2024

JOINT ACTION PLAN

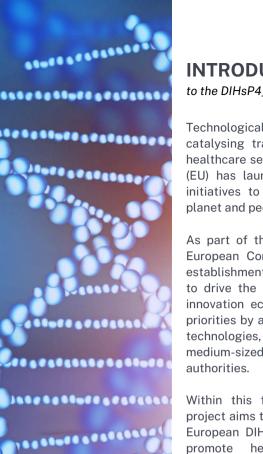*DIHsP4 Medicine*

Digital Inovation Hubs
P4 Medicine

CONTENTS

INTRODUCTION

to the DIHsP4_Medicine project

Technological and digital advancements are catalysing transformative changes across the healthcare sector, for which the European Union (EU) has launched a series of strategies and initiatives to lead the transition to a healthy planet and people in a new digital world.

As part of the Digital Europe programme, the European Commission (EC) has promoted the establishment of Digital Innovation Hubs (DIHs) to drive the digital transformation of regional innovation ecosystems specialised in thematic priorities by accelerating the adoption of digital technologies, especially among small and medium-sized enterprises (SMEs) and public authorities.

Within this framework, the DIHsP4_Medicine project aims to foster the collaboration between European DIHs specialised in digital health to promote healthcare innovation and the integration of disruptive digital technologies in key healthcare areas for pursuing a change of paradigm in healthcare towards a P4 Medicine: predictive, preventive, personalised and participatory healthcare processes.

The project consortium consists of four European entities that coordinate EDIHs:

Universidad Autónoma de Madrid (Spain) coordinating DIH·bio

Technology Park Ljubljana (Slovenia) coordinating Healthwise DIH

Transilvania IT Cluster (Romania) coordinating The European DIH in Transilvania

Minalogic (France) coordinating Minasmart

The consortium partners are from regions that include health as a priority in their S3 strategies and have different levels of innovation performance, according to the Regional Innovation Scoreboard. In this way, collaboration can help bridge the innovation divide and strengthen innovation ecosystems across the EU, and thus, create a more balanced and inclusive landscape, which is fully aligned with the European Innovation Ecosystems project's top priorities.

SCOPE OF DIHSP4_MEDICINE PROJECT

DIHsP4_Medicine has provided an opportunity to establish collaboration between European innovation ecosystems focused on digital health and led by EDIHs. By leveraging the key role of EDIHs as leaders in innovation ecosystems and connectors of stakeholders from the Quadruple Helix, the project underlines the importance of having a multidisciplinary approach to ensure a responsible and efficient implementation of digital technologies intro healthcare services and processes, which can contribute to a smoother transition towards innovative, resilient and sustainable digital health systems across the EU. sustainable digital transition in the EU territory.

The project implementation has provided first-hand knowledge and valuable insights into the challenges and needs of stakeholders — especially SMEs and start-ups — in different European regions. We have identified technology gaps and areas where additional support and resources are needed to foster innovation and growth in digital P4 medicine-based healthcare. We achieved this with actions such as internal dialogue with stakeholders from the Quadruple Helix of innovation, Study Visits to the regional ecosystems, expert roundtables, Task Forces and capacity and needs questionnaires, the project's Interregional Seminar and other relevant events (Phase 1). These findings, results and conclusions have led to the development of the Joint Action Plan (JAP) and the Sustainability Plan for the implementation of this JAP (Phase 2).

DIHsP4_Medicine Project

PHASE 1: Dialogue among stakeholders → Task Forces → Study Visits → Interregional Seminar

PHASE 2: Elaboration of JAP ↔ Sustainability Plan ↔ Validation of JAP

DIHSP4_MEDICINE FINAL OUTCOME: JOINT ACTION PLAN

The Joint Action Plan aims to promote effective digital health initiatives, focusing on interconnected innovation ecosystems and stakeholder participation. The development of this JAP aims to identify strategic lines of work and define specific actions that can improve healthcare delivery and patient outcomes by promoting digital health and the shift towards a more preventive, predictive, personalised and participatory approach to medicine.

To this end, the JAP comprises three main **Strategic Lines (SL)** based on the EU health priorities and a common set of priorities, challenges and needs of health stakeholders identified during the initial research and dialogue phase of the DIHsP4_Medicine project.

Within each strategic line, two **Flagship Initiatives (FI)** are designed for future implementation. They provide a practical roadmap and guidance for implementation by the consortium, other DIHs and other innovation ecosystems willing to implement.

SL 1 – Fostering Collaboration between Digital Health Ecosystems

SL 2- Access to Health Data

SL 3 – Navigating Trust, Digital Health Literacy & Co-creation

SL1. Fostering Collaboration between Digital Health Ecosystems

FI 1. Building a Network of DIHs for P4 Medicine

FI 2. European Catalogue of the DIHs' flagship services for Digital Health

SL 2. Access to Health Data

FI 3. Interconnected DIHs that act as a regional contact point to give support on the EHDS

FI 4. EDIHs for Health Data literacy: Education & Training

SL 3. Navigating Trust, Digital Health literacy & Co-creation

FI 5. Building on Trust and Digital Health Literacy

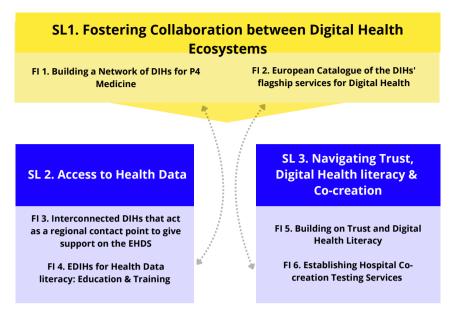**FI 6. Establishing Hospital Co-creation Testing Services**

Diagram showing how the Strategic Lines & Flagship Initiatives relate to each other

A validated JAP will be the final outcome of the DIHsP4_Medicine project, providing guidance to stakeholders involved in the design, management and financing of regional ecosystems.

Together with the JAP, a **Sustainability Plan** has been developed as a cooperation framework (for the 5 years after the project (2021-2027)), identifying potential funding sources, including regional, national public funds as well as EU funds, to implement the planned activities and to promote sustainable cooperation of the interlinked innovation ecosystems beyond the 5 years.

ELABORATION OF THE JAP

Selection of Strategic Lines & Flagship Initiatives

Mechanisms to make operational the JAP

SUSTAINABILITY PLAN

Funding and resources for the implementation of the JAP

VALIDATION OF THE JAP

Quadruple Helix Stakeholders

Public Authorities

SL 1. Fostering Collaboration between Digital Health Ecosystems

JOINT ACTION PLAN

FI 1. Building a Network of DIHs for P4 Medicine

FI 2. European Catalogue of DIHs' flagship services for Digital Health

STRATEGIC LINE 1: FOSTERING COLLABORATION BETWEEN DIGITAL HEALTH ECOSYSTEMS

This strategic line focuses on strengthening networking and ecosystem building as key to driving transformative changes in the healthcare sector. The EC's goal is to create interconnected, efficient, and inclusive European innovation ecosystems, particularly in health, to address the innovation divide and boost growth. A pan-European network of healthcare ecosystems is crucial for adopting and integrating digital technologies in healthcare services, requiring a collaborative approach across academia, industry, policy makers, and civil society.

Networking facilitates collaboration and partnerships across various healthcare stakeholders, enabling the identification of investment opportunities, compliance with regulations, and patient-centered development of digital health solutions. The digital healthcare revolution, driven by technologies like AI, Big Data, telemedicine, and IoT, demands a collaborative ecosystem for successful integration and adoption.

Collaboration is essential for interdisciplinary expertise, research and innovation, education training, data integration, validation and standardization, and addressing challenges like cost-effectiveness, ethical considerations, and real-world implementation.

EDIHs play a significant role in fostering regional and European-wide collaborations, supporting digital transformation, and facilitating partnerships. Initiatives like the Enterprise Europe Network (EEN) and projects like BOWI and EUHubs4Data illustrate successful collaboration models, providing services, infrastructure, and training to enhance innovation and economic benefits.

Multidisciplinary Innovation Ecosystems

Support to SMEs

Healthcare professionals & Patient Empowerment

DIHs in Digital Healthcare

Training & Capacity Building

Innovation Delivery & Technology Adoption

Knowledge Exchange & Transfer

To promote better, safer, and more innovative healthcare solutions through digital transformation, driving innovation and delivering significant economic and technological benefits to the sector, two flagship initiatives are proposed:

FLAGSHIP INITIATIVE 1. Building a Network of DIHs for P4 Medicine

Goal

To establish a cross-national network of EDIHs and DIHs speciliased on digital health and with a common mission to foster the change of paradigm towards a P4 Medicine-based healthcare across the EU territory, making healthcare more predictive, preventive, participatory and personalised using digital technologies.

► Action 1. Creation, Consolidation and Extension of the DIHsP4_Medicine

Network that will allow stakeholders to benefit from shared knowledge and resources from different European innovation ecosystems.

- **Creation:** Formation of a core group of funding members, development of a governance structure and establishing communication channels for information exchange.
- **Consolidation:** creation of collaborative working groups, building partnership and capacity to facilitate access to opportunities and strategic objectives to the members.
- **Extension:** outreach and recruitment of new members, ensuring member engagement and continuously adapting to their needs by assessing network effectiveness, making adjustments to enhance impact and sustainability of the network.

Action 2. Ecosystem Building and Collaborative Actions in a sustainable environment that can leverage the outcome and impact of stakeholder's innovations, resource sharing and access to new markets.

- **Study visits** aimed to address opportunities and barriers in health innovation ecosystems by facilitating meetings between representatives of DIHs and EDIHs from different regions. These visits help to identify strategic directions for national and cross-border collaborations, map unique selling propositions, and deepen understanding the idiosyncrasy of healthcare ecosystems across Europe. They include stakeholder roundtables, guided tours to facilities and services, hands-on experiences and networking sessions among stakeholders from the Quadruple Helix of Innovation.

- **Innovation camps** to foster collaboration among stakeholders and accelerate problem-solving within innovation ecosystems. It will consist on annual edition of 2-3 days for participants to develop roadmaps to address challenges from different perspectives, transforming them into opportunities for practical implementation

- **Cross-national Network & International Collaboration** led by EDIHs to build partnerships at regional and global level, facilitating the co-creation, exchange of knowledge, best practices and, research and development solutions to global healthcare challenges. These include issues such as the varying levels of digitalization across Member States, the barriers faced by startups and SMEs to accessing visibility and resources at an international level, and the various hurdles faced by entrepreneurs in catalysing technology and knowledge transfer to the healthcare industry.

Action 3. Entrepreneurship & Market Access in digital health and P4 Medicine: Provide comprehensive support to digital health startups for entrepreneurship, market access, regulatory navigation, funding, and internationalization.

- **Regional and national level:** entrepreneurship and market access training provided by DIHs members such as universities, research centers and technology parks covering incubation & scale-up, regulatory guidance for healthcare compliance, market intelligence, access to resources and test before invest, funding and investor connections, multidisciplinary ecosystem creation and digital literacy promotion.
- **International level**: through the DIHsP4_Medicine network, EDIHs can create a cross-country framework to support the international scalability and consolidation of early-stage startups by fostering the connection to a international network of investors, venture capitals, business angels and other stakeholders from different regions. Demodays, pitchdays and dedicated networking sessions for startups and less developed SMEs, tailored by EDIHs, can facilitate the flow of investment and resources and bridge the innovation and financial gaps between regions and companies.

Action 4. Participation in Thematic Working Groups with EDIHs from different European regions with common interests, specialisation and willingness to collaborate on a specific industry or technology related topic proposed by the DTA.

- **Raise awareness and engage EDIHs stakeholders** in the activities of Working Groups of interest (e.g. Digital Health Working Group). This can foster collaboration and knowledge sharing to develop strategies to support digital transformation in the EU.
- Share expertise, best practices and case studies and promote dialogue through meetings, workshops and webinars.
- Establish **sub-thematic groups** within the Digital Health Working Group to address specific challenges such as the ageing population, cancer, diagnosis and treatment, sustainable and green healthcare or infectious diseases.

Action 5. Facilitating Funding Opportunities to assist beneficiaries in accessing funding opportunities for innovative health solutions and their future projects.

This includes advising entities on grants and investment, raising awareness about funding opportunities for innovative health solutions and research applications of health data:

- Leverage multiple communication channels to share information about **funding opportunities** such as Horizon Europe for Digital Health.
- Help stakeholders to access financial support and take advantage of funding opportunities for health data innovation.
- Support the development of projects and proposals in line with EU health priorities.

BENEFICIARIES

- **Academia** as a hub for technology transfer, collaborative research and educational programmes to improve digital literacy.
- **Healthcare Industry** players in the pharmaceutical, medical technology and biotechnology are supported by EDIHs to innovate and adopt digital technologies.
- **Government** policy makers, other public bodies at regional, national and EU levels benefit from EDIHs that can influence the delivery of health services.
- **Civil society,** including patient advocacy groups and NGOs work with EDIH networks to address societal challenges and raise public awareness.

COLLABORATORS

- **DIHs and EDIHs** via EDIH Network and DTA
- **European networks:** EEN, EIT Health, ECHAlliance

Goal

To establish a comprehensive trans-national catalogue with flagship services provided by DIHs to support healthcare SMEs and startups as well as public administrations in navigating digital challenges in healthcare of 1) international collaboration among DIHs providing services, 2) specific specialization and complementarity among EDIHs competences and 3) data-driven approach to support the P4 Medicine paradigm.

▶ **Action 1. Designing of a User Centric Platform and Mobilising Resources:** to deliver cross-border services offered by EDIHs for clients working in the field of healthcare. To this end, the identification of possible. The approach involves identifying providers and presenting the concept through one-on-one meeting, participation in relevant events to find collaborators and securing funding for the platform development.

▶ **Action 2. Platform development:** Create a functional and accessible platform for EDIHs and clients, categorising services under pillars such as 1) Networking and Ecosystem Building, 2) Test Before Investing, 3) Training and Skills, and 4) Support to Find Investment. Clients of EDIHs will personalise their journey by selecting relevant services from different regions based on their needs and stage of development with the support of DIHs.

▶ **Action 3. Launching the Platform and Attracting Providers:** ensure a robust service offer from EDIHs by collaborating closely with the DTA and the EDIH Network's thematic group on digital health.

▶ **Action 4. Promotion of the Platform to End Users:** Engage clients by promoting the platform and demonstrating the benefits of accessing services through it, with dedicated budgets for awareness-raising activities.
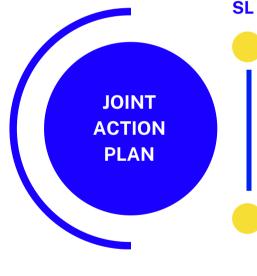

BENEFICIARIES

- **Providers:** EDIHs that will list their key services in the catalogue to attract external customers and generate revenue.
- **Clients:**
  1) those who need help in developing digital health solutions
  2) those looking to integrate new solutions into their activities.

COLLABORATORS

- **DIHs and EDIHs** via EDIH Network and DTA
- **European networks:** EEN, EIT Health, ECHAlliance

JOINT ACTION PLAN

SL 2. Access to Health Data

FI 3. Interconnected EDIHs acting as regional contact points to provide support for the EHDS

FI 4. EDIHs for Health Data literacy: Education & Training

STRATEGIC LINE 2: ACCESS TO HEALTH DATA

The digital transformation of healthcare requires attention to fundamental aspects of health data management, including governance, interoperability and regulation. Despite the abundance of health data generated globally, much of it remains unused, representing a missed opportunity to improve healthcare processes. Timely access to high-quality health data is critical for proactive healthcare, enabling prediction, prevention and personalisation. Advanced technologies such as AI are reshaping healthcare, with an emphasis on early detection and precision medicine.

However, ensuring accessibility, security and fairness in the management of health data is a major challenge. The European Commission's European Health Data Space proposal aims to address these challenges by promoting a common framework for the exchange of health data across Europe. The EHDS aims to facilitate seamless access to health data for patients and healthcare professionals, while ensuring interoperability and security.

Implementing the EHDS requires overcoming regulatory, infrastructural and educational challenges. While some countries, such as Finland, Estonia and Denmark, are leading the way in digitisation, others face hurdles due to differences in administrative systems and policy approaches. Despite these challenges, all EU Member States show interest in and support for the EHDS, signalling a collective effort to prepare for the future of healthcare.

Goal

This flagship initiative underlines the key role of EDIHS as regional facilitators to tailor EHDS implementation strategies and foster collaboration for improved data accessibility. This collaborative efforts aim to address regional needs and support stakeholders across the quadruple helix of innovation, especially SMEs and startups, to access EHDS opportunities and leverage the use of data for innovative solutions that advance health systems.
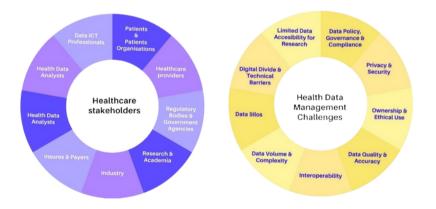
Action 1. EHDS Awareness Building: EDIHs have the capacity to act as a channel to inform and advise regional stakeholders on the EHDS and to embrace the linguistic and regional diversity across the EU, ensuring inclusivity and accessibility to all stakeholders from European innovation ecosystems. How:

- **Awareness & communication campaigns** to disseminate EHDS-related information and potential benefits for improving healthcare outcomes, research advancement and personalised healthcare to healthcare professionals, patient and citizens, researchers, technology developers and policymakers.
- Establish **online platforms and portals with FAQ sections** and help desks as primary sources of EHDS-related information, opportunities and resources, with the aim of providing personalised assistance to stakeholders seeking more information on EHDS.
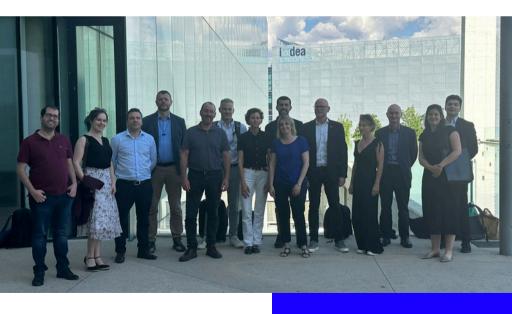
Action 2. Stakeholder engagement, partnership and collaboration on the EHDS facilitated by EDIHs. As regional focal points, EDIHs can gather valuable feedback and foster collaborative initiatives between key stakeholders from academia, industry, government and civil society within regional innovation ecosystems. How:

- **Personalised roadmap development offered by EDIHs** to enable stakeholders to assess their readiness and compliance with the necessary regulations and technological aspects of health data integration. This includes one-to-one diagnostic sessions to provide tailored guidance on accessing the EHDS and national EHRs, interactive workshops for active participation and scenario-based analysis, and comprehensive diagnoses of challenges and strengths in navigating the EHDS and national EHRs landscape across the EU.
- **Multistakeholder and multidisciplinary partnership** to build a diverse and resilient innovation ecosystem for the deployment of advanced solutions for EU citizens to fully benefit from the innovation potential of health data. Actions will include supporting stakeholders in partnering, organising community events on EHDS initiatives, creating an inclusive environment for sharing experiences and best practices, and promoting dialogue between stakeholders of the quadruple helix in the context of the EHDS.

Action 3. Needs Assessment to understand the challenges, infrastructure and requirements at regional, national and European levels in order to tailor EHDS implementation strategies to regional innovation ecosystems.

- Mapping of existing health data spaces, EHRs and EHDS infrastructure across Member States and relevant regional, national and European related initiatives.
- Supporting the creation of **working groups** with startups, SMEs, research centers and R&D institutions focused on the **secondary use of data**, and promoting interoperability standards through the use of national EHDS infrastructure and Test Before Invest-like services.
- Providing **access to EHDS-related pilot projects** within the region or country, engaging participants and providing strategic guidance on application processes to effectively navigate opportunities effectively.
- **Collaborating and partnering with regulatory bodies and advocacy groups** to support SMEs and startups in complying with EDHS regulatory frameworks and standards.

BENEFICIARIES

- **Startups and SMEs** on the secondary use of health data to support their growth and contribution with innovative solutions in health data management, interoperability and analytics.
- **Research centres** on the secondary use of health data to enable them to use data for impactful discoveries, advances in medical knowledge and outcomes.
- **Patients and hospitals** in understanding and participating in the primary use of health data and fulfilling the patient-centred approach of P4 Medicine.

COLLABORATORS

- Organisations and projects that have played a pivotal role in promoting knowledge sharing and capacity building to facilitate a fully operational EHDS: EIT Health, Data Spaces Support Centre, TEHDAS, Healthdata@EU, EDAH project.
- Institutions of countries that lead the way in the use of electronic health data records, such as Findata in Finland, the Danish Health Data Authority in Denmark or e-Health Record in Estonia.
- DIHs and EDIHs focused on digital health and /or data spaces from European innovation ecosystems.

FLAGSHIP INITIATIVE 4. EDIHs for Health Data literacy: Education & Training

Goal

This flagship initiative aims to provide training in health data literacy, covering data collection, management, technology and security protocols. The aim is to provide SMEs, EDIH staff, healthcare professionals and regulators with the essential information, learning resources and tools to address the challenges and requirements, and promote the development of state-of-the-art digital health solutions.

Action 1. Curriculum Development for health data literacy to:

Determine critical areas of focus for training, including health data acquisition, management, project conceptualization, technology and standardization for health data spaces, data governance and security protocols.

- Establish **partnership between EDIHs and national health data regulatory bodies** to ensure alignment with the latest EU and regional regulatory frameworks for health data management and protection

Action 2. Design of specific training content and materials such as interactive workshops, lectures, case studies and real-world walkthrough to ensure successful health data project

- **SMEs-focused** materials on practical aspects of health data projects, covering project conceptualisation, technology implementation, and regulatory navigation, emphasizing data integration, user-centered design, and market-driven strategies.
- **Regulators-focused** content covering health data management specifics, GDPR compliance and oversight mechanisms, featuring case studies showcasing regulation impact on health data projects and regulatory best practices.
- **Tailored materials for healthcare institutions** that highlight successful implementations of improved patient care and operational efficiency that can help address healthcare institutions challenges and needs such as security, interoperability standards and the use of health data to improve patient outcomes.

► **Action 3. Training for EDIH staff** to explore best practices for communicating complex health data concepts in a way that is accessible and relevant to SMEs.

- Partner and learn from institutions with successful **data sandboxes** with robust and secure health data management systems (i.e. Findata).

► **Action 4. Pilot a training program for Health Data** for SMEs with different competences in the healthcare sectors.

- Customised modules specifically tailored to the challenges and needs of these SMEs.
- Feedback collection via surveys and interviews to gain comprehensive insights of the efficiency and effectiveness of EDIH's training work.
- Assess the impact of the training to understand how well the training is aligned with the real-world challenges and operational needs of SMEs.

BENEFICIARIES

- **SMEs** to learn about health data projects, including acquisition, management, and regulatory compliance for digital health solutions.
- **EDIH staff and members** to improve their support to SMEs and healthcare professionals in accessing and using health data.
- **Regulators and Policy Makers** to learn about health data management and compliance practices to help them monitor and guide the integration of digital health technologies within regulatory frameworks.
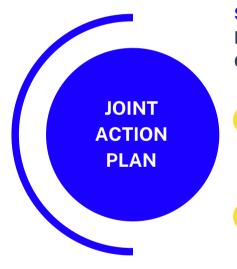
COLLABORATORS

- **Healthcare institutions and professionals** who will provide practical insights.
- **Academic and research institutions,** who will offer cutting-edge knowledge; technology and data experts, who will contribute essential technical expertise.
- **Regulators and policy makers,** who will ensure compliance with relevant health data regulations.
- **Industry associations and networks.**

JOINT ACTION PLAN

SL 3. Navigating Trust, Digital Health Literacy & Co-creation

FI 5. Building on Trust and Digital Health Literacy

FI 2. Establishing Hospital Co-creation Testing Services

STRATEGIC LINE 3: NAVIGATING TRUST, DIGITAL HEALTH LITERACY & CO-CREATION

In the evolving healthcare ecosystem, trust is pivotal for collaboration and innovation, particularly in digital health advancements like telemedicine and AI diagnostics. Stakeholders must trust not only the technology but also the entities behind it, fostering open communication and shared visions. Challenges to building trust include privacy concerns, regulatory hurdles, resistance to change, and a lack of understanding of new technologies.

To address these challenges, efforts must focus on transparency, education, and collaborative ethics. The transformative P4 approach to medicine emphasizes the need for trust in technology's efficacy and ethical use.

EDIHs play a central role in adopting modern health practices, facilitating data exchange, and supporting innovation through collaborative workshops, mentoring, and knowledge-sharing initiatives.

FLAGSHIP INITIATIVE 5. Building on Trust and Digital Health Literacy

Goal

To increase trust and digital health literacy through collaboration among healthcare institutions, professionals, and the digital innovation community. By encouraging the active participation of healthcare organisations, this flagship initiative aims to foster a digital health ecosystem based on mutual trust and shared goals. This includes prioritising digital health literacy and addressing challenges such as privacy, security, and regulatory compliance to create a trusted digital healthcare environment.

Action 1: Establish Collaboration between Innovation Agents and Healthcare Institutions and Patients: to transform them into active contributors rather than passive participants in the digital innovation process.

- Incorporate patient perspective by forging **partnerships with patient advocacy groups**, ensuring that digital health innovations are developed with a comprehensive understanding of patient needs and preferences, leading to more relevant and user-centered solutions.
- **Design programs where healthcare institutions are integrated into the innovation process** through joint research projects, pilot testing of new technologies in healthcare setting, and co-development initiatives.

Action 2: Creation of a Neutral Platform led by EDIHs for Sharing Communication Materials: led by EDIHs to include a series of success stories, case studies and best practices in digital health, emphasizing educational value and adherence to privacy and ethical standards to build trust within the digital health ecosystem.

Action 3: Facilitate Knowledge Exchange Programs: Training sessions and workshops focused on **digital health literacy for healthcare professionals** to learn about digital innovations and for industry representatives to comprehend healthcare challenges. These interactive sessions will incorporate case studies, hands-on demonstrations and simulations to offer practical insights into integrating digital innovations into healthcare. Forums to facilitate open dialogue and exchange of perspectives among stakeholders including clinicians, nurses, IT professionals, data scientists, and representatives from various-sized companies in the digital health sector. These forums will feature thematic discussion rounds focused on specific challenges and topic.

BENEFICIARIES

- **Healthcare professionals:** gain digital health literacy and innovative tools for patient care.
- **Patients:** benefit from improved healthcare outcomes and experiences due to advanced digital health practices.

COLLABORATORS

- Medical accreditation bodies
- National Institutes of Public Health or similar
- Healthcare professional organizations
- Technology developers and industry partners
- Regulators

FLAGSHIP INITIATIVE 6. Establishing Hospital Co-creation Testing Services

Goal

To develop co-creation testing services in hospitals to encourage innovation and collaboration between healthcare professionals and digital health SMEs. This flagship initiative aims to ensure that SMEs meet real healthcare needs and are seamlessly integrated into clinical workflows. Using living labs, the initiative promotes a dynamic collaboration model that puts healthcare professionals at the centre of the innovation process.

Action 1: Partnership Creation with Hospitals and Healthcare Professionals: to integrate them into the digital innovation process, emphasizing joint research and development efforts:

- Partnerships established with different healthcare professionals' groups including associations, medical faculties, primary care institutions and clinicians.

- EDIHs will organize information event, participate in medical conferences and work hand-in-hand with healthcare professioansl to introduce the concept of co-creating testing services.

Action 2: Development of the Co-creation Framework to establish an inclusive collaboration model that allows healthcare professionals to contribute actively to pilot projects, ensuring their expertise and insights inform the innovation process:

- Outline the roles, processes, and engagement strategies for all participants with detailed guidelines on how healthcare professionals can input their insights, feedback, and expertise throughout the innovation lifecycle.

Action 3: Resource Allocation and Support: including financial, technical, and data management support, for pilot projects while ensuring compliance with data protection regulations:

- Tailored training to **strengthen the skills of healthcare workers and SMEs** to ensure they are well-equipped to participate in co-creation projects covering a range of topics, from data management and privacy laws to the latest advances in digital health technology

Action 5: Dissemination and Scaling of Innovation: Share successful projects and innovations through the EDIH network, highlighting the effectiveness of the co-creation framework and exploring avenues for broader implementation.

Action 4: Development of an Evaluation and Monitoring Program: Implement a feedback mechanism to gather and analyze input from healthcare professionals throughout the pilot projects, assessing the usability and impact of the innovations:

- **Establish advisory boards or committees**, composed of a diverse group of healthcare professionals from various disciplines within the hospital. These boards will play a crucial role in guiding the co-creation initiatives, ensuring that the projects align with clinical needs and patient care standards within regular meetings to review project proposals, monitor progress, and provide strategic advice.

BENEFICIARIES

- **Start-ups and SMEs** in the digital health field will gain invaluable insights, feedback, and validation, enhancing their solutions' effectiveness and market readiness.
- **Healthcare professionals & institutions** will benefit from direct involvement in shaping digital health innovations, leading to improved patient care and outcomes.

COLLABORATORS

- **Healthcare institutions**
- **Living Lab** structures associated with universities enabling a comprehensive and effective partnership network for innovation in healthcare.

EXPECTED IMPACT: WAYS TO MEASURE THE IMPACT

The six Flagship Initiatives and actions outlined in the JAP are expected to strengthen the interconnection between European Innovation Ecosystems and transform the digital healthcare sector, highlighting the role of EDIHs as facilitators of this transformation.

By focusing on collaboration, networking and ecosystem building, the implementation of the JAP will enable the engagement of stakeholders from the Quadruple Helix of Innovation to address healthcare digitalization needs and challenges. This multidisciplinary approach aims to create an accessible, universal and sustainable digital health sector in the EU putting P4 Medicine at the forefront of healthcare and well-being. This collaboration will help start-ups and SMEs succeed in international markets by providing healthcare solutions that meet the real needs of hospitals and healthcare institutions in different regions.

The implementation of the JAP will also facilitate the integration and adoption of the EHDS into regional ecosystems, promoting better use of health data for research and innovation, and, thus, health outcomes. Through education and training initiatives, the JAP foresees a strong impact on capacity building among different stakeholders, including industry, health professionals and public administration.

These programs, such as workshops on EHDS or co-creation methodologies, will enhance the skills and competences needed to navigate the evolving digital health landscape. Overall, the JAP provides practical guidance and comprehensive roadmaps to drive effective and sustainable digital health initiatives that positively impact businesses, healthcare systems and patient-centred outcomes in a digital era.

To ensure effectiveness, a comprehensive impact measurement plan with key performance indicators (KPIs) will assess impact throughout the implementation and post-implementation phases. This plan includes metrics such as the number of companies and hospitals reached, as well as feedback mechanisms to refine educational materials and delivery methods. More details on the KPIs and expected impact can be found in the **extended version of the JAP.**