

# Executive Digest

Methods and tools to support decision maker adoption and end-user uptake

## Methods and tools to support decision maker adoption and end-user uptake

### Relevance of this topic to Digital Health

The European Commission supports the expansion of digital health in Europe to address the growing challenges faced by healthcare systems, such as ageing populations, increasing healthcare demands, and the need for more efficient resource management. Digital health solutions, including telehealth, data analytics, and interoperable health data platforms, offer the potential to enhance patient care, improve access to services, and optimize healthcare delivery, even across borders.

By promoting the adoption and scaling up of these technologies, the Commission aims to ensure that European healthcare systems remain resilient, equitable, and competitive on a global scale, and also to foster innovation and collaboration among member states.

Health and care systems have struggled to widely adopt digital technologies, but the COVID-19 pandemic sparked a rapid transformation, swiftly implementing innovative tech-based tools to ensure care could continue even without physical contact. In the aftermath of this context, the EU funded project Digital Health Uptake (DHU) is identifying and categorising methods and tools to support decision maker adoption and end-user uptake.

According to some studies, digital health startups have the highest failure rate at 98%.<sup>1</sup> Thus, the startup concept of Death Valley is especially relevant to supply-innovation in health given the intricacies of the health and care system, but it is also valid for demand-side innovation. Among the complex barriers to digital health implementation, we may find technology usability, user characteristics, regulation and infrastructure, social support and cultural aspects.<sup>2</sup>

In the policy brief about the use of digital health tools in Europe produced by the European Observatory on Health Systems and Policies, the focus is set towards individual, organizational and systemic rather than technical barriers.<sup>3</sup> Insufficient investment, lack of supportive and clear legal framework, concerns over their use from health professionals, gaps in planning and support for implementation, as well as inadequate leadership are cited as barriers limiting adoption in some countries. Likewise, the recommendations from DIGITALEUROPE Executive Council for Health<sup>4</sup> to ensure that the EU remains competitive in the global healthcare landscape while addressing the challenges of an aging population, health inequities, and increasing healthcare costs point towards three methods and tools: (1) the European Health Data Space (EHDS) infrastructure; (2) data-driven approaches such as personalized healthcare, telehealth, and AI; and (3) harmonization of value assessment frameworks and reimbursement pathways across the EU. These actions would reduce barriers to innovation and make it easier to implement digital health solutions at scale. However, despite actions at policy level are still vital, it is important to explore what can be done to increase adoption of digital health tools beyond policies.

### Keywords

Digital health, Adoption, Uptake, Methods, Tools

### Current focus of policy, legislation, standards, emerging practices in this landscape

Two initiatives of the DHU project aim to cover the need of identifying methods and tools to support the implementation of digital health solutions and help stakeholders to avoid the high rate of failure. First, the DHU Radar<sup>5</sup> that collects digital health practices, including methods and tools. Second, the DHU framework of methods and tools for digital health implementation presented below.

This framework defines the concepts of adoption, uptake and scale-up, and it is used to explore, analyse and categorise methods and tools in support of digital health implementation and uptake.

Decision-maker adoption and end-user uptake are part of the early implementation phase that ensures the successful deployment of digital health solutions.

<sup>1</sup> Chakraborty I, Ilavarasan PV, Edirippulige S. Critical success factors of startups in the e-health domain. *Health Policy and Technology*. 2023 Sep 1;12(3):100773.

<sup>2</sup> Schlieter H, Gand K, Marsch LA, Chan WS, Kowatsch T. Scaling-up health-IT—sustainable digital health implementation and diffusion. *Frontiers in Digital Health*. 2024 Apr 15;6:1296495.

<sup>3</sup> European Observatory on Health Systems and Policies, Fahy, Nick & Williams, Gemma A. (2021). Use of digital health tools in Europe: before, during and after COVID-19. World Health Organization. Regional Office for Europe. <https://iris.who.int/handle/10665/345091>

<sup>4</sup> DIGITALEUROPE Executive Council for Health's Recommendations (2024-2029).

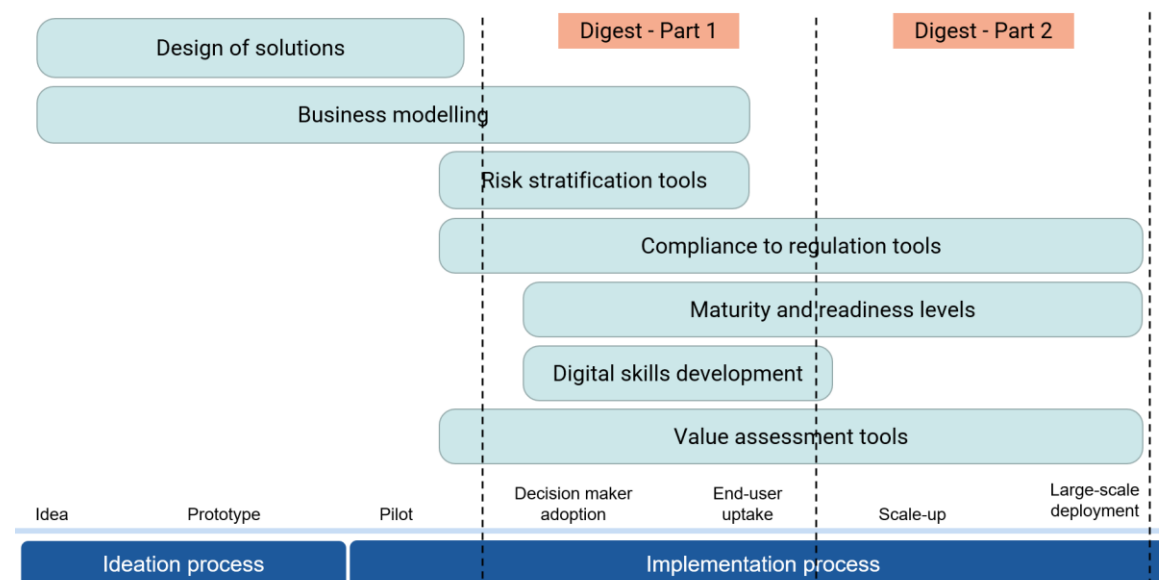
<https://www.digitaleurope.org/resources/digitaleurope-recommendations-eu-digital-health-policy-2024-29/>

<sup>5</sup> DHU Radar: <https://digitalhealthuptake.eu/radar/>

Among the techniques for enhancing end-user uptake, we find design methodologies like design thinking, user-centred design or the Blueprint Personas (reported below), or training programmes for developing digital skills of patients and professionals.

Regarding the methods for supporting decision-maker adoption, we find systems for assessing readiness of the environment where the innovation is about to be deployed or business modelling instruments like the Business Model Canvas or the Value Proposition Canvas (reported below).

#### DHU framework of methods and tools



This Executive Digest is the first of two parts and focuses on decision-maker adoption and end-user uptake compiling different practices and instruments. It features two toolboxes and two tools. First the DHU toolbox that contains the framework of methods and tools for implementation and uptake of digital health solutions, along with two concrete tools from two different categories: the Blueprint Personas and the Value Proposition Canvas. And second, the SISCODE Toolbox, an inspiring example of a compilation of tools from the cross-sectoral field of co-design and innovation.

#### Implications for digital health uptake

##### Developers

- Need to create scalable, user-centred products that comply with industry standards and regulations.
- Engage with tools like the Business Model Canvas and Design Thinking methodologies to ensure that their innovations align with market demands and end-user needs.
- Anticipate and address potential barriers, thereby increasing the likelihood of successful adoption and long-term sustainability of their products.

##### Enablers

- Need to leverage frameworks like the maturity and readiness tools to assess and improve the readiness of healthcare systems to integrate digital innovations.
- Facilitate collaboration across different stakeholders, including technology developers and healthcare providers, to ensure that the necessary infrastructure, skills, and regulatory frameworks are in place.
- Support capacity building and knowledge exchange to accelerate the implementation of digital health solutions.

##### Payers and Procurers

- Need to evaluate the effectiveness and health outcomes with value assessment tools to make informed decisions regarding the funding and procurement of digital health innovations.
- Consider investments directed towards interventions that provide the most significant benefits to patients and healthcare systems.
- Ensure compliance with standards and norms, using tools like the mHealth Assessment Frameworks to validate the quality and safety of digital health products before adoption.

**Users**

- Need that the solutions developed are intuitive, meet user needs, and improve the overall healthcare experience.
- Healthcare providers need solutions that integrate seamlessly into existing workflows and enhance their ability to deliver care, while patients require technologies that are easy to use and that support self-management of their health.
- By focusing on the end-user experience, stakeholders can drive higher engagement and adoption rates, leading to better health outcomes and more efficient care delivery.

**Remaining gaps and issues**

These are the key gaps and issues classified by the perspective of the supply, enabler and demand sides for digital health innovation. The tools collected in the DHU toolbox can help to address these gaps and issues.<sup>6</sup>

**Supply side**

- **Integration challenges:** technology developers often face difficulties integrating new digital health solutions into existing healthcare systems. This includes issues with interoperability and the alignment of new technologies with current workflows and infrastructures.
- **Compliance and regulatory hurdles:** navigating the complex regulatory environment remains a significant challenge for the supply side. Ensuring compliance with standards such as the Medical Device Regulation (MDR) or the Artificial Intelligence Act can be resource-intensive and time-consuming. [Digital Health Assessment Technology]
- **Scalability:** many digital health innovations struggle to scale beyond pilot phases due to a lack of infrastructure, funding, or a clear path to market. The transition from a small-scale solution to widespread adoption across regions or countries is a critical gap.
- **Market validation:** there is often a gap between the development of innovative solutions and their validation in the market. Developers may struggle to prove the effectiveness and economic viability of their products, making it difficult to attract investors and buyers.

**Enabler side**

- **Capacity building:** enablers often face challenges in providing sufficient training and capacity-building opportunities to support the adoption of digital health solutions. This includes the need to enhance digital literacy and skills among healthcare professionals and other stakeholders.
- **Collaboration and coordination:** there is a need for better coordination among different enablers, including innovation hubs, standards organizations, and policymakers. Fragmentation in efforts can lead to duplicated efforts and slow down the overall adoption process.
- **Sustainability of support mechanisms:** ensuring that the support mechanisms, such as funding, training, and technical assistance, are sustainable over the long term is a significant challenge. Short-term projects and initiatives may not provide the lasting support needed for widespread digital health adoption.
- **Measurement and evaluation:** there is a gap in tools and frameworks to effectively measure the impact of digital health solutions and the success of scaling initiatives. Enablers need better methods to evaluate what works and what doesn't in different contexts.

**Demand side**

- **Adoption resistance:** healthcare providers and patients may be resistant to adopting new digital health solutions due to concerns about usability, privacy, and the potential disruption to established practices.
- **Lack of awareness and training:** there is often a lack of awareness about the benefits of digital health solutions among healthcare providers and patients. Additionally, insufficient training on how to use these technologies effectively remains a barrier to adoption.
- **Economic barriers:** for payers and healthcare providers, the cost of implementing and maintaining digital health solutions can be prohibitive. There is also uncertainty about the return on investment, which can hinder procurement decisions.
- **Equity and accessibility:** ensuring that digital health solutions are accessible to all segments of the population, including those in underserved or rural areas, remains a significant challenge. Issues related to digital literacy and access to technology exacerbate these gaps.

<sup>6</sup> DHU Toolbox: Tools to support digital health solutions implementation and uptake <https://digitalhealthuptake.eu/working-paper-tools-to-support-digital-health-solutions-implementation-and-uptake/>

**Date of creation or latest update**

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Legislative, regulatory, policy or standardisation instrument, or good practice

Title

DHU Toolbox: Tools to support digital health solutions implementation and uptake

Instrument status

Published

Publisher or source

Digital Health Uptake

URL or reference

<https://digitalhealthuptake.eu/working-paper-tools-to-support-digital-health-solutions-implementation-and-uptake/>

Summary of the instrument

This report identifies existing methods and tools proven helpful to implement and scale-up digital health solutions. It sets a classifying framework based on the implementation phases and categories. After the ideation phase, decision maker adoption and end-user uptake are the first two steps in the implementation phase.

Seven categories are described: design of solutions, business modelling, risk stratification tools, compliance to standards and norms, maturity and readiness levels, digital skills development and value assessment tools. A total of 18 methods and tools are identified covering five categories defined in the framework. Each method is described with evidence of successful implementation, especially in the digital health field. Most are practical tools and the category with more examples is maturity and readiness levels, followed by design of solutions and value assessment tools.

An updated version of the framework and collection of tools will be available in October 2024.

Implication for digital health stakeholders

The "Methods and Tools to Support Digital Health Solutions Implementation" report has significant implications for stakeholders in the digital health ecosystem.

- End-users (patients and healthcare professionals): the report highlights the need for adopting user-centred design and business modelling tools to ensure that digital solutions meet end-user needs and are financially sustainable.
- Technology developers and startups are encouraged to leverage maturity and readiness level tools, such as the Technology Readiness Levels (TRL) and Scirocco Maturity Assessment Tool, to evaluate and enhance their solutions' readiness for large-scale deployment.
- Policymakers and payers are guided to focus on compliance with standards and norms, such as the mHealth assessment frameworks, to ensure that digital health innovations meet regulatory requirements and can be scaled across regions.

Overall, the document underscores the importance of a collaborative approach, where all stakeholders utilize these tools to drive the successful implementation of digital health solutions across Europe.

Legislative, regulatory, policy or standardisation instrument, or good practice

Title

Blueprint Personas

Instrument status

Published

Publisher or source

empirica - Blueprint on Digital Transformation of Health and Care for the Ageing Society
URL or reference
<a href="https://blueprint-personas.eu/">https://blueprint-personas.eu/</a>
Summary of the instrument
<p>The Blueprint Personas belongs to the category of “Design of solutions” and was developed as part of the European Blueprint on Digital Transformation of Health and Care for the Ageing Society by a team of experts with varied backgrounds coordinated by empirica.</p> <p>The Blueprint is a crosscutting horizontal initiative that reflects the common policy vision of European policy makers, civil society, professional organisations and industry on how innovation can transform health and care provision in our ageing society. As a shared policy vision, the Blueprint guides the efforts of the European Innovation Partnership in Active and Healthy Ageing (EIP on AHA) Action Groups and Reference Sites.</p> <p>As a tool for designing solutions, twelve personas were developed to assist in the design of health services, especially digital health services. Each persona is developed based on extensive research and real-world data, and they cover a range of demographic and health-related characteristics. This helps ensure that digital health solutions are more user-centred and tailored to the specific requirements of different groups within the aging population.</p> <p>The Blueprint Personas has been used extensively to design digital health services in the context of research and innovation projects.</p> <p>Other complementary persona profiles have been developed in the context of other projects or initiatives such as SHAPES<sup>7</sup> or EHRA<sup>8</sup>.</p>
Implication for digital health stakeholders
<p>The use of Blueprint Personas has significant implications for digital health stakeholders, particularly in enhancing the design and implementation of digital health solutions. By providing detailed, research-based profiles of various user types, including elderly populations with specific health needs, Blueprint Personas enable healthcare providers, technology developers, and policymakers to better understand and address the diverse requirements of end-users. This approach fosters more inclusive, user-centred designs that are likely to increase adoption and effectiveness of digital health interventions.</p> <p>For startups and innovators, leveraging these personas can guide the creation of solutions that are not only technically robust but also closely aligned with the real-world needs of patients and healthcare professionals, thereby improving market fit and scalability.</p>

Legislative, regulatory, policy or standardisation instrument, or good practice
Title
Value Proposition Canvas
Instrument status
Published
Publisher or source
Strategyzer
URL or reference
<a href="https://www.strategyzer.com/library/the-value-proposition-canvas">https://www.strategyzer.com/library/the-value-proposition-canvas</a>
Summary of the instrument
<p>The Value Proposition Canvas is a strategic management tool designed by Strategyzer, an innovation consulting company, to help businesses identify and communicate the value that their products or services offer to customers. It belongs to the category of “Business modelling” and consists of two main parts. The first part is the Customer which outlines the customer’s jobs, pains, and gains – explained in the context of the Value Proposition Tool. The second part is the Value Proposition which details the product’s features,</p>

<sup>7</sup> <https://shapes2020.eu/deliverables/shapes-personas/>

<sup>8</sup> <https://www.ehra.org/resource-library/personas>

pain relievers, and gain creators. By matching the Value Proposition to the Customers/Stakeholders' Profiles, the Value Map is built.

This exercise helps to ensure that customers' needs and their problems are addressed and thereby articulating the value proposition effectively.

### Implication for digital health stakeholders

The use of the Value Proposition Canvas has profound implications for digital health stakeholders, as it enables a clear and structured approach to aligning products and services with the specific needs of healthcare providers, patients, and other users.

By systematically identifying customer jobs, pains, and gains, and then mapping these to the features, benefits, and solutions offered by a digital health product, stakeholders can ensure a strong market fit.

- For the supply side, this tool helps in refining their offerings to address the most pressing issues faced by users, enhancing product adoption and success rates.
- For the demand-side, the canvas can be used to assess whether a digital health solution truly meets the needs of their patients and aligns with their operational goals.

Overall, the Value Proposition Canvas facilitates a more customer-centric approach to innovation in digital health, leading to more effective, user-friendly solutions that are better positioned for large-scale implementation.

### Legislative, regulatory, policy or standardisation instrument, or good practice

#### Title

SISCODE Toolbox for Co-Creation Journeys

#### Instrument status

Published

#### Publisher or source

SISCODE Project

#### URL or reference

<https://siscodeproject.eu/wp-content/uploads/2019/09/toolkit-27092019-1.pdf>

#### Summary of the instrument

The SISCODE Toolbox is a resource developed as part of the SISCODE (Society in Innovation and Science through CODEsign) project, funded by the European Union's Horizon 2020 programme. The toolbox is designed to support the co-creation of innovative solutions by bringing together various stakeholders, including citizens, researchers, policymakers, and industry professionals.

The SISCODE Toolbox includes a wide range of tools and methodologies for every stage of the co-creation process, from problem definition and ideation to prototyping and implementation. It is particularly focused on fostering collaboration and engagement across different sectors to address complex societal challenges. The toolbox is structured to help users select the most appropriate tools based on their specific context and needs, facilitating effective and inclusive innovation processes.

Some of the key tools within the SISCODE Toolbox include:

1. Co-Design Canvas: a template to help stakeholders plan and execute co-design activities.
2. Persona Development: tools for creating user personas to better understand the needs and behaviours of different stakeholder groups.
3. Journey Mapping: techniques for mapping out the experiences and interactions of users with a service or product.
4. Prototyping Tools: methods for quickly developing and testing prototypes to explore the feasibility and usability of ideas.
5. Scenario Building: tools to envision and explore future scenarios that might impact the solution.
6. Stakeholder Mapping: techniques for identifying and understanding the relationships and influence of different stakeholders involved in the project.

These tools are intended to help teams navigate the complexities of co-creation by offering practical resources to ensure that all relevant voices are heard and that solutions are well-aligned with the needs of end-users and other stakeholders. The toolbox also emphasizes the importance of tailoring the co-creation process to the specific context and challenges at hand.

## Implication for digital health stakeholders

For digital health stakeholders, the SISCODE Toolbox provides valuable resources for ensuring that health innovations are not only technically sound but also socially relevant and widely accepted. By leveraging the toolbox, stakeholders can enhance their capacity to co-create solutions that are better aligned with the needs and expectations of end-users, including patients, healthcare providers and policymakers, leading to more successful and sustainable outcomes.