



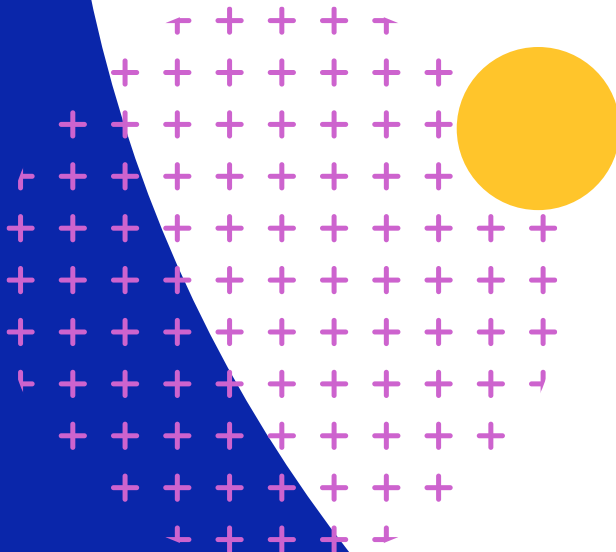
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DHAGE
DIGITAL HEALTH
ADVISORY GROUP
FOR EUROPE

Harnessing Digital Health: Analysing Economic Impact in Healthcare Systems

*Digital Health Advisory Group for Europe
Report from Annual High-Level Meeting*

29 May 2024



SPMS_{EPE}
Serviços Partilhados do
Ministério da Saúde



Ministry of
Social Affairs and Health
FINLAND



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01 Economic Impact of Digital Technologies in Healthcare – Executive Summary

The DHAGE 2024 High-Level Meeting, themed ‘Harnessing Digital Health: Analysing Economic Impact in Healthcare Systems’, brought together high-level policymakers and international experts to explore the profound economic impacts of integrating digital health solutions into healthcare systems.

The discussions were focused on financial frameworks, funding models, and assessing the overall impact of digital health on healthcare systems. Experts’ insights were based on experiences from France, Germany, Italy, Portugal, Scotland, and Sweden, highlighting the strategies and challenges in digital transformation.

The meeting provided actionable policy insights and recommendations to foster advancements in digital health. Participants underscored the importance of effective funding mechanisms and comprehensive evaluations to support sustainable digital health implementations. It was noted that investments must be economically beneficial and advance public health goals. This holistic approach is expected to promote a more inclusive and effective healthcare system by balancing financial gains with societal benefits.

The experts concluded that comprehensive policies are needed to ensure the integration and sustainability of digital health solutions. They emphasised exploring various funding mechanisms like innovation grants and government budgeting for adapting to evolving needs and long-term investment perspectives, with public-private partnerships leveraging government support to promote scalability and trust among stakeholders.

Furthermore, targeted public procurement policies are essential for scaling up interoperable digital health solutions, urging governments to prioritise interoperability to enhance data exchange and reduce economic inefficiencies. The European Health Data Space serves as a model for aligning procurement policies with interoperability standards, stressing harmonised technical specifications and security compliance for better integration of digital health systems across Europe. EU-level funding can play a vital role in this transformation, but Member States need support to make the best use of the many different funding options available.

To effectively utilise European funds, the European Commission should align funding with the European Health Data Space objectives, focusing on interoperability, security, and data quality, and establishing rules for data provision and registration. In addition to this, EU funding programmes should be used to support Member States in digital health capacity building, benchmarking best practices, and funding for primary and secondary use of health data.

Agreeing on core indicators at the European level is necessary for achieving meaningful and sustainable digital health outcomes, covering technical, human, and financial resources, user interface quality, service awareness, training levels, and equitable access. Evaluating the impact of digital health investments should include patient experiences, health outcomes, care quality, and efficiency. Contextualising metrics within the socio-economic landscape to prioritise investments yielding economic returns and advancing public health goals. This holistic approach ensures decisions balance financial gains with societal benefits, fostering a more inclusive and effective healthcare system.

Additionally, pooling expertise at the European level is crucial for identifying best-in-class solutions, practices, and successful use cases. Strategic collaboration, or coopetition, among healthcare organisations enhances care quality, fosters innovation, and accelerates the adoption of efficient solutions. By sharing data and building trust among stakeholders, coopetition creates a resilient and innovative healthcare ecosystem.

Developing and promoting Health System Performance Assessment (HSPA) and Health Technology Assessment (HTA) ensures informed decision-making, optimal resource allocation, and continuous healthcare quality improvement. These assessments support the adoption, effectiveness, and efficiency of digital health solutions, ensuring high-quality, equitable care for all.

The DHAGE 2024 High-Level Meeting provided eight recommendations for advancing digital health in Europe which are detailed in the “Recommendations and Insights” section.



Cátia Sousa Pinto, Tapani Piha

02 The Digital Health Advisory Group for Europe (DHAGE)

DHAGE serves as a thought leadership platform for key digital health decision-makers in Europe, to work on complex challenges. The group helps countries and international organisations identify synergies and foster collaborations on digital health policies. By sharing the insights, experiences, and lessons learned from DHAGE members, the Group aims to advance the digital health agenda, paving the way for a healthier, digitally enabled future for Europe. The outcomes of DHAGE meetings are documented in reports that focus on collaborative actions, policy recommendations, and suggestions for joint strategic initiatives.

The DHAGE 2024 High-Level Meeting themed ‘Harnessing Digital Health: Analysing Economic Impact in Healthcare Systems’ was co-hosted by HIMSS, the Finnish Ministry for Social Affairs and Health, and Shared Services in the Ministry of Health, SPMS, Portugal. Thirty-seven high-level decision-makers from eleven European governments joined this year’s meeting. Among the participants also were the European Commission, WHO, the Organisation for Economic Co-operation and Development (The OECD), the European Observatory on Health Systems and Policies (The Observatory) and HIMSS.



Left to Right: *Tapani Piha, Dimitra Panteli, Isabelle Zablitz-Schmitz, Eric Sutherland, Donna Henderson, Cátia Sousa Pinto*



03 Introduction

EU policy, and indeed many national health policies, see digital health integration as key to addressing current healthcare challenges. However, achieving this integration requires a comprehensive understanding of funding models, financial frameworks, and policy environments.

In the European Union, the use of digital health solutions is impacted by several legal acts. Among them are the General Data Protection Regulation (GDPR), the Data Act, the Data Governance Act, the Artificial Intelligence (AI) Act, the Medical Device Regulation (MDR), and the Digital Services Act (DSA). The Regulation on the European Health Data Space (EHDS), which will enter into force in Autumn 2024, will, however be a game changer, being the first EU-level Act that specifically addressing health data sharing and its secondary use, while other Acts all being horizontally applicable across sectors. The Medical Devices Regulation (MDR), also a sector specific Act, was amended in 2017 to include software as a medical device. It should be noted that while these Regulations have direct applicability in the EU Member States, when citizens' data are shared with third countries outside the EU, third countries will be required to comply with certain elements of the legislation in order to be able to use such data, provide services based on it, or provide goods that are to be integrated into EU healthcare systems.

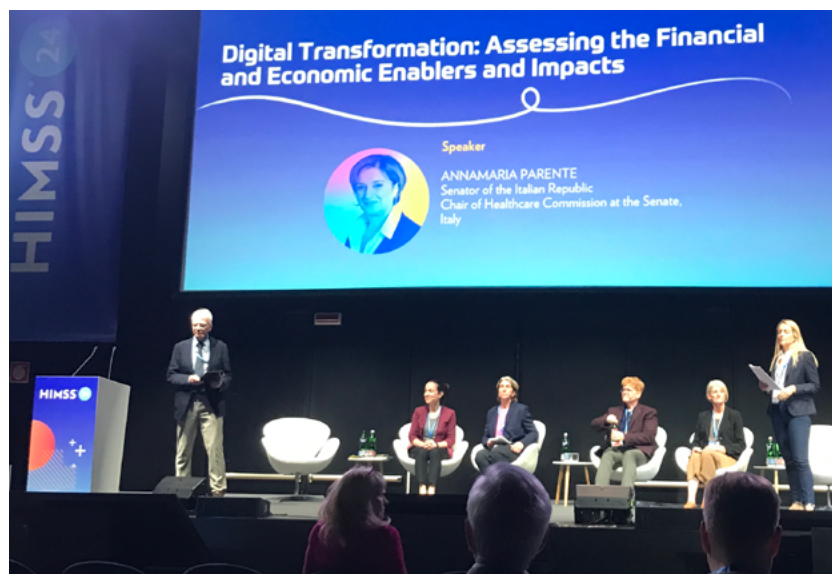
The DHAGE acknowledged that the challenges of digital Integration are many, but the specific focus of the 2024 meeting was on financial frameworks for digital health and emphasised the need for a comprehensive approach that includes technology, infrastructure, cybersecurity, innovation investment, and maintenance costs. In addition to initial investments funding for service delivery, including training and ongoing operations, is also crucial. Running costs, such as personnel training, patient education, technology updates, research, and cybersecurity, are essential for the continuous operation of digital health services.

Public-Private Partnerships (PPPs), government funding, and venture capital investments are currently three major funding pathways. Reimbursement policies, including fee-for-service, bundled payments, value-based reimbursement, global budget/payment, shared savings models, and patient-relevant benefits, are critical also for the adoption of digital health solutions. Clear pricing strategies and well-structured reimbursement frameworks are necessary, supported by robust evidence of cost-effectiveness.

The DHAGE considered not only the need for initial investment and running costs funding, but also the need for rigorous and aligned assessment and evaluation tools, which can provide the basis for properly targeted ongoing investment planning and require agreement on assessment models and indicators.

The economic potential of digital health investments is substantial, with projections suggesting that each euro invested could generate a threefold return. However, systemic inefficiencies and lack of interoperability hinder these gains, especially in federated European countries. In a review of over 40 country and international reports on measuring digital health, less than 2% of the indicators had a focus on the impacts of digitalisation – with approximately 60% reviewing readiness and around 40% measuring usage. Digital health readiness involves technical, human, and financial resources, and frameworks like HIMSS' EMRAM need to evolve to address network complexities. Usage indicators are essential for understanding digital health service utilisation, while impact measurement should include patient experiences, health outcomes, and healthcare delivery efficiency. Health system performance now includes population health, consumer expectations, financial fairness, workforce experience, and health equity. Policymakers must prioritise investments that yield economic returns and advance public health objectives. Addressing systemic waste and promoting “coopetition” over competition can enhance digital health investments. An exponential investment approach, leveraging initial investments for scalable solutions, is needed. Data, unlike technology, increases in value over time, yet only [3% of health data](#) is used for decision-making. Policymakers must establish compatible policies, harmonised standards, and incentives to scale innovations.

France and Germany are advancing digital health with unique strategies. France focuses on ensuring investments lead to tangible outcomes, and fostering innovation, aiming for a sustainable, efficient, and patient-centred system, and making sure that past failures are not repeated. Germany's success with DiGA highlights the potential of digital applications with proper reimbursement. Efforts to enhance infrastructure and achieve interoperability show the complexities of digital transformation. Both countries aim to create sustainable, efficient, and patient-centred digital health environments, setting benchmarks for others. These initiatives demonstrate the transformative potential of strategic digital health efforts globally.



Left to Right: Tapani Piha, Dimitra Panteli, Isabelle Zablit-Schmitz, Eric Sutherland, Donna Henderson, Cátia Sousa Pinto



Left to Right: *Eric Sutherland, Donna Henderson, Alice Borghini, Michel Silvestri*

Italy and Sweden are advancing their digital health landscapes through unique approaches. Italy focuses on telemedicine to enhance care and manage chronic diseases effectively, tackling challenges in data utilisation and scalability. Sweden shifts from regional autonomy to centralised governance, spurred by the need for scalable solutions and influenced by European regulations. Both countries emphasise the importance of structured strategies and incentives to move beyond pilot projects and achieve broad, sustainable impacts in digital health.

The goal of the DHAGE 2024 High-Level meeting was to provide policy insights and actionable recommendations on the economics of integrating digital health into healthcare. The meeting specifically discussed the financial framework and funding models for digital health, and assessing its overall impact in healthcare systems.



04 Financial Frameworks and Funding Models for Digital Health

Focus: Explore the policy implications of various funding models and financial frameworks in implementing and scaling of digital health technologies. Public-private partnerships, government funding, venture capital investments, and reimbursement policies should be included.

Discussion points:

- Analysis of funding models and financial framework for digital health in Europe and globally, with experiences from DHAGE members.
- Impact of different funding models on the scalability and accessibility of digital health solutions.
- Effective strategies to overcome economic barriers for digital health adoption (e.g., interoperability, data privacy, regulatory hurdles).
- Case studies of successful funding models from different countries.
- Challenges in securing funding and maintaining financial sustainability in digital health.

INTRODUCTION

Dimitra Panteli, *Lead on Innovation, The European Observatory on Health Systems and Policies*

Funding models and financial frameworks are crucial concepts in financial planning, especially in sectors like digital health. Funding models detail the mechanisms for allocating funds to projects, such as public-private partnerships or direct reimbursement systems. These models specify the ways funds are sourced, managed, and directed to achieve specific goals. Financial frameworks provide a broader structure, outlining the overarching policies, procedures, and guidelines for financial management within organisations or healthcare systems. They include components like budget lines and multiannual financial mechanisms, ensuring that financial activities align with strategic objectives and comply with regulations. Funding models address specific allocation mechanisms, and financial frameworks offer guidelines for long-term financial planning and management.

Several crucial investments must be made to achieve successful digital health implementation at scale and to ensure that patient and provider needs are met. These include, but are not limited to:

Infrastructure costs: Basic technologies and internet connectivity.

Cybersecurity and licensing: Ensuring the safety and legal compliance of digital health tools.

Innovation investment: Funding new advancements within the system.

Maintenance: Sustaining technologies over the long term.

Beyond these investments, funding for service delivery is essential. This involves not only paying for digital services, but also training the workforce and patients to use these systems effectively. Additionally, ongoing operations within the provider setting must be funded to ensure smooth and effective service delivery.

Running Costs are a critical consideration in the ongoing implementation and maintenance of digital health solutions. These costs are usage-dependent and essential for the continuous operation of digital health services. Key running costs include:

Personnel training: Ensuring that healthcare providers are adequately trained to use digital health tools and systems.

Patient education: Educating patients on how to effectively use digital health applications and services.

Ongoing operations: Costs associated with the day-to-day functioning of digital health systems.

Technology updates: Regular updates and upgrades to digital health technologies to keep them current and effective.

Research: Continuous research to improve digital health applications and adapt them to emerging needs.

Cybersecurity: Ongoing investment in cybersecurity measures to protect sensitive patient information and maintain the integrity of digital health systems.



Left to Right: Dimitra Panteli, Josep Figueras, Nuno Costa, Isabelle Zablitz-Schmitz, Stephan Krumm

Reimbursement of digital health applications refers to the process by which healthcare providers receive payment for digital health services provided to patients. This typically involves billing and receiving compensation from health insurers, government health programmes, or patients directly. In the WHO European Region, digital health is funded and reimbursed similarly to traditional in-person healthcare services. However, the specific mechanisms and models, such as fee-for-service, capitation, or bundled payments, vary by country, type of digital health application, and payer.

Clear pricing strategies and well-structured reimbursement frameworks are critical for the adoption of digital health applications. Therefore, continual monitoring, evaluation, and adaptation are necessary to ensure good practices in digital health reimbursement. International exchange and collaboration can support this goal. Robust evidence demonstrating the cost-effectiveness of digital health applications is essential to guide public reimbursement decisions.

Examples of Reimbursement Models from various countries illustrate the diverse approaches to reimbursement for digital health applications:

Fee-for-Service (FFS): Commonly used for reimbursing video consultations, as seen in Germany and France.

Bundled Payments: Employed in the Netherlands for chronic disease management, integrating digital health services into comprehensive care packages.

Value-Based Reimbursement (VBR): Includes pay-for-performance models, where remote consultations contribute to meeting performance targets, such as in the UK.

Global Budget/Payment: Telemedicine services are reimbursed under the same terms as in-person services, as practiced in the Netherlands, Italy, and Estonia.

Shared Savings Models: Tested through various pilot projects, such as those in France, where savings from digital health efficiencies are shared between providers and payers.

Patient-Relevant Benefits: In Sweden and Germany, reimbursement criteria include patient access to care and regular monitoring facilitated by digital health applications.

Funding Pathways

Three primary pathways for funding digital health were identified, which apply to the different cost categories delineated above in various ways:

Public-Private Partnerships (PPPs): Public-private partnerships have been instrumental in several successful digital health initiatives. For example, Estonia's eHealth strategy actively promotes PPPs. During the COVID-19 pandemic, many countries developed apps in collaboration with private companies, enabling swift deployment and effective use.

Government Funding: Government funding is a cornerstone of digital health transformation. A comprehensive report by WHO/Europe highlighted the significant role of government funding in driving digital health initiatives across the European region. The European Health Data Space and potential EU funding, such as the EU Recovery and Resilience Facility, are crucial for supporting digital infrastructure and data integration.

Venture Capital Investments: Venture capital is vital for scaling up digital health solutions. For instance, KRY, a leading digital health delivery company in Europe, received substantial investments to expand its reach and services. These investments are essential for achieving large-scale impact and ensuring returns on investment.

SUMMARY

By establishing comprehensive financial frameworks that address both infrastructure and service delivery, and by ensuring clear and effective reimbursement strategies, health systems can support the widespread adoption and sustained use of digital health innovations. Additionally, addressing running costs is crucial to maintain the effectiveness and sustainability of digital health systems over time.

Policymakers must carefully consider the policy implications, advantages, and challenges associated with the different funding models to ensure equitable access, quality of care, and financial sustainability. And how they align with their overall financial framework. The heterogeneity of digital health applications, settings, and geographical locations requires adaptable, flexible reimbursement policies that can accommodate the diverse needs of different regions and healthcare settings to encourage the wider adoption and implementation of digital health.

Financial inflow and outflow. Policymakers need to look at both:

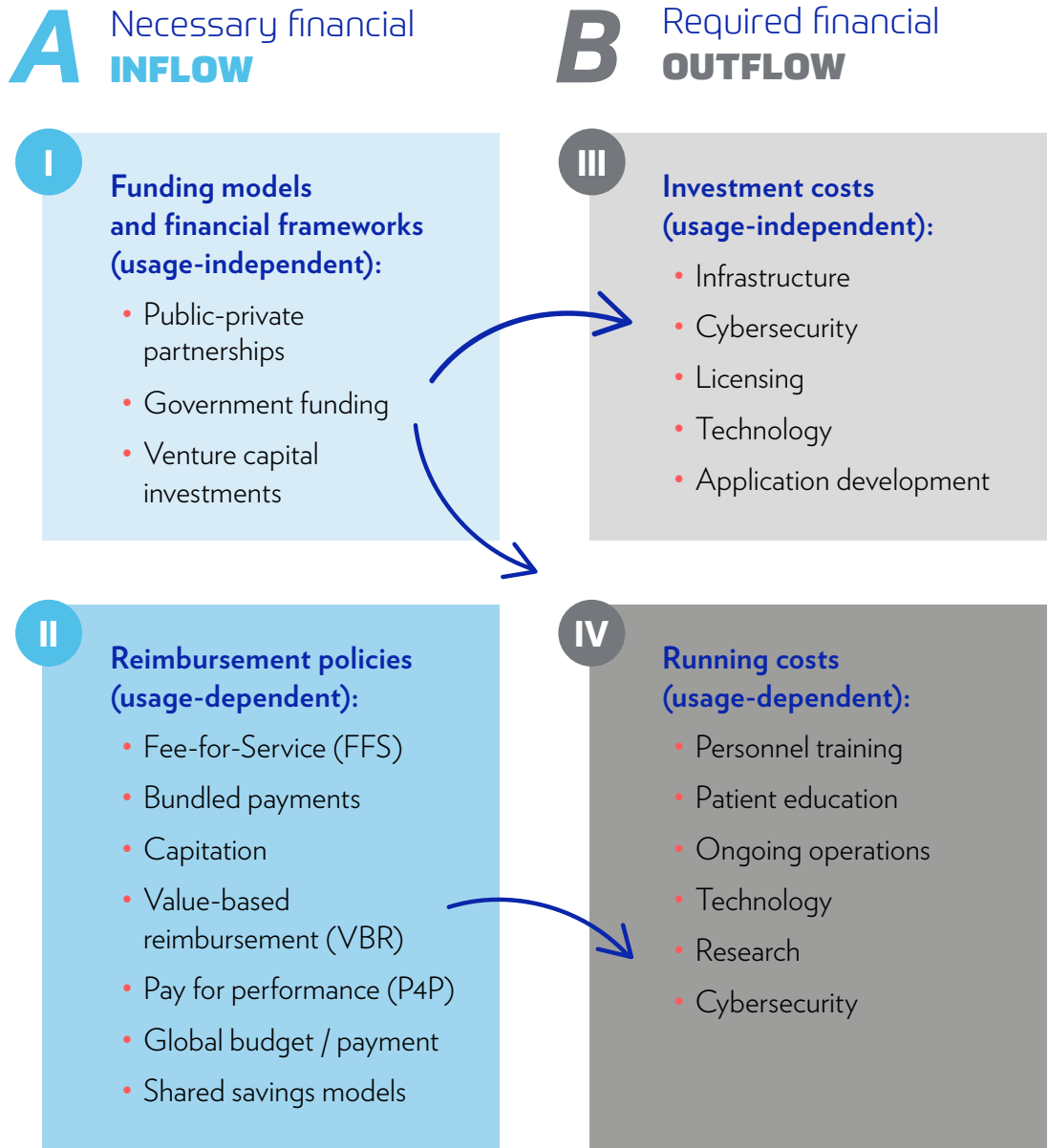


Fig.1. Financial inflow and outflow for the delivery of digital health services at the facility level.

Source: *The Observatory. Presentation for DHAGE 2024 High-Level Meeting.*

DISCUSSION

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[France](#) has significantly advanced its digital health sector by learning from past setbacks in electronic health record (EHR) systems to ensure effective implementation and substantial returns on investments. Under the Recovery and Resilience Plan, France revised its strategy to ensure that software providers meet certain usage criteria before receiving funding, leading to increased active use of EHRs across healthcare institutions. To mitigate the delay between funding announcements and receipt, France implemented an open, non-selective system compliant with EU regulations, allowing direct funding to software providers who meet specific criteria. This approach has expedited the digitalisation of health records, achieving access for 90% of the population and generating tens of millions of records monthly.

This approach, along with a collaborative strategy with providers and targeted investments in social care digitalisation, has greatly enhanced accessibility and efficiency, aligning with broader European digital health harmonisation goals.

Germany has advanced significantly in digital health through initiatives like [Digital Health Applications \(DiGA\)](#) and infrastructure enhancements. DiGA, launched in 2019, has facilitated more than 200,000 prescriptions by integrating a structured reimbursement system. This system supports diverse apps from obesity management to mental health support, significantly impacting patient care.

Concurrently, extensive investments from the Recovery and Resilience Plan are upgrading hospital technologies and public health systems. The focus remains on essential digital tools such as e-prescription systems and digital medication management to foster a comprehensive, patient-centred digital health environment in Germany.

These foundational elements establish a basis for further advancements like the widespread of AI integration in healthcare. The implementation phase is monitored through a digital maturity model adapted to the German healthcare market, developed in collaboration with HIMSS and comparable to [EMRAM](#). This model not only tracks progress but also measures the impact on healthcare outcomes, ensuring accountability to the EU and creating guardrails for digital health investments at the individual hospital level.

05 Assessing the Overall Impact of Integrating Digital Health

Focus: Examine the challenges and opportunities associated with digital health impact assessment.

Explore the art of measuring the value of health in monetary terms. Explore the interconnected nature of health with various socio-economic factors. This includes robust policy frameworks, effective governance structures, and reliable indicators to guide scalability and equitable access to digital health.

Discussion points:

- Economically proven best practices for the integration of digital health into healthcare strategies and national health plans.
- The policies and standards necessary to enable the scalability of digital health technologies.
- Investigating the relationship of broad adoption of digital health to health outcomes and healthcare systems performance.
- Identification of key economic indicators relevant for assessing the impact of digital health.
- The role of innovation and growth strategies in sustaining the integration of digital health technologies into healthcare systems.

INTRODUCTION

Eric Sutherland, Health Economist, Digital Health and AI Expert, the OECD

The potential economic value of digital health investments is significant, with expectations that every euro invested in digital health could yield a threefold return. However, the challenges in achieving this potential are multifaceted. They are rooted in systemic inefficiencies and show a lack of interoperability within and between healthcare systems.

Despite the aspirational projection of substantial returns on digital health investments, the reality has fallen short. Countries which benefit from a more centralised system, have struggled to realise these gains. The situation is even more pronounced in heavily federated European countries, where fragmented systems pose significant barriers to achieving the expected economic benefits.

Extensive data collection efforts have shown that while there are numerous indicators for readiness and usage of digital health tools, there is a stark deficiency in measuring their actual impact. Out of over a thousand indicators reviewed, only 17 pertained to impact. This gap highlights a broader problem: the inability to quantify and thus optimise the return on digital health investments.

Enhancing Digital Health: From Readiness to Impact

Digital health readiness is a multifaceted concept that includes technical, human, and financial resources, as well as appropriate policies and standards. While models like HIMSS' EMRAM provide a solid foundation, it is crucial to evolve these frameworks to address network complexities and cover the entire data supply chain.

Usage indicators are essential for understanding how digital health services are utilised. They help identify obstacles and inform policy interventions by examining factors such as the quality of user interfaces, awareness of services, the level of training provided, and equitable access. These indicators demonstrate that digital health tools are effectively used by both providers and patients, not just available.

Measuring the impact of digital health investments goes beyond direct financial parameters. A nuanced approach is required, incorporating patient experiences, health outcomes, the quality of care, the efficiency of healthcare delivery, and the interaction of each of these dimensions with equity. This broader perspective captures the true value of digital health initiatives. Digital health technologies enhance healthcare through improved disease monitoring, operational efficiency, and preventive measures, spanning areas like drug discovery, clinical improvements, treatment, knowledge enhancement, diagnosis, and adherence.

Health system performance criteria have expanded to include aspects such as population health, consumer expectations, financial fairness, the experience of the healthcare workforce, and health equity. These factors indirectly enhance the financial value of investments by creating a more robust and responsive healthcare system.

Contextualising metrics within the broader socio-economic landscape allows policymakers to prioritise investments that not only yield economic returns but also advance public health objectives and promote equitable access to healthcare.

Informed decision-making based on this nuanced understanding helps balance economic returns with societal benefits, ensuring that digital health investments lead to substantial improvements in public health and equitable healthcare access.

Addressing Waste and Encouraging Coopetition

A major contributor to the underperformance of digital health investments is the systemic waste embedded in current financial and operational models. These models often promote competition over collaboration, leading to redundant efforts and inefficient use of resources. The shift needed is from a culture of competition to one of „coopetition,“ where healthcare entities collaborate on foundational elements while competing on service quality and innovation.

One practical step toward this shift involves rethinking how data is valued and utilised. Data can increase in value as it becomes more integrated and interoperable, unlike technology, which depreciates over time. Investing in data quality and accessibility can unlock significant latent value, driving better policy decisions and healthcare outcomes.

From Linear to Exponential Thinking. The Role of Data

Current investment models in digital health often follow a linear pattern: invest in a project, achieve a specific outcome, and then move on to the next project. This approach leads to repeated baseline costs and isolated innovations that do not scale or integrate effectively with other systems. Instead, an exponential approach is needed, where initial investments create scalable, interoperable solutions that subsequent projects can build upon with reduced incremental costs.

The returns on digital health investments take time to materialise due to several factors. Establishing and scaling infrastructure requires significant investment, mainly in hardware and infrastructure. But, once these are in place, maintenance costs decrease. The technology implementation does not automatically lead to widespread adoption. The adoption of new technologies follows distinct phases, and returns can only be expected after innovations are available, used, and the changes in clinical and health behaviour start becoming visible. Singular digital health innovations can return value. However, it is when health innovations are scaled across institutions, regions, or borders that there is an opportunity for an exponential return on investment by the activation of networks.



Päivi Sillanaukee

Data is an asset that consistently increases in value over time. As data sets become more comprehensive and interoperable, they enable new insights and policy actions that were previously unattainable. In Europe, [the economic benefits of using health data](#) are expected to exceed 11 billion euros over 10 years, split between 5.6 billion euros for primary uses and 5.4 billion euros for secondary uses.

Policy and Incentives for Scaling Innovations

To realise the economic value of digital health, policymakers must establish compatible policies that encourage collaboration within and between countries. Standardising technical, data, and interoperability standards is crucial for enabling seamless data sharing across networks. Building public trust in digital tools and incentivising innovation within these frameworks are also essential.

The ability to scale requires a concerted effort to establish compatible policies, harmonised standards, incentives to scale and be scaled, and trust among stakeholders. By promoting these factors, we can balance short-term gains with long-term objectives. A practical incentive model could involve not declaring a pilot project successful until it has been scaled at least once in a different institution. This would drive a culture of scalability and interoperability, ensuring that innovations do not remain isolated but contribute to broader system improvements.

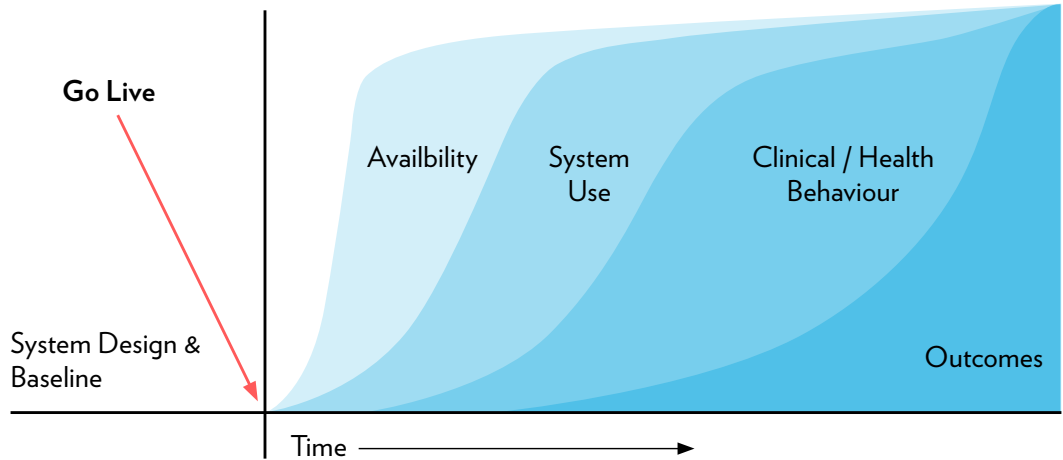
SUMMARY

The economic and societal value of digital health investments hinges on overcoming systemic inefficiencies, promoting data interoperability, and fostering a culture of cooperation. The full potential of digital health investments can be realised by focusing on and addressing these issues. Incentivising scalable innovations will lead to better health outcomes, more efficient healthcare systems, and substantial contributions to societal well-being.

Understanding the true value of digital health investments amidst the complexities of healthcare economics is a multifaceted challenge. While financial metrics are crucial, they only scratch the surface of the broader implications, as health investments have ripple effects on areas beyond healthcare, influencing everything from employment to social cohesion.

This comprehensive understanding is vital for making informed decisions that balance financial gains with meaningful contributions to societal well-being.

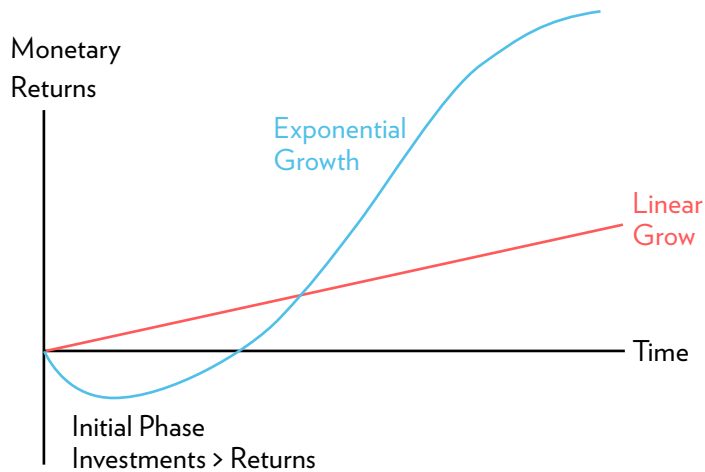
Achieving network value requires ...



Clinical Adoption Meta-Model (<https://bmcmedinformdecismak.biomedcentral.com/articles/10.1186/1472-6947-14-43/figures/1>)

Value from individual innovations requires

- Technical readiness to create
- Human capacity and capability to use
- Trust in the use of innovations
- Time and patience for returns on investment



Value from the scale of individual innovations requires

- Compatible policies
- Harmonised standards
- Incentives to scale and be scaled
- Environment of trust (each other, of providers, of public)

Fig.2. The value from innovations and from scaling innovations.

Source: The OECD. Presentation for DHAGE 2024 High-Level Meeting.



DISCUSSION

Donna Henderson, *Head of International Engagement, Digital Health and Care Directorate, Scottish Government, United Kingdom (Moderator)*

Alice Borghini, *Director of USOD Digital Health and Telemedicine, AGENAS, Italy (Panellist)*

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[Italy](#) is also advancing its digital health transformation through the National Recovery and Resiliency Plan, led by AGENAS. This initiative, backed by a €1.5 billion investment, aims to expand telemedicine services to improve care for chronic patients. The investment aims to provide a National Telemedicine Platform and regional telemedicine infrastructures. The national digital platform, developed by AGENAS, sets interoperability standards to ensure that regional telemedicine services align with national guidelines. This coordinated approach enhances care accessibility and consistency across Italy, focusing initially on diseases with high healthcare impacts, namely cardiac, diabetic, oncological, neurological, and respiratory conditions. The regional telemedicine infrastructures will be the actual tools used by health professionals and citizens to deliver the service.

Italy's digital health transformation is currently focused on enhancing telemedicine. AGENAS identified key services such as televisit, teleconsultation, teleassistance, and telemonitoring to scale these solutions nationally. Efforts include using administrative data for performance assessments and advancing natively digital health data for better policymaking. Moreover, Italy is developing comprehensive incentive strategies, such as improved reimbursement models, heightened awareness programmes, and increased digital training for healthcare professionals, aiming to foster widespread adoption and effective use of digital health services across the country.

[Sweden](#) is realigning its digital health strategy from a national vision towards a centralised government role, aiming for scalable and effective solutions across its healthcare system. Previously under Vision eHealth 2025, Sweden sought a unified digital health framework, but this has shifted towards greater government involvement, particularly influenced by European Health Data Space regulations mandating cross-border data exchange. This new direction enhances national coordination, reducing regional fragmentation, and involves specific roles for agencies like the Swedish eHealth Agency to ensure alignment and improved infrastructure scalability.

In Sweden, a common challenge is the prevalence of pilot projects that do not progress to broader implementation, a phenomenon referred to as “pilotitis recurrentis”. This issue underscores the need for scalability to harness the full benefits of digital health solutions across the healthcare system. To overcome these barriers, Sweden employs a mix of financial incentives, policy regulations, and clear legal frameworks. The combination of incentives and legal clarity is crucial for successful adoption, usage, and data exchange, addressing legislative uncertainties that often hinder the integration of digital health technologies.

06 Recommendations and Insights

Following the presentation and discussions, a series of eight recommendations were agreed upon and presented to the full congress. The DHAGE members urge the European Commission, OECD, WHO, and national governments across the EU, wider Europe, and indeed the world, to take the following recommendations into account when developing, executing, and assessing the impact of digital health strategies.

RECOMMENDATION 1

Government funding is important as an incentive for early adoption of innovative applications that help empower the public and support providers.

Government funding is essential for the early adoption of innovative digital health solutions. It plays a pivotal role in driving digital health transformation by supporting the development and integration of digital infrastructure. Significant funding sources and frameworks, such as the EU Recovery and Resilience Facility, bolster this process. Public-private partnerships, supported by government funding, also facilitate early adoption by pooling resources and expertise.

Government funding ensures sustainability by integrating digital health solutions into routine health budgets and providing stability that donor funding alone cannot offer. Government funding can also support economic evaluations, such as cost-effectiveness analyses. This approach is critical for the adoption of new technologies and informed decision-making. Additionally, it aids in health policy analysis, preventive health interventions, and the development of complex health initiatives.

By fostering compatible policies, harmonised standards, and incentives, government funding promotes scalability and trust among stakeholders, ultimately creating a more accessible, equitable, and effective healthcare system.

RECOMMENDATION 2

National governments should use efficient public procurement policies to support scaling, developing and fostering the use of interoperable solutions.

The necessity for governments to implement efficient public procurement policies to enhance and scale up interoperable solutions is underscored by the challenges and opportunities presented in the integration of digital health systems. Interoperability within the healthcare sector is currently hindered by a business model that discourages seamless data exchange between different care institutions, including within hospitals themselves. This lack of interoperability not only complicates the delivery of healthcare services but also leads to economic inefficiencies like redundant examinations and duplication of work.

By implementing procurement policies that prioritise interoperability, governments can directly influence the market, compelling vendors to adhere to universal standards and protocols. The economic rationale for such policies is clear: by eliminating unnecessary procedures and facilitating seamless data exchange, healthcare systems can achieve significant cost savings and improve patient outcomes.

Efficient public procurement policies can serve as a catalyst for developing interoperable solutions by setting clear requirements for digital health technologies. Such policies would encourage the industry to meet these standards, thereby facilitating better integration of digital health systems across Europe.

The European Health Data Space (EHDS) shows that aligning procurement policies with interoperability standards is important. Governments should ensure that public procurement, proposals, and fund allocations reference applicable technical specifications and standards. Additionally, digital health authorities should promote common standards in procurements and ensure compliance with interoperability and security requirements.

RECOMMENDATION 3

The European Commission should actively support Member States in making effective use of European funds for reforming health systems, particularly in the implementation of the European Health Data Space to provide access to quality data for primary and secondary use.

The European Commission should support Member States in building digital health capacity, benchmarking best practices, and provide significant funding for the primary and secondary use of health data. EU funding programmes like the EU4Health, Digital Europe Programme, the Recovery and Resilience Facility (RRF) and the European Regional Development Fund (ERDF) have aided in connecting Member States to European infrastructures. The Commission should ensure that current and future funds align with the EHDS objectives and timeframes, emphasising interoperability, security, and data quality. Additionally, providing a secure processing environment for data from multiple Member States will ensure broader interoperability and effective fund utilisation, supporting the EHDS ambition for high-quality data access.

RECOMMENDATION 4

The EU should promote the creation of a true European internal market for digital and data solutions in healthcare, grounded in EU regulations, standards and skilled professionals, to shape the digital future of public health across the EU and to bring about competitive, globally successful solutions.

The establishment of a cohesive European internal market for digital and data solutions in healthcare is a multifaceted endeavour. This goal requires a robust European regulatory framework, adherence to standardised protocols, and the cultivation of a skilled professional workforce. The creation of a unique market for digital health will bring economic value by addressing the lack of skills and resources in healthcare systems. This should include actions such as benchmarking and exchanging best practices, which are essential for developing skilled professionals in the healthcare sector.

The EHDS is anticipated to be a pivotal element in creating a unique market for digital health, fostering an environment where competitive, globally successful solutions can thrive. The Commission will adopt implementing and delegated acts for the primary and secondary use of electronic health data as well as harmonised rules for data provision and registration.

By aligning digital health initiatives with EU regulations and standards, and by fostering a workforce proficient in these new technologies, the EU can ensure the development of competitive solutions that have the potential to succeed on a global scale. This strategic approach will likely lead to a concentration of the market, thereby attracting more investment and innovation in the digital health sector.

RECOMMENDATION 5

National governments and international organisations should design holistic policies that consider different funding options for the range of digital health solutions and have a long-term investment perspective.

The landscape of funding for digital health solutions is multifaceted, encompassing various models that cater to the diverse components of digital health ecosystems. Different models each address different facets of digital health, from infrastructure development to service delivery, highlighting the necessity for a comprehensive approach to funding that considers the unique requirements of digital health components.

DHAGE emphasised the importance of securing investments that yield tangible returns and enhance the effectiveness of digital health implementations, highlighting the need for a long-term investment perspective. Financing must cover infrastructure costs, provider needs, and aim to meet patient and provider demands, directing investments towards technological aspects and fostering innovation. This necessitates a shift from linear to exponential thinking, recognising the increasing value of data and interoperability over time.

Holistic policies for digital health should explore diverse funding options like innovation grants, integrating digital health into routine government budgeting, and ensuring solutions are flexible and adaptable to evolving needs.

Policies should support a common foundation of sustainable economic and social benefits through capacity building and best practices exchange, fully integrate digital health solutions into government health systems, and leverage EU funding programmes such as the Digital Europe Programme and Horizon Europe to develop and pilot smart middleware platforms, facilitating secure cross-border health data access and promoting a unified market.

RECOMMENDATION 6

National governments and the European Commission should agree on a core set of indicators at the European level to measure the impact of digital health projects on health and healthcare, and promote their use in all EU-funded projects.

A core set of indicators should be agreed at the European level to achieve meaningful and sustainable digital health outcomes. Such consensus will ensure that digital health initiatives meet both patient and provider needs and align with broader health policy objectives.

Digital health readiness involves technical, human, and financial resources, plus suitable policies and standards. Usage indicators, assessing factors like user interface quality, service awareness, training levels, and equitable access, are crucial for understanding digital health service use and informing policies. Measuring the impact of digital health investments should include patient experiences, health outcomes, care quality, efficiency, and equity.

Digital health technologies improve healthcare through better disease monitoring, efficiency, and preventive measures. Expanded healthcare system performance criteria now cover population health, consumer expectations, financial fairness, workforce experience, and health equity, enhancing investment value and system responsiveness.

Contextualising metrics within the broader socio-economic landscape helps policymakers prioritise investments that yield economic returns and advance public health objectives. Understanding the true value of digital health investments requires recognising their ripple effects beyond healthcare, influencing employment and social cohesion. This comprehensive understanding ensures informed decisions that balance financial gains with societal benefits, fostering a more inclusive and effective healthcare system.

RECOMMENDATION 7

The European Commission and National Governments should facilitate the pooling of digital health expertise to learn from and to accelerate decision-making by identifying best-in-class solutions, practices, and successfully implemented use cases.

The concept of coopetition, a strategic collaboration between competing entities to achieve mutual benefits, is increasingly recognised as a pivotal approach in the healthcare sector. Sharing best practices among healthcare organisations facilitates a cooperative environment that enhances the quality of care. It also fosters innovation and accelerates the adoption of efficient healthcare solutions. Coopetition allows entities to leverage each other's strengths, share risks, and capitalise on shared opportunities. It creates a more resilient and innovative healthcare ecosystem.

Such collaborative efforts are not only about sharing data but also about embedding and fostering an environment of trust among the public and providers, which is fundamental for the successful adoption of shared tools and practices. Additionally, incentivising innovation within this cooperative framework is vital for encouraging the development and adoption of standards that support the sharing of best practices and the implementation of successful use cases. The eHealth Network is a good example of best practice sharing that should be fostered as a basis for collaboration.

RECOMMENDATION 8

National Governments should develop and promote Health System Performance Assessment (HSPA) with attention to digitalisation in healthcare, and Health Technology Assessment (HTA) of digital solutions to measure adoption, effectiveness, and efficiency of solutions.

Incorporating [HSPA](#) and [HTA](#) into healthcare systems is vital for informed decision-making, resource allocation, and continuous improvement of healthcare quality. HSPA provides a comprehensive evaluation of health system performance, focusing on efficiency, effectiveness, equity and quality of care. By systematically collecting and analysing data, HSPA identifies areas for improvement, ensuring that health services meet population needs and investments yield optimal outcomes.

HTA is a multidisciplinary process, which evaluates the medical, social, economic, and ethical implications of health technologies. It ensures that digital health solutions are safe, effective, and cost-efficient, supporting their adoption and scalability. Both HSPA and HTA foster transparency, accountability, and collaboration among stakeholders, promoting health equity and innovation.

07 Contributors and Acknowledgements

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- The Scottish Government, Scotland
- Digital Health and Care Wales, Wales
- The European Commission
- The OECD (the Organisation for Economic Co-operation and Development)
- The Observatory (the European Observatory on Health Systems and Policies)
- WHO Europe
- HIMSS

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DHAGE webpage

DHAGE webpage and reports are available here:

www.himss.org/membership/get-involved/committees/digital-health-advisory-board-europe





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