# OBSERVATORY FOR DIGITAL HEALTH TECHNOLOGIES IN EUROPE

## Exploring Europe's Digital Health Landscape: Market Dynamics and Economic Impact

**EXECUTIVE SUMMARY**

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# Executive summary

Digital health technologies are reshaping the European healthcare landscape, offering new pathways for improving clinical outcomes, operational efficiency, and patient engagement. This report, commissioned by DG CNECT and authored by Capgemini Invent and IDC, provides a comprehensive analysis of the EU27 digital health ecosystem. It combines market intelligence, stakeholder insights, and economic modelling to inform future policy and investment decisions. The report is structured around two core components: the development of the Observatory for Digital Health Technologies in Europe (Part A), and an Economic impact analysis of five selected digital health technologies (Part B). The report ends with conclusions and policy recommendations (Part C).

**Part A. Observatory for Digital Health Technologies in Europe**

The first part of the report lays the foundation for the European Commission's Observatory for Digital Health Technologies, offering a comprehensive analysis of the digital health landscape across the EU27 Member States. The Observatory is designed to support strategic decision-making, policy development, and long-term monitoring of digital health adoption, innovation, and investment.

The analysis draws on a robust methodological framework, combining quantitative and qualitative data sources. These include two EU-wide surveys, one targeting 70 digital health vendors and the other 300 healthcare providers, alongside 13 expert interviews, a market mapping exercise covering 690 vendors and 45 technologies, and a financial trend analysis based on over 46,000 investment records. Secondary sources such as EC policy documents, WHO reports, OECD studies, and proprietary IDC databases complement the evidence base.

Part A begins with a structured PESTLE analysis, identifying the political, economic, social, technological, legal, and environmental factors shaping digital health adoption. Politically, the European Health Data Space (EHDS) provides strong momentum, but national fragmentation and procurement barriers continue to hinder scalability. Economically, digital health is recognised for its efficiency gains, yet financial constraints and limited access to growth capita, particularly among SMEs, remain significant obstacles. Socially, digital health improves patient engagement and staff satisfaction, but digital skill gaps and equity concerns persist. Technologically, interoperability deficits and outdated infrastructure are widely reported, while legal complexity poses compliance challenges. Environmental considerations are emerging, with 45% of providers recognising sustainability benefits, although vendors have yet to fully integrate eco-design principles.

The vendor landscape is highly fragmented and regionally concentrated. Of the 690 vendors identified, only 196 are headquartered in the EU27, with the United States accounting for 354. Germany and France lead in vendor count, while 15 Member States report five or fewer vendors. EU vendors predominantly focus on core health IT systems and administrative solutions, with limited activity in emerging technologies like for example AI powered diagnostic tools and novel biological sensors, and genomics. Most solutions target diagnosis and treatment stages, and are designed for tertiary hospitals and specialist care settings. Strategic dependencies on non-EU vendors, particularly in cybersecurity, AI-powered clinical tools, and genomics, raise concerns about digital sovereignty.

EU vendors operate primarily within national markets, with only 11% reporting customers outside Europe. Their growth outlook is cautious: 46% anticipate moderate expansion, while 31% remain uncertain. Strategic priorities include niche specialisation, AI/ML investment, and clinical partnerships, though alignment with population health goals and patient-centred design remains limited. R&D investment is relatively strong, with 32% of vendors allocating over 20% of their budget, focusing on patient outcomes, operational efficiency, and regulatory compliance.

Revenue models are evolving, with tiered pricing and licensing still dominant, but outcomes-based and subscription models gaining traction. Patient engagement strategies increasingly emphasise user-centred design and accessibility, though active co-creation with patients is rare. Partnerships are concentrated among providers, tech firms, and life sciences companies, while engagement with academia, regulators, and patient groups remains low. Vendors face significant regulatory burdens and cybersecurity threats, and while many invest in internal resilience and talent development, adoption of open standards and data sovereignty measures is limited.

The report also assesses the maturity and adoption trajectories of five emerging digital health technologies using a Technology Readiness Level (TRL) framework. AI-powered diagnostic tools are the most mature, with widespread clinical deployment and projected adoption nearing 80% by 2029. Next-generation virtual care platforms and AI-based hospital infection warning systems are advancing toward large-scale deployment, while virtual human twins and novel biosensors remain in earlier stages of development. The healthcare providers survey results however point to a remarkably positive outlook for virtual human twins. While adoption today is still limited (around one in ten providers), more than half of healthcare organisations plan to introduce them by 2029. This strong forward-looking investment intention highlights both the transformative potential of digital patient models in clinical practice and the readiness of providers to integrate them once technological and regulatory enablers are in place. Similarly adjacent technologies such as AR/VR, hospital digital twins, and robotics show promising growth but require further validation and integration.

Artificial Intelligence emerges as a cross-cutting enabler of digital transformation. Ninety-four percent of healthcare providers are engaged in AI adoption or planning, with top use cases including clinical decision support, early diagnosis, patient engagement, and remote monitoring. However, operational applications such as supply chain optimisation and workflow automation remain underutilised.

The EU digital health market is projected to grow from €11 billion in 2023 to €61.2 billion by 2035, reflecting a compound annual growth rate of 15.1%. While hospitals currently dominate investment, other healthcare providers, such as outpatient clinics and laboratories, are rapidly catching up. Regional disparities persist, with DACH and Southern Europe accounting for nearly 75% of total spending by 2035. The market remains fragmented, with significant opportunities for new entrants, particularly in AI, genomics, and cybersecurity. However, regulatory complexity, interoperability gaps, and external dependencies continue to constrain scalability and innovation.

Beyond the EU, comparative analysis highlights different models of progress. The United States is scaling critical technologies such as AI and advanced cybersecurity more rapidly, supported by stronger venture capital flows. Between 2019 and 2024, U.S. digital health investment volumes were more than triple those of the EU27, with U.S. vendors representing 63% of the global market compared to 28% for Europe. Market growth rates reinforce this divergence: the U.S. digital health market is forecast to expand at 17–18% CAGR through 2030, compared with 15% for the EU27, meaning a larger market is also accelerating at a faster pace. In Asia-Pacific, Japan and China are advancing quickly in robotics and large-scale virtual care, while the EU's strengths lie in robust data protection and patient rights frameworks. Building on this foundation, Europe's opportunity and challenge is to scale investment, enhance agility, and harmonise markets, alongside targeted support for SMEs, to reduce dependencies and accelerate innovation.

**Part B. Economic impact analysis of selected Digital Health Technologies**

The second part of the report presents a cost-benefit analysis of five promising digital health technologies, quantifying their projected costs and benefits (cost savings) at EU27 level over a ten-year horizon. The analysis is designed to inform strategic investment decisions and policy prioritisation, offering an assessment of net cost avoidance, implementation costs, and impact on healthcare systems.

The methodology follows a stepped approach: step 1 is selecting and defining five use cases (listed below) within five broader technology types, step 2 is identifying the benefits (value drivers) of each use case for each scenario, step 3 is quantifying and monetising these benefits as well as the costs for a reference country, step 4 is extrapolating results to each Member State, step 5 is forecasting the results to a five and ten year time horizon and discounting the results to get the net cost avoidance, and step 6 is testing the uncertainty of the model and the underlying assumptions in a sensitivity analysis. This study employs multiple data collection methods, including desk research and consultation with experts.

Clinical Decision Support Systems (CDSS) demonstrate the highest economic impact, with projected net cost avoidance of €252 billion in the full implementation scenario and €71 billion in the partial scenario cumulatively over ten years in the EU27. These systems help reduce administrative workload, enhance the effectiveness of care, and help avoid the unnecessary use of medical services. Full implementation of CDSS could yield net cost avoidance of approximately 1% of total EU healthcare expenditure over a ten-year period.

Automated Medical Image Analysis also shows strong economic impact, with net cost avoidance of €192 billion (full scenario) and €126 billion (partial scenario) cumulatively over ten years in the EU27. These technologies improve diagnostic speed and accuracy, particularly in radiology. Implementation and operating costs per hospital are relatively modest. Full implementation could yield net cost avoidance of approximately 0.8% of total EU healthcare expenditure over a ten-year period.

Virtual human twins, while conceptually promising to improve quality of care, is not fully modelled due to a lack of data on cost quantification and uncertainties related to this emerging technology, specifically regarding limited real-world case studies from hospital settings. The value drivers have been quantified, indicating cumulative projections of gross cost savings of €60 billion (full scenario) and €30 billion (partial scenario) over ten years in the EU27. To determine net cost avoidance, associated costs would need to be subtracted from these figures

Mental health platforms also offer significant economic impact, with net cost avoidance projected at €164 billion (full scenario) and €136 billion (partial scenario) cumulatively over ten years in the EU27. These platforms support early intervention, remote therapy, and patient self-management, contributing to improved outcomes and reduced service utilisation. Full implementation could yield net cost avoidance of approximately 0.7% of total EU healthcare expenditure over a ten-year period.

Advanced genetic sequencing (genomics) is not modelled due to data unavailability and indirect value drivers. However, literature[1] shows that the costs of operating the use case are declining. Furthermore, several logics that could lead to cost savings were identified including earlier intervention, better prevention, and avoiding ineffective treatments.

**Part C. Conclusions and policy recommendations**

The Observatory provides a systematic EU-wide classification of digital health technologies, encompassing 45 subcategories across five domains. It offers a solid foundation for monitoring the market and supports comparability across Member States. The economic analysis of use cases provided a structured and transparent approach to assessing the cost savings enabled by digital health technologies. The analysis incorporates key factors influencing the implementation and adoption of the use cases across the EU, and provides both quantitative and qualitative insights into how technologies affect healthcare processes and can lead to cost savings.

To unlock the full potential of digital health, the authors of the report propose the following recommendations based on the findings of the study:

1. **Strengthen EU digital health market integration** and procurement alignment to reduce fragmentation and enable cross-border scaling. Joint procurement mechanisms, mutual recognition of certifications and streamlined conformity pathways can reduce duplication, accelerate time-to-market and enhance Europe's strategic autonomy in digital health.
2. **Support the adoption of internationally recognised interoperability standards** (e.g. FHIR, opener), and upgrading national IT systems to enable secure data exchange and advanced analytics. This can address fragmented data standards, uneven implementation of frameworks and outdated infrastructures that hinder continuity of care and cross-border data use.
3. **Support investment and reimbursement stability** by facilitating coordination and best practice exchange among Member States to promote predictable reimbursement and financing approaches. This can reduce fragmentation, encourage the adoption of proven solutions and strengthen Europe's long-term competitiveness in digital-health innovation.
4. **Enhance SME and scale-up support** by providing targeted instruments to reduce compliance costs and enable cross-border expansion. This can strengthen Europe's capacity to retain and scale high-potential digital-health ventures and promote the development of a European digital health ecosystem.
5. **Boost frontier technology innovation** by prioritising funding and procurement initiatives in underrepresented but strategically vital domains such as AI diagnostics, genomics, and cybersecurity. Establish targeted funding and coordinated actions to strengthen Europe's technological sovereignty. This contributes to reducing reliance on non-EU vendors, enhance

[1] The findings from the literature on genomics are described in Chapter 8 of Part B

healthcare-system resilience and ensure the Europe captures the full economic and clinical value of next generation digital-health solutions.

6. **Diversify the adoption of digital health technologies beyond hospitals** by incentivising research & innovation and deployment in preventive care, community care, and public health applications, ensuring that digital health extends benefits to underserved areas while supporting EU health policy objectives. Coordination across the healthcare value can unlock system-wide impact, improve care integration, improve equity and fully realise the value of digital health technologies.
7. **Strengthen organisational readiness and workforce** by supporting digital training, change management, and organisational readiness initiatives across healthcare systems. By investing in this, healthcare providers will be better equipped to adopt and integrate new technologies into daily practice, ensuring that digital health solutions deliver their full financial benefits across the EU.
8. **Promote sustainability and green Digital Health** by integrating eco-design, energy efficiency, and green procurement requirements into funding and procurement processes. Embedding sustainability into the digital-health agenda contributes to reducing the sector's environmental footprint, drive eco-innovation, and ensure that Europe's digital transformation of health contributes directly to EU climate-neutrality goals.
9. **Ensure digital health initiatives address disparities** by embedding equity and accessibility requirements into the design, procurement, and funding frameworks of programmes. Embedding inclusivity and accessibility across digital-health policies can ensure that the digital transformation of healthcare promotes equity, strengthens social cohesion, and upholds the principle of universal access to quality care.

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