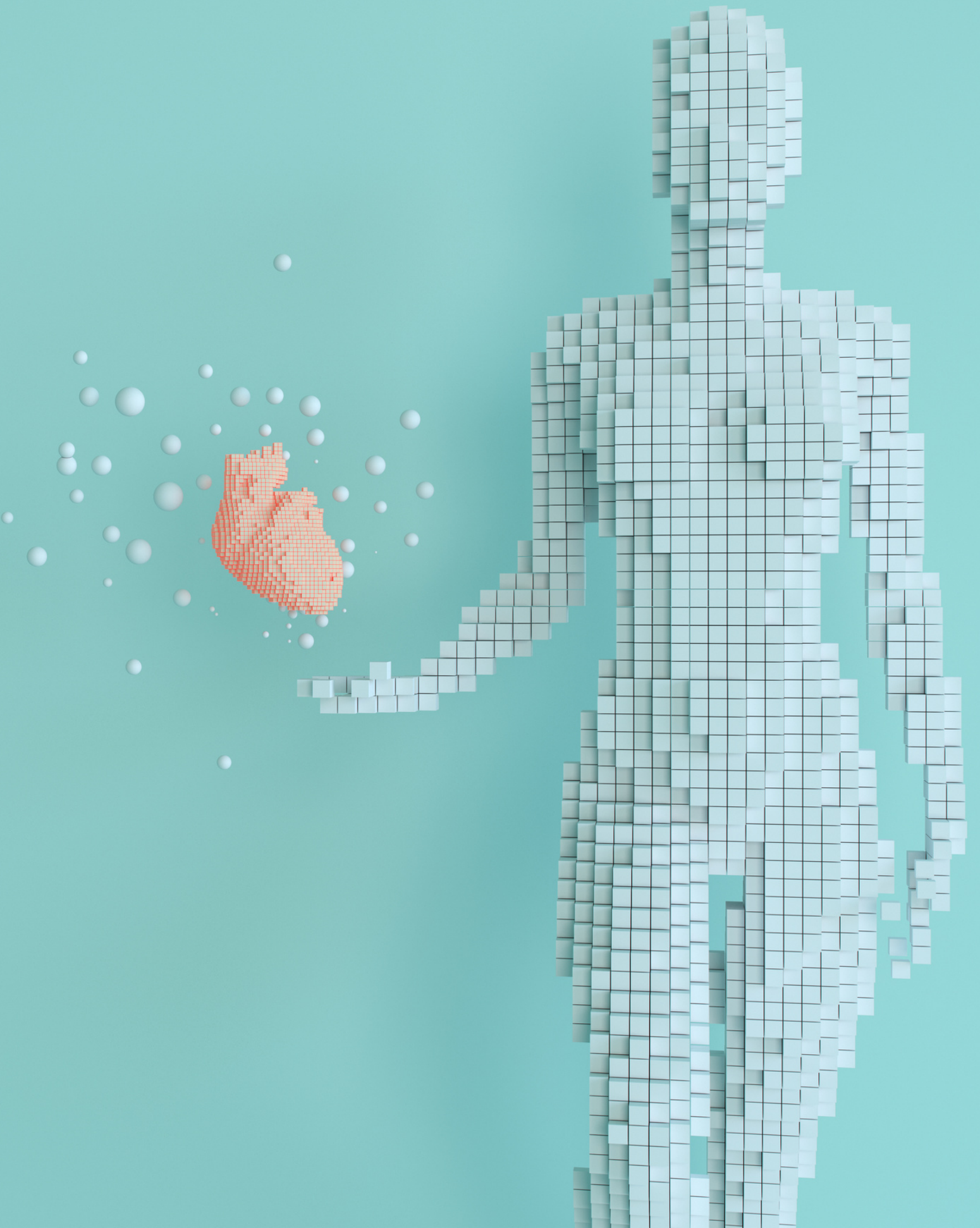
This whitepaper aims at discussing the current state of development, prerequisites and perspectives on the future of digital health development. It brings together local key opinion leaders and looks at trends in the development of digital health solutions in Europe's emerging regions since the outbreak of the Covid-19 pandemic.



FOREWORD

BALÁZS ZOLTÁN FÜRJES

Director
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Several waves of the Covid-19 pandemic have had a tremendous impact on our society and economy.

It has claimed millions of lives around the world and, at the same time, discovered new ways of how the world can address healthcare.

Covid-19 served as a catalyser: digital health tools and solutions facilitated remote consultations and helped communication and monitoring – to name a few areas that benefitted. We have also experienced the new scale of global partnerships and cross-regional collaborations.

We have observed the higher intensity of hand-in-hand work between public and private institutions, key opinion leaders, and innovators on the local level.

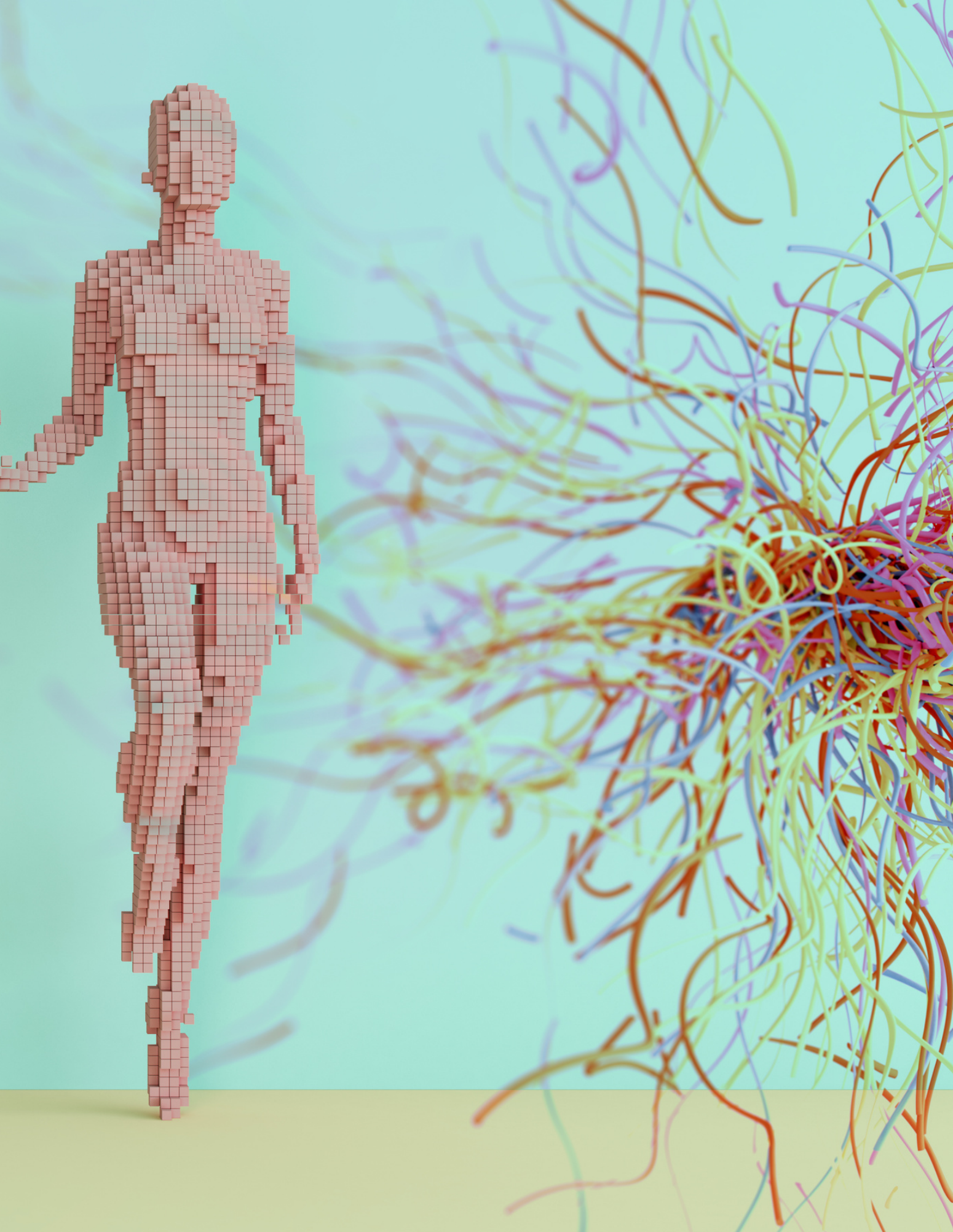
While we are far from leaving the pandemic effects behind, it is already time to think about the ways we can uphold this trend and further incorporate digital health solutions into our healthcare systems. It is of utmost importance that, together with key stakeholders, we can direct innovation efforts onto the right path leading to a healthier future with at-home care, self-monitoring, and a patient-centric approach, driven by new medical technologies.

EIT Health Morning Health Talks (MHT) is a series of events launched to stimulate thought-provoking discussions on the most pressing innovative healthcare topics and create a network environment for healthcare thinkers and doers in Central, Eastern and Southern regions of Europe, where the pace of innovation is still maturing.

Over the past three years, local communities from Europe's progressive regions have been taking a closer look at some specific healthcare and innovations issues that were crucial for their regional ecosystems. We have witnessed innovators, healthcare professionals, policymakers and investors sharing their know-how, inspiration, and practical advice. It was priceless that, even in the most challenging times during the Covid-19 pandemic, communities were there for each other. I believe collective thinking paves the way for positive change: change that affects us all and builds solidarity to create a better future.

It has been very rewarding to hear the feedback of the regional EIT Health Hubs – which have been actively involved in MHT and helped to keep the focus on real case studies. They highlighted that MHT enabled participants to connect to key stakeholders, build new collaborations and learn best practices from each other.

MHT is part of the EIT Regional Innovation Scheme, a unique initiative, which, through various activities, has proved itself capable of accelerating innovation and making breakthroughs in healthcare. In our post-pandemic world, we need that more than ever.



BACKGROUND

Since December 2019, when the novel coronavirus was identified, there have been almost 500 million confirmed cases of Covid-19 and nearly 6.2 million people have died from the virus, according to the World Health Organisation (WHO). Described as a pandemic as early as March 2020, the virus has posed a significant threat, upending life and derailing the global economy.

The pandemic has shown how healthcare systems can have profound implications on not just health, but also economic growth, social cohesion, and even trust in governments. Healthcare capacity has been a major concern and governments have applied various measures to secure the necessary resources in an attempt to contain the spread of the virus, including so-called lockdowns, while searching for long-term solutions.

Impact on healthcare systems

Healthcare services have traditionally been designed around diseases that follow predictable patterns. The pandemic, with its prevalence and rapid spread among populations, resulted in healthcare systems struggling to match the immediate and abundant demand with supply. Challenges related to managing admissions, patient monitoring and providing adequate care became an everyday reality.

The pandemic has unfolded other vulnerabilities in health systems – how fragmented the systems are, how difficult it is to exchange information and medical data at scale, how underinvested the public health infrastructure is and how challenging it is for health institutions to innovate.

That focus on fighting the virus resulted in non-Covid-19 treatment being often discontinued and routine procedures such as surgeries, tests and consultations being cancelled. This led to excessive death tolls for non-Covid-19-related conditions such as cancer.

As hospitals prioritised life-saving and urgent treatment, they shifted human resources to support areas of greater need. Virtual care became a key tool for primary care and some units were temporarily shut down. This disruption in patient footfall within clinics and hospitals has endangered clinical trials, delaying research pipelines for both new treatments and medical devices. This has not only delayed innovation but also deprived patients who rely on clinical trials of experimental treatment options.

The pandemic has also affected a lot of healthcare-related businesses whose revenues decreased significantly. Start-ups – which are generally exposed to more risks than well-established companies - were severely impacted or even forced to shutter, especially those developing hardware medical devices.

Last but not least, healthcare workers have found themselves under enormous pressure to treat large numbers of patients, overworked and oftentimes relying on personal protective equipment while providing care and preventing further spread of the coronavirus.

New unprecedented opportunities

However, as tough and unprecedented as the situation might have been, the circumstances have also become a unique opportunity to reflect on the shortcomings and weaknesses of health systems, and to search for and introduce improvements and innovative solutions, challenge existing inefficiencies and vulnerabilities.

There has also been a push to accelerate future recovery, and consequently, build resilience as Covid-19 will certainly not be the last pandemic humanity will ever face.

Health innovation and digital health solutions play an important role and have enormous potential in strengthening healthcare systems. Implementing emerging technologies such as Artificial Intelligence (AI), Big Data, Virtual, Augmented and Mixed Reality (VR, AR, MR), 5G, cloud computing, bioprinting, robotics or even less advanced technologies such as telemedicine can offer profound relief for healthcare systems.

For some businesses, including start-ups, which diversified their portfolios of products and services or refocused on niche solutions, the pandemic presented a growth opportunity.

For many, the pandemic was an impulse to go beyond their physical presence. E-commerce is booming, so are services like delivery. For example, in 2021, two Polish start-ups — the medical appointment service DocPlanner and the beauty and hair appointment app Booksy — became unicorns.

Also, investments in healthcare have accelerated. Venture funding to start-ups in Europe amounted to 52.5 billion euros in the first half of 2021, according to Crunchbase, up from 16.5 billion euros for the first half of 2020 and 21.8 billion euros in the second half of 2020.

Since the beginning of the Covid-19 pandemic, the European Union (EU) has played an important role in empowering and leveraging the work of researchers, innovators and start-uppers committed to finding solutions helping mitigate the impact of the virus.

EU-led response

In early May 2020, the EU, together with its global partners, raised 9.8 billion euros to kick-start collaboration worldwide. Of that, 1.4 billion euros was pledged by the European Commission, including one billion euros from the Horizon 2020 programme.

A few weeks into the pandemic, the EU also took specific steps, adopting the Joint Procurement Agreement (allowing for purchasing personal protective equipment, respiratory ventilators and devices necessary for Covid-19 testing) and the rescEU stockpile of supplies needed to tackle the virus.

In early April 2020, the European Commission organised the #EUvsVirus Hackathon, which brought together almost 21,000 innovators from 141 countries, who submitted 2,150 different proposals that led to identifying 117 solutions that could support recovery in Europe and worldwide.

The European Institute of Innovation and Technology Health (EIT Health), which has been supporting health innovation since 2015, joined that coordinated EU response from the European Commission.

As part of the EU's efforts to tackle the Covid-19 pandemic, the European Institute of Innovation and Technology launched the EIT Crisis Response Initiative, with 60 million euros awarded to 207 innovation projects and ventures from 32 countries. As a knowledge and innovation community of the EIT, EIT Health is committed to contributing to this joint effort."

Through Horizon Europe, EIT Health and its wide network of institutions and organisations have taken action to arm health services with better tools to tackle the pandemic and lower its impact on European citizens.

As Europe's largest healthcare innovation community with members representing the health and pharma industry, research, academia, hospitals and clinics as well as a large network of start-ups and health tech entrepreneurs, EIT Health is well-positioned to take action. It was also this community that was called upon to fight against the Covid-19 pandemic and has been at the forefront of some of the

most significant innovative health solutions that have been implemented over the last two years.

Next to the rescue instruments offered to start-ups and innovators, EIT Health funded projects with the rapid impact on the pandemic. In addition, a dedicated platform was created to facilitate the sharing of resources within the health and innovation community during the Covid-19 waves. Clinical validation support was searched for most often, while solutions supporting telemedicine and home care delivery were offered the most frequently.

Triggering debates

EIT Health has also inclusively stimulated communities to undertake local discussions about the acceleration of healthcare innovations during the pandemic. The EIT Health Morning Health Talks (MHT) — regional forums in 12 countries in Central, Eastern and Southern Europe were dedicated to convening regional leaders to help map best practices and common challenges of digital health solutions. All regions are facing increasing demands to provide health services to the patients, and many digital technologies help meet that need. Often, the countries need to understand and gain confidence in what works. The local Morning Health Talks bring an outlook on the development of digital health ecosystems in regions that are considered moderate and modest innovators in Europe.

Regional key opinion leaders, policymakers, public institutions, innovators, start-up leaders and founders, investors and healthcare professionals discuss some of the most urgent healthcare challenges faced in European systems, such as healthcare system transformation, AI in healthcare, Value-Based Healthcare, data donation, cybersecurity, and healthy living.

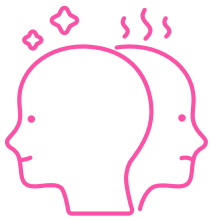
Aiming at improving the local ecosystems within the EIT Regional Innovation Scheme (RIS), the Morning Health Talks has become a safe environment for leaders to discuss what works, what does not, and where there is room for improvement and to learn from each other, not only for the benefit of particular organisations but for local communities as well. The discussions help formulate recommendations for public administration and/or strengthen partnerships on the regional, national, and pan-European levels.

This white paper brings together those local discussions, key opinion leaders and looks at trends in the development of digital health solutions in Europe's emerging regions since the outbreak of the Covid-19 pandemic.

POWER AREAS

The Covid-19 pandemic has had temporary and long-term effects on digital health development globally and in Europe's emerging regions. The in-depth interviews carried out alongside surveys have revealed five key areas with the strongest impact.

These five areas appear to be essential for the future development of digital health in the emerging regions and have the power of accelerating that development, despite being vaguely related to technology.



Science awareness

> **Science became a topic of daily conversation, as people realised that it is needed to recover from a pandemic and be more resilient.**
> **Scientific awareness leads to openness to new digital health solutions.**
>
> Bruno Siciliano, professor of automatic control
> University of Naples Federico II, Italy

According to the interviewed local stakeholders, the speed of discovery over the past year has been remarkable, with scientists managing to crack the nature of Covid-19 and invent tests, drugs, and vaccines to tackle it. The public has seen what scientists can do under pressure and how science is helping humankind.

Digital health regulations

> **In Estonia, we have already adopted the new Medical Devices Act, introduced in May 2021, which does not allow any digital health solution to be sold on the market without a CE mark.**
> **There must be proof of effectiveness, evidence base, and quality.**
>
> Jaanus Pikani, chairman of ScanBalt, Estonia

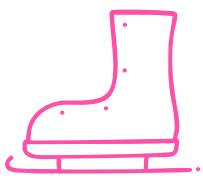
Before the Covid-19 pandemic, there were attempts to support the widespread use of digital health tools across Europe. However, in practice, it had been slow and challenging. Many interviewed start-uppers and researchers mentioned that they had minimal options to insert their innovative ideas into the regulatory systems. Covid-19 has changed that and opened doors to the different digital therapeutics implementation and reimbursement models. There is a need to follow up with active strategies to ensure that digital health tools help meet broader health system goals.

Health data security

Covid-19 brought the two biggest experiments the world has ever seen. One is a novel form of vaccination introduced all over the world. The second is an extremely large data quantity management analysis and finding answers to unexpected problems. And I think it was digital damage control at its finest.

Bartosz Wawrzynów, investment manager at FNP Ventures, Poland

During the pandemic, data dashboards have become vehicles for planning the responses to the virus spread. Data scientists took to mainstream news outlets to explain the statistics terms such as 'flattening the curve' as it has become a dinner-table topic for many. At the same time, as was highlighted by respondents, one of the main challenges lay in interoperability and data quality to exploit the potential of exchanging health data safely and fully. In their opinion, this would help in faster diagnosis and reorientate healthcare systems towards more at-home care. In their opinion, one of the "side-effects" of the pandemics was an acceleration of work on the European Health Data Space and General Data Protection Regulation (GDPR) to allow citizens to securely access and share their health data across borders.



Fast track for digital solutions

We have been implementing telemedicine for more than 20 years in our clinic for cardiovascular diseases. However, during the pandemic's first lockdown we had to shut down our polyclinics. So, we launched a virtual clinic in a couple of days. Our doctors and patients accepted it. We launched the remote service in a brief period, and it still works marvellously.

Nina Sesto, director of digital health at Magdalena Clinic for Cardiovascular Medicine and CEO of Megi, Croatia

Multiple actors realised that digital health technologies need to be implemented quickly and were able to come up with creative solutions under pressure. Some because they were able to spot a niche and wanted to pivot their value proposition, others because they needed to survive on the market. It showed that change is possible and efficient.

Regional collaboration

Emerging Europe has a lot to bring to the table because of the fact that there are so many needs, which are still very visible, the region is more like a sandbox. We need to create networks and find solutions locally.

Razvan Mircea Chereches, chair at the department of public health, Babes-Bolyai University in Cluj Napoca, Romania

The pandemic has brought the realisation that challenges such as Covid-19 are easier to overcome through collaboration. As was highlighted by the interviewees, Covid-19 went beyond public health efficacy and the cooperation between governments, scientists, businesses, start-ups, scale-ups, civil society, and individuals, was needed to increase efficiency, accelerate the healthcare innovation processes and cut costs.

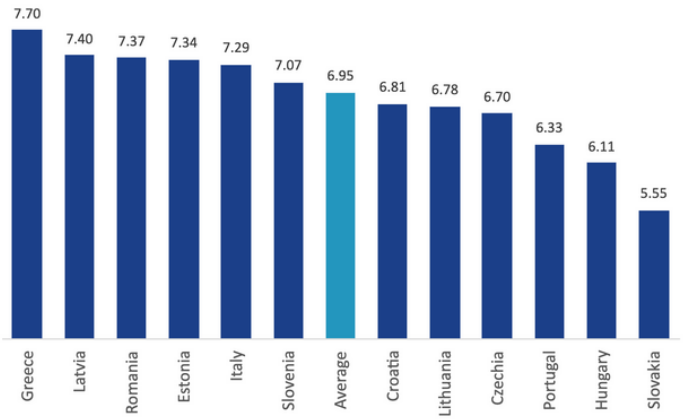
ANALYSIS

The goal of the survey carried out during Morning Health Talks, organised across 12 countries, was to understand health tech professionals' perception of the impact the Covid-19 pandemic has had on the development of digital health solutions and what solutions have been implemented in Europe's emerging regions.

It also looked at how further development of such solutions could impact the local and regional ecosystem, as well as which factors could foster that development.

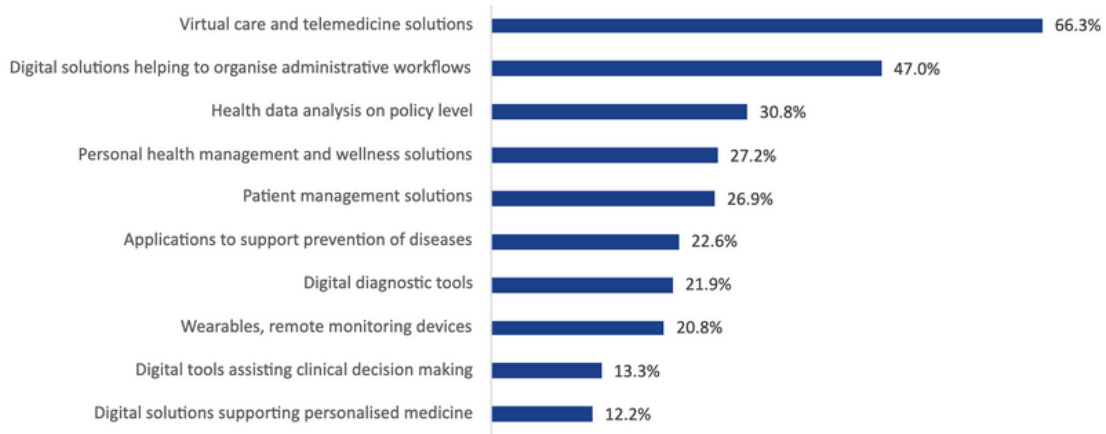
On average, respondents believe that the Covid-19 pandemic significantly accelerated the pace of adoption of digital health, with an average score of 7 out of 10. The most sceptical respondents were in Slovakia (5.6 of 10), while the most significant improvements were seen by the respondents from Greece (7.7 of 10) (Chart1).

Chart 1. Influence of the Covid-19 pandemic on the pace of adoption of digital health in the country



The question about the kinds of digital health solutions implemented in individual countries was answered 806 times by 279 respondents (multiple choice permitted) (Chart 2). Almost two thirds (66.3 per cent) of respondents mentioned that virtual care and telemedicine solutions were implemented in their country, another 47 per cent stated that their country implemented solutions aimed at the digitalisation of medical records and appointment booking.

Chart 2. Digital health solutions that have been implemented due to the Covid-19 pandemic



In all countries, except Slovakia, virtual care and telemedicine solutions were the most frequently marked option (Chart 2).

The most unpopular options include digital tools assisting clinical decision making and digital solutions supporting personalised medicine. They were chosen only by 13.3 and 12.2 per cent of respondents respectively.

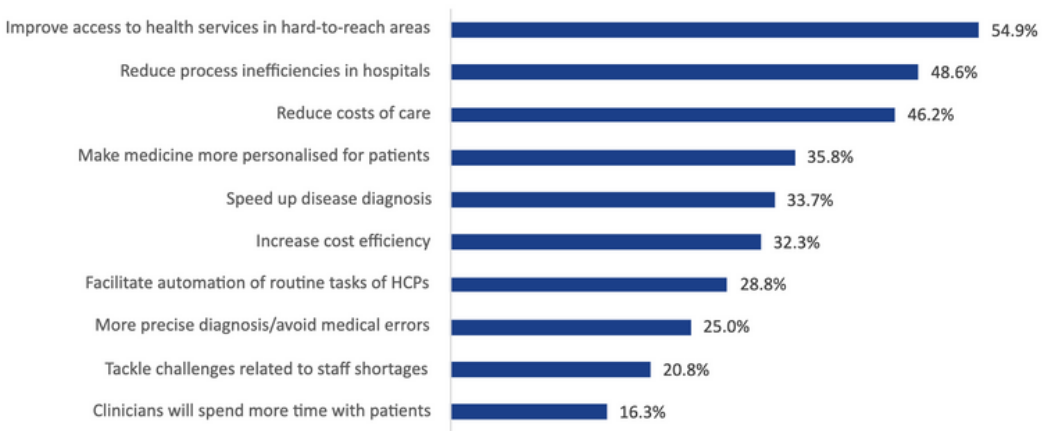
Almost 60 per cent of respondents believe that digital health solutions helped to improve access to health services in hard-to-reach areas and regions (Chart 3).

This positive impact was the most frequently marked by respondents from Italy (along with the reduction of the process inefficiencies in hospitals), Hungary, Latvia, Lithuania and Portugal.

48.6 per cent stated that digital health solutions led to the reduction of process inefficiencies in hospitals (the most popular option among the Croatian, Romanian and Slovak respondents), 46.2 per cent believe that it led to the reduction of the costs of care (the most popular among the Greek and Slovenian respondents).

Although the option 'Increase cost efficiency' did not make the top five overall, it was the most popular response among Estonian respondents.

Chart 3. Benefits that digital health solutions help achieve



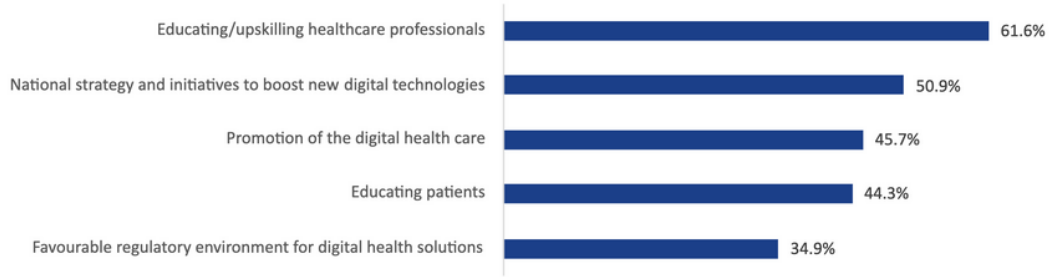
The question related to the factors that can contribute to the faster development of digital health in the individual countries received a total of 1,030 answers from 289 respondents. Overall, respondents believe that the education and upskilling of healthcare professionals may influence the development of digital health the most (61.6 per cent mentioned it), while the national strategy and initiatives to boost new digital technologies establishing opportunities for start-ups to test solutions in hospitals hold the second position (50.9 per cent of respondents) (Chart 4).

From a geographical perspective, this question appears to be controversial. Estonian respondents believe that the education and upskilling of healthcare professionals and increasing trust of healthcare professionals and patients towards digital health novelties may contribute the most. Education and upskilling was also the most frequently picked option by respondents from Latvia, Lithuania, Romania and Slovenia.

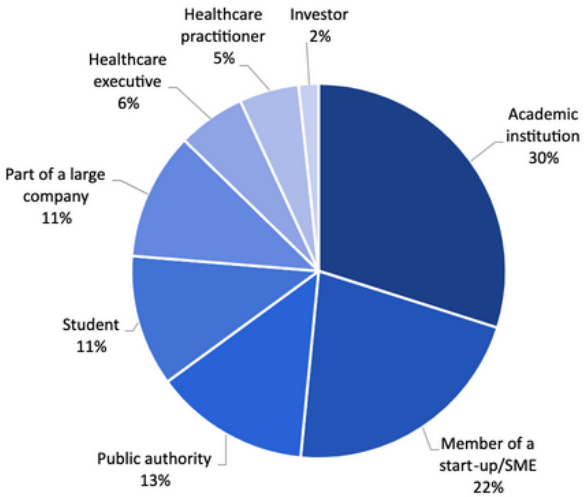
The respondents from Greece and Slovakia believe that the national strategy and initiatives are by far the most important, while Portuguese respondents believe that the natural rise in demand for online healthcare solutions will contribute the most.

However, respondents from all countries almost unanimously agreed that info sites and reference points for users are not going to have a great effect on the speed of digital health development. This option was picked only by 12.5 per cent of respondents.

Chart 4. Factors that can contribute to faster development of digital health



Finally, 292 of 335 respondents stated their professional affiliation. As many as 30 per cent of those who stated their affiliation represent an academic institution, another 21.9 per cent are members of a start-up or SME. Healthcare executives and practitioners account for almost 11 per cent of the total number of respondents.



Across Europe's emerging regions, the Covid-19 pandemic has managed to accelerate digital interaction to a degree that nobody could have ever anticipated, but there is still plenty of unrealised potential. That realisation has shown the potential of digital healthcare and that there are multiple pathways to addressing this topic.

Interestingly, the development of digital health solutions during the pandemic was caused less by the development of technologies — most technologies that became popular had been in place before and have now been improved, either by increasing efficiency or developing new solutions. It was mainly non-technological areas related to digital health that received a push.

Covid has made everyone more aware of the importance of innovation and progress to recover from a pandemic. There is a consciousness being developed that leads to openness to new digital health solutions.

While the further development of technologies (especially those emerging ones) is necessary in order to implement digital health solutions, alone this will not suffice. It will be people, patients and health professionals who will drive the health system transformation. It is essential to strengthen political leadership and commitment to enabling the development of digital health by creating favourable conditions and frameworks.

This also refers to providing better access to digital health away from major cities. Not all citizens, patients and providers are equally able to use the digital health tools that become available. Logistical problems for accessing digital health solutions were addressed by some respondents who were concerned about smaller cities or rural areas. In this case decentralisation efforts should be implemented with close support from local authorities.

Another hindrance is the fact that many countries do not have a digital health strategy implemented in their healthcare system with solutions being developed and implemented fast but without a broader vision of how they would fit into the bigger picture. During the pandemic, legal provisions had to be introduced to tackle changing reimbursement needs. In order to retain value from increased use of digital health, policymakers should concentrate on building an environment and a framework that will support the use of digital health tools.

Respondents also spoke about closer collaboration between various stakeholders. The extraordinary circumstances have made them realise they cannot act on their own and there is more room for joint projects, especially between public and private entities.

Despite the increasing acceptance of digital health solutions worldwide, there is still some work to be done in order to motivate patients, doctors and the public. The lack of coordination and organisation related to hospitals during the pandemic – which were providing emergency treatments exclusively — caused unnecessary mistrust in patients and the public.

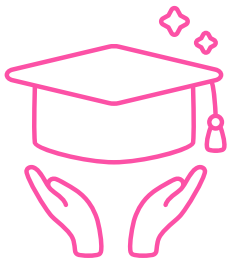
In terms of acceptance of digital health solutions, respondents affirmed that patients were much more willing to use them. That, however, was not always the case in all groups of society, for example, seniors.
As far as the use of data and privacy is concerned, patients were more open to share their medical data during the pandemic. Going forward, they will need to know their medical data will be used. Clear regulations and education can help achieve that.

Respondents also pointed out that there is little medical literacy, which means that patients do not understand medical messages. To ensure patients' understanding and their adherence to medical treatment, there must be some efforts in education. In parallel, healthcare professionals need to make sure they communicate messages clearly.

In conclusion, the Covid-19 pandemic provided an impetus that has the potential to foster the development and implementation of digital health solutions in Europe's emerging regions and words such as telemedicine, digital certificates, social distancing and antibodies entered our everyday vocabulary. This fast-changing environment required adaptation from physicians, patients, scientists, governments, health institutions and the market.

So far, however, most of the improvements that have been made have resulted from necessity. It is time for all the stakeholders involved to turn it into an opportunity.

RECOMMENDATIONS

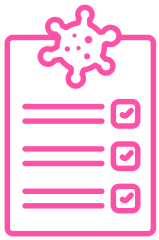


Skills and education

Providing programmes and financing for digital skills training focused on data analysis, AI and implementation of real-world data standards into practice.

How? Regional authorities, academia, healthcare providers, and industry should aim for short and agile education formats. Education should focus on upskilling healthcare professionals and improving the understanding of health literacy among citizens.

Case study: EIT Health HelloAI programmes equip students and healthcare professionals with the artificial intelligence and machine learning knowledge and skills necessary to increase the adoption and development of new technologies in healthcare. HelloAI has impacted over 1,750 participants in the last four years, mainly from Central, Eastern and Southern Europe.

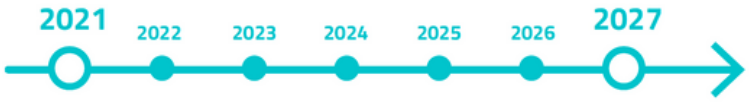


Facilities and processes

Broader introduction of digital health solutions in sparsely populated regions and hospitals to reduce health inequalities and costs related to an ageing population and post-Covid debt.

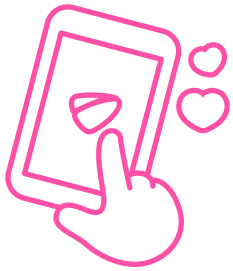
How? HCPs must be supported by regional authorities and industry in implementing a new business model in care delivery to address health needs, provide better access to care, and increase its quality through access to data.

Timeline: EU member states and regions should implement those processes as part of the recovery package until the end of the EU multiannual financial framework 2021-2027.



EU member states and regions should implement those processes as part of the recovery package until the end of the EU financial framework 2021-2027.

Case study: The Nordic healthcare system faces different challenges, one of them being sustainability in budget distribution: "sick care" covers 10 per cent of GDP, whereas "preventive care" - 0.3 per cent of GDP. The Nordic Interoperability Project is an initiative that aims to create a data strategy that will help in making the Nordic region sustainable and integrated. It aims to build the Nordic Data Lake for the secondary use of patient data, establish a Nordic Digital Medication Platform for quality assurance and accreditation of health apps, and support a Nordic Health Passport for citizens having data available at the point of care.



Regulation for innovation

Regulation for innovation: EU member states must introduce socially responsible and reliable legislative initiatives to boost digital health solutions development.

How? Digital sandboxes for start-ups and hospitals are needed, with one of the focuses being data donation for research purposes. European Health Data Space implementation as a key driver for EU healthcare should be prioritised.

Timeline: Ongoing activity. Until 2025, EU member states should actively participate in the process to keep the digital health transformation momentum.

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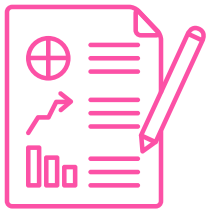
Case study: In 2019, Germany introduced the Digital Healthcare Act (Digitale-Versorgung-Gesetz, DVG), the "app on prescription" implementation. Individuals covered by German statutory health insurance are entitled to use digital health applications (DiGA – in German: "Digitale Gesundheitsanwendungen") prescribed by a doctor or psychotherapist and reimbursed by health insurance.



Access to data

Developing disruptive digital health solutions requires access to historical and real-world data to provide a testing environment for ML, DL, and AI technologies.

How? Partnerships with a focus on targeting digital health gaps in healthcare systems are needed. The development of digital solutions requires a responsible attitude towards GDPR aiming for innovation, to make each EU member state healthcare systems sustainable. Also, entrepreneurs cannot continue to introduce new digital products and services if regulators do not ensure proper and structured access to health data.

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Case study: Warsaw Health Innovation Hub is a public-private partnership launched in 2021 by EIT Health, Polish Medical Research Agency, and industrial partners (Roche, AstraZeneca, Polpharma, and Microsoft). It aims at supporting and implementing innovative solutions, targeting gaps in the Polish healthcare system in various areas, including health IT, biotechnology, and regulatory issues. The Hub is also a platform for multi-stakeholder dialogue about access and security of healthcare data.

METHODOLOGY

This paper is aimed at discussing the current state of development, prerequisites and perspectives on the future of digital health development.

In order to get valuable insights from stakeholders (qualitative research), Emerging Europe's researchers developed a survey to evaluate current developments, benefits and future directions of progress in the field of digital health in 12 countries.

They also performed almost a dozen in-depth interviews with key opinion leaders representing various health tech ecosystems across Europe's emerging regions, as defined in EIT Health's Regional Innovation Scheme – Czechia, Croatia, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Poland, Portugal, Romania, Slovakia and Slovenia.

SURVEY

The survey consisted of four questions, three of them being multiple-choice, and one rate type question (single answer):

How much, in your opinion, has the Covid-19 pandemic accelerated the pace of adoption of digital health in your country? (single answer 1-10)

What kind of digital health solutions have been implemented due to the Covid-19 pandemic in your country? (multiple choice)

- Applications to support prevention of diseases;
- Digital diagnostic tools;
- Digital solutions helping to organise administrative workflows like digitisation of medical records, appointment booking;
- Digital solutions supporting personalised medicine;
- Digital tools assisting clinical decision making;
- Health data analysis on policy level;
- Patient management solutions;
- Personal health management and wellness like self-symptom checkers;
- Virtual care and telemedicine solutions;
- Wearables, remote monitoring devices.

Which benefits do digital health solutions help achieve? (multiple choice)

- Clinicians will spend more time with patients;
- Facilitate automation of routine, repetitive and administrative tasks of HCPs (healthcare professionals);
- Improve access to health services in hard-to-reach areas;
- Increase cost efficiency;
- Make medicine more personalised for patients;
- More precise diagnosis / avoid medical errors;
- Reduce costs of care (cost of treatment / cost of health insurance);
- Reduce process inefficiencies in hospitals;
- Speed up disease diagnosis;
- Tackle challenges related to staff shortages.

Which factors can contribute to the faster development of digital health in your country? (multiple choice)

- Better standardisation or scaling of digital health solutions;
- Educating patients;
- Educating/upskilling healthcare professionals;
- Favourable regulatory environment for digital health solutions to be used in hospital environment;
- Improvement of the data security;
- Increasing trust of healthcare professionals and patients towards digital health novelties;
- Info sites/reference points for users (help to choose between digital health solutions or learn them along the patient pathway);
- National strategy and initiatives to boost new digital technologies establishing opportunities for start-ups to test solutions in hospitals;
- Natural rise in demand of online healthcare solutions, e.g., due the Covid-19 pandemic;
- Promotion of the digital health care (public and private initiatives).

A total of 335 responses were acquired during 27 events in 12 countries.

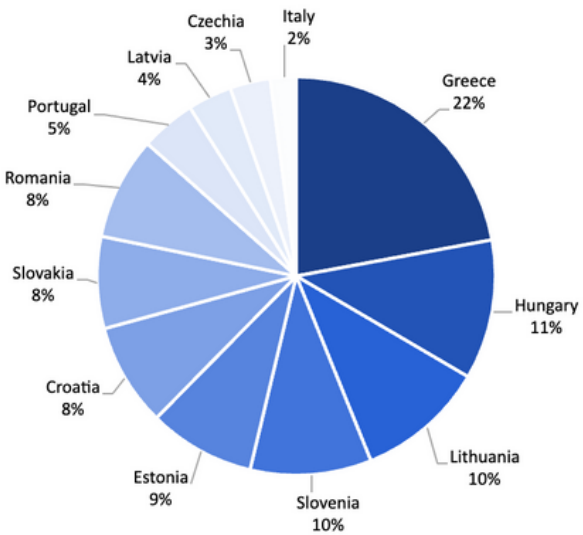
Answers to the first question are analysed for each location and as a whole. One respondent was able to pick one

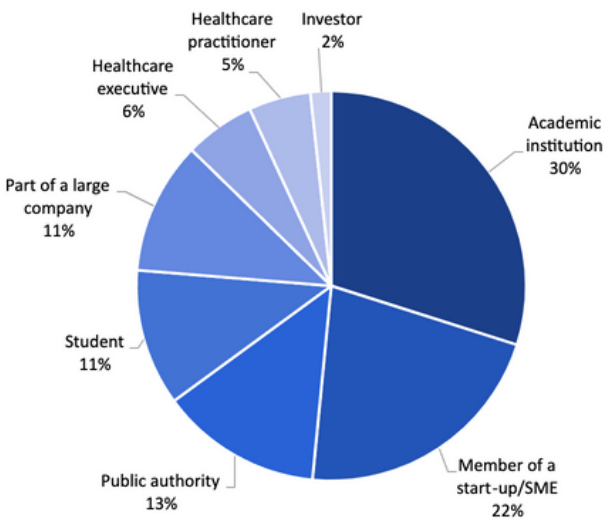
option to rate the parameter between 1 and 10. Answers to the second, third and fourth questions provide a full picture for all the locations. Respondents were able to pick up to four options, all of them had the same weight. The number of respondents who picked an option means the number of respondents who mentioned the option at least once. Respondents were not allowed to pick the same option twice.

RESPONDENT PROFILE

More than a half of the answers (53.7 per cent) were from respondents from Greece, Hungary, Lithuania and Slovenia, with Greece making up 22.1 per cent of the total number of responses.

292 of 335 respondents stated their professional affiliation. Three of 10 of those who stated their affiliation represent an academic institution, another 21.9 per cent are members of a start-up or SME. Healthcare executives and practitioners account for almost 11 per cent of the total number of respondents.





IN-DEPTH INTERVIEWS

The in-depth interviews focused on two main groups of questions:

- the direct impact of Covid-19 on the development of digital health solutions and technologies used (specific fields, short- and long-term results, stakeholders that were the most active in the digital health solution development process),
- the development of the local digital health ecosystem (role specific stakeholders play in the ecosystem, initiatives, programmes, opportunities and challenges)

INTERVIEWEES

Emerging Europe's analysts interviewed the following experts who represent various groups of stakeholders essential to the development of digital health solutions in Europe's emerging regions:

- Matej Adam, digital health strategy consultant at the National Health Information Centre in Slovakia, innovation and front-office digitisation expert at the Czech General Health Insurance Fund, an adviser to the Czech Ministry of Health
- Janko Burgar, CGO and strategic business advisor, president of the ScienceTech Management Board at the Chamber of Commerce and Industry in Slovenia
- Razvan Mircea Chereches, chair at the department of public health at Babes-Bolyai University in Cluj, Romania
- Hugo Alexandre Ferreira, associate professor, Faculty of Sciences, Lisbon University, and co-founder, neroes
- Jasna Karačić, patient ombudsman and health diplomacy expert in Croatia
- Kristaps Krafte, founder and CEO of Vigo Health in Latvia
- Jaanus Pikani, chairman at the life and health science meta-cluster ScanBalt, and a board member of the Tartu Biotechnology Park in Estonia
- Nina Šesto, director of digital health at the Magdalena Clinic for Cardiovascular Medicine and CEO of Megi, Croatia
- Bruno Siciliano, professor of Automatic Control at the University of Naples Federico II, director of the ICAROS Centre, and coordinator of the PRISMA Lab at the Department of Electrical Engineering and Information Technology
- Bartosz Wawrzynów, innovation broker and investment manager at FNP Venture

(One interviewee based in Hungary requested that their name is not revealed in the white paper due to his current affiliation.)

ADDITIONAL RESOURCES

This white paper is based on primary research; however, the Background chapter also includes existing data from other sources, such as the European Commission, the European Institute of Innovation and Technology, and Crunchbase.

ABOUT EIT HEALTH

EIT Health is Europe's largest public-private partnership operating in the field of innovative healthcare. It is also the world's largest community of innovators who create breakthrough solutions in the field of broadly understood health, healthy lifestyle, and active ageing.

EIT Health brings together over 150 leading education, research, and technology institutes, but also companies, hospitals, patients, and governmental organisations. They work together in the 'knowledge triangle', across borders and disciplines to address the biggest health challenges facing Europe.

Through this unique collaborative approach, EIT Health empowers a network of innovators to overcome barriers, challenge conventions and take action. Why? To put life-changing products and services into the hands of citizens, patients, and doctors.

World-class experts from business, research and education participate in each project to develop the most promising solutions in real, commercially viable conditions.

Thanks to EIT Health's co-financing, networking, matchmaking and mentoring, efficient partnerships are created to work on innovative projects that help in the better and faster diagnosis of diseases, treatment, and prevention. The pan-regional consortia are also working on the successful implementation of innovative solutions to the market.

In 2020 alone, EIT Health invested 7 million euros in nearly 500 start-ups, which have attracted a further 301 million euros and created 300 new jobs.

With the central office in Munich, EIT Health has a pan-EU representation through six regional Innovation Hubs, which operate as strong clusters of relevant actors collaborating as a thriving ecosystem in the EU.

EIT Health InnoStars focuses on more progressive regions where the overall pace of innovation is moderate, mainly in Central, Eastern and Southern Europe.

Through the outreach initiatives, such as the EIT Regional Innovation Scheme, these regions can benefit from innovation, education or acceleration projects as well as develop regional competitive advantages and innovation strategies.

Thanks to cross-disciplinary collaboration, the network can deliver real value in areas such as start-up creation and business development, empowering women in science, technology, engineering, and mathematics (STEM) or scouting for sustainable ideas within the New European Bauhaus initiative in regions such as the Western Balkans, the Baltics and Sicily.

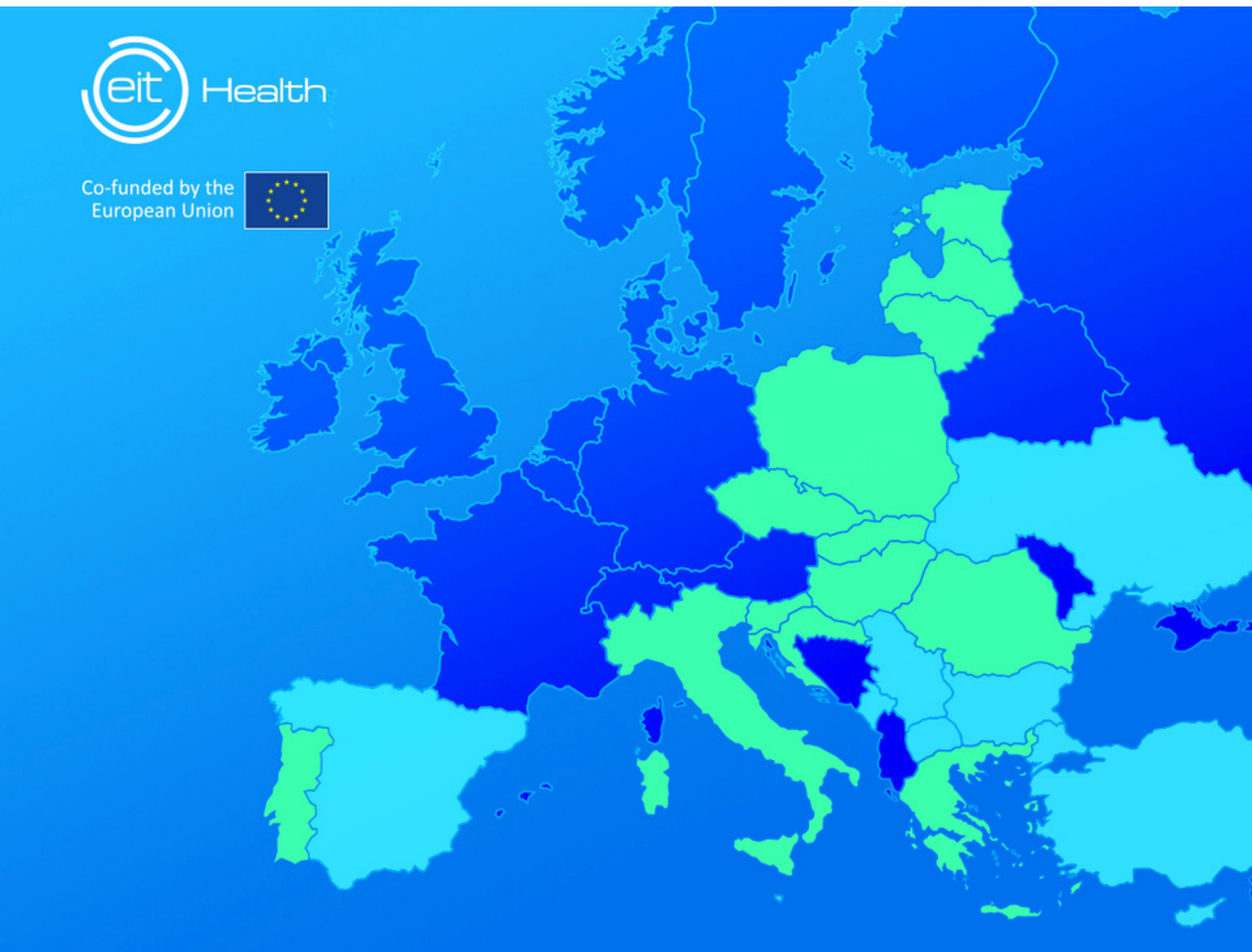
EIT Health contributes to the strategic orientations of the Horizon Europe Strategic Plan and the new EIT Strategic Agenda 2021-2027. With the focus on innovation cohesion and creating a single European innovation bloodstream, the EIT Community contributes to the recovery of Europe's economy and society.

ABOUT EIT RIS

European nations have varied innovation performance. Countries are therefore classified into two groups: innovation leaders/strong innovators versus moderate/modest innovators, according to the European Innovation Scoreboard.

To close the gap between regions that are leaders in innovation and those which are still progressing, EIT introduced its Regional Innovation Scheme (EIT RIS). Countries eligible for the EIT RIS are EU member states: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Greece, Hungary, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Horizon Europe Associated Countries: Montenegro, Republic of North Macedonia, Serbia, Turkey, Ukraine, and Outermost Regions: Guadeloupe, French Guiana, Réunion, Martinique, Mayotte and Saint-Martin (France), the Azores and Madeira (Portugal), and the Canary Islands (Spain).

Through the EIT RIS, Innovation Communities disseminate the knowledge emerging from their broad networks of partners, as well as promote broader participation in their activities across Europe.



EIT Health Hubs

CROATIA

Centre for Research, Development and Technology Transfer of University of Zagreb

The Centre helps research groups and partners from the business sector to establish cooperation in technology development and commercialisation of intellectual property originating from the university's research groups. CRDTT also supports researchers and students in starting knowledge- and technology-based businesses.

EITHealthHub@unizg.hr

CZECHIA

DEX Innovation Centre

DEX was founded in August 2012 as a non-profit organisation in Liberec, Czechia, based on many years research and innovation work under the brand of the Czech DEX company. DEX Innovation Centre´s mission remains "to improve society by ICT related innovation and research". DEX focuses on scouting and supporting the most promising innovation solutions from the region.

eithealth@dex-ic.com

ESTONIA

Tartu Biotechnology Park

The Park provides physical infrastructure as well as business development and consultancy services to companies and R&D institutions in the fields of biotechnology, medicine and veterinary medicine. It engages in active cooperation with Estonian and foreign biotechnology companies, research and development institutions, foundations for the development of entrepreneurship and biotechnology.

eithealth@biopark.ee

GREECE

National Documentation Centre EKT

The Centre is a public organisation that promotes knowledge, research, innovation and digital transformation. EKT participates in development and research projects, European and national, which are related to innovation as a practice, as a policy, and as a procedure. Especially, its participation in international and well-known networks is a central objective of EKT, enabling it to offer high quality services in the domestic scientific, technological and business community.

eithealth@ekt.gr

HUNGARY

Institute of Transdisciplinary Discoveries

Through the process of transdisciplinarity, the institute connects actors from different disciplines, economics and civil society with new methodological approaches and the development of effective communication. The main pillars of the institute's activities are education, research, innovation, science communication and networking.

itd.eithealth@pte.hu

ITALY

Consorzio Arca

ARCA is a consortium for the application of research and the creation of innovative enterprises, which has exploited a partnership between the University of Palermo and University Consortium of Agrigento, Trapani and Caltanissetta. In 2005 the Consortium started up the ARCA Incubator to promote and assist the generation of innovative business initiatives.

eithealth@consorzioarca.it

LATVIA

Riga Stradins University

One of the leading and most advanced higher education teaching institutions in the Baltic region. RSU has been (and is) involved in a number of projects in the area of healthcare supported by the European funds including Horizon 2020, FP7, INTERREG, ERDF, ESF, EK COS.

eithealth@rsu.lv

LITHUANIA

Lithuanian Health Sciences University

The largest institution of higher education for biomedical sciences in Lithuania, successfully integrating studies, research and clinical practice. The LSMU has the capability and experience to carry out pre and clinical trials from molecular through to clinical stages in the areas of cardiology, neuroscience, dermatology and others.

eithealth@lsmu.lt

PORTUGAL

University of Evora

A centre for the creation, transmission and diffusion of culture, science and technology, which, through the articulation of study, teaching and research, is integrated into the life of society. It creates conditions conducive to the development of an innovation ecosystem linked to stakeholders to foster regional development.

eit@uevora.pt

PORTUGAL

University of Porto

Founded in 1911, the University is a benchmark institution for higher education and scientific research in Portugal. Over the last decade, U.Porto has been focusing on the creation of skills, infrastructure and services capable of boosting the entrepreneurial potential of the local community.

eithealthporto@reit.up.pt

ROMANIA

FreshBlood

A non-governmental organisation that supports health innovation by connecting innovators to things that they need, providing feedback and mentoring. FreshBlood Health Tech is focused on improving healthcare through technology.

eithealthhub@freshblood.ro

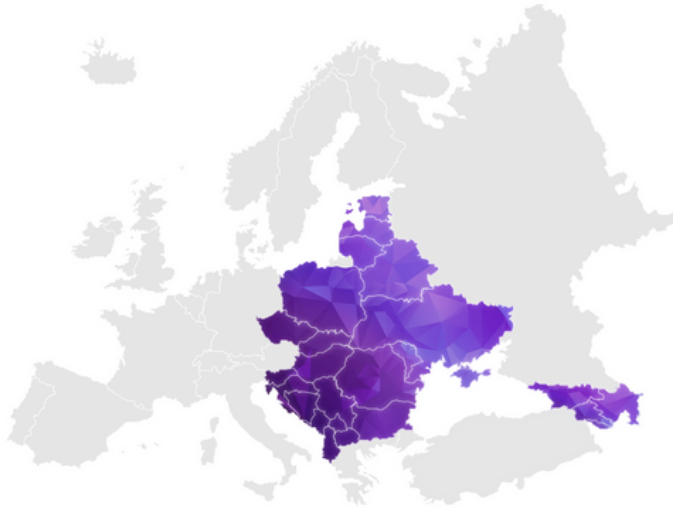
SLOVENIA

Ljubljana University Incubator

Offers comprehensive support to start-up companies from the local ecosystem to win international recognition that will serve as the best starting point for new companies to enter global markets. The LUI mentorship network comprises representatives of renowned and successful Slovenian companies. By the end of 2016, LUI had supported 138 start-up companies.

eithealth@lui.uni-lj.si

ABOUT EMERGING EUROPE



Emerging Europe is a privately owned, London-based growth hub that empowers public and private organisations to grow and expand internationally.

With a team based across the UK and Europe, we are a go-to partner for various establishments looking to navigate emerging Europe or grow in the region.

Our news and analysis site, Emerging Europe, is the world's most prominent source of English-language business information about the region reaching 2.5 million unique readers each year, mostly in the US, UK, Germany, Poland and Romania.

The site has over 900 political leaders and renowned experts as contributors and is regularly quoted by key opinion leaders on a global scale, such as the Guardian, Le Monde, Bloomberg, Politico, the World Bank, and the United Nations. Through content partnerships, we strengthen our clients' thought leadership, brand recognition and online presence.

Emerging Europe runs bespoke capacity-building training and workshops to strengthen the communications, media relations and business development skills of start-ups, scale-ups and more mature companies, empowering them and giving them tools to succeed. Here, we have worked with organisations such as the World Bank, USAID and the European Institute of Innovation and Technology.

Our programmes and communities focus on sustainability, innovation, and entrepreneurship — as we see these as the drivers of the growth we want to promote in the emerging Europe region. They also serve as a vehicle to support our clients with relationship building and lead generation, enabling the creation of high-profile connections across Europe and beyond.

The Future of Emerging Europe concentrates on sustainability and includes an awards programme which in 2021 received over 8,000 votes. It is hosted in Brussels. Previous laureates include Kristalina Georgieva, heads of governments, artists and academics.

The Tech Emerging Europe Advocates community, part of a global network of 25,000+ tech leaders created by the co-founder of London Tech Week, elevates the profile of the emerging Europe region as the world's preferred technology partner.

Emerging Europe's reports, white papers, surveys, analyses — and bespoke, client-specific market intelligence — help organisations thrive by providing them with valuable data, access to key stakeholders and insight to make the right business decisions. The publications released to the public are consulted by over 20,000 professionals every year.

Amongst our reports are the Future of IT in Emerging Europe, which became an essential guide for technology investors with an interest or stake in emerging Europe, mapping out all its 23 countries and benchmarking every single country using the same metrics.

The Investment Promotion Report assesses how well investment promotion agencies across 23 countries promote their markets and serve investors and has become a reference for IPA performance and benchmarking; whilst the Business-Friendly City Perception Index and Report, based on a survey carried out amongst 100+ site selection experts and FDI advisors around the globe, show which cities are on the radar of the investment community.