

globally and within countries at national and subnational levels, that will contribute to building an internationally connected digital health system with consideration of potential risks. It aims to encourage international collaboration and to support countries in their national programmes towards improved health care service delivery, implementing national health strategies, promoting research and development and working towards achieving universal health coverage and the health-related Sustainable Development Goals.

The global strategy will lead to concrete actions and results within the time frame from 2020 to 2025.



# GUIDING PRINCIPLES

**The four guiding principles aim to orient the global strategy towards the appropriate and sustainable adoption of digital health technologies within the context of national health sector and health strategies.**

## 1

**Acknowledge that institutionalization of digital health in the national health system requires a decision and commitment by countries**

The global strategy acknowledges that each country owns its digital health action plan built on the strategy, within its own national context. Along their path towards the health-related Sustainable Development Goals, countries will adopt digital health in a way that is sustainable, respects their sovereignty, and best suits their culture and values, national health policy, vision, goals, health and well-being needs, and available resources.

## 2

**Recognize that successful digital health initiatives require an integrated strategy**

Digital technologies are an essential component and an enabler of sustainable health systems and universal health coverage. To realize their potential, digital health initiatives must be part of the wider health needs and the digital health ecosystem and guided by a robust strategy that integrates leadership, financial, organizational, human and technological resources and is used as the basis for a costed action plan which enables coordination among multiple stakeholders. These initiatives should be led through strong governance structures. The strategy should address an approach that will work across multiple health priorities underpinned by standards and an architecture that enables this integration.

Historical review shows that ill-coordinated or disjointed digital health initiatives lead to vertical or stand-alone information and communications technology solutions that, although well-intended, often result in information fragmentation and, consequently, poor delivery of services.



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# 3

## Promote the appropriate use of digital technologies for health

The global strategy promotes the appropriate use of digital technologies as digital public goods which are adaptable to different countries and contexts to help address key health system challenges to support equity in access to digital resources so that no one is left behind. It promotes the protection of people, populations, health care professionals and systems against misinformation and the misuse of information, malicious cyber activities, fraud and exploitation, inappropriate use of health data, racism and human rights violations within the framework established by international treaties binding the Member States.

The “digital determinants of health”, such as literacy in information and communication technologies and access to equipment, broadband and the internet, become more important as digital health becomes more prevalent. The global strategy underscores the need to ground digital foundations within national strategies and emphasizes the need to work with different sectors and stakeholders at all levels.

The global strategy promotes syntactic and semantic interoperability with WHO norms and standards as a cornerstone of health information to enable sharing of information in a connected world.

The appropriate use of digital health takes the following dimensions into consideration: health promotion and disease prevention, patient safety, ethics, interoperability, intellectual property, data security (confidentiality, integrity, and availability), privacy, cost-effectiveness, patient engagement, and affordability. It should be people-centred, trust-based, evidence-based, effective, efficient, sustainable, inclusive, equitable and contextualized. The growing global challenge of digital waste on health and the environment must also be appropriately managed.

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# 4

## **Recognize the urgent need to address the major impediments faced by least-developed countries implementing digital health technologies**

There is a pressing need to invest in efforts to overcome the major impediments that developing countries face in engaging with and accessing new digital health technologies, such as an appropriate enabling environment, sufficient resources, infrastructure to support the digital transformation, education, human capacity, financial investment and internet connectivity, as well as issues related to legacy infrastructure, technology ownership, privacy, security, and adapting and implementing global standards and technology flows.



# STRATEGIC OBJECTIVES

**The four strategic objectives are intended to provide guidance and coordination on global digital health transformation and to strengthen synergies between initiatives and stakeholders to improve health outcomes and mitigate associated risks at all levels.**

## 1

### **Promote global collaboration and advance the transfer of knowledge on digital health**

This strategic objective aims to align countries and stakeholders to collectively act upon global opportunities to improve health and work towards universal health coverage, while meeting challenges, identifying and communicating risks, and focusing on threats associated with the use of digital technologies both to improve health and to enable universal health coverage, the core of the health-related Sustainable Development Goals. This objective encourages action on common opportunities and challenges that are relevant to all countries and stakeholders, regardless of their situation.



Maximize the impact of both new and existing collaborations and partnerships in the wider digital health ecosystem. Knowledge of and investments in digital health design and implementation are shared across domains; hence this strategic objective aims to maximize collaborations and partnerships with other agencies within the United Nations system, countries and other stakeholders and to help to build new ones.

Assess and promote the latest, appropriate and innovative health technologies. Pioneering health technologies are creating new and advanced health care services and solutions. This sub-objective helps to ensure that the quality and outcome of the new health technologies are assessed in order to enable their timely adoption and promotion. Norms, standards, policies and regulations are needed to ensure the investment, sustainability, quality, security and safety of both digital health products and cutting-edge health technologies that not only are used in health care but that may also be directly marketed to individuals. Global guidance, coordination



and implementation of tools are required for their adoption and integration into existing systems and services at the national level.

### Policy options and actions

The following policy options and actions are proposed:

- 1) co-create the global strategy on digital health and establish mechanisms for strengthening national digital health strategies and implementing key collaborations on agreed-upon appropriate use of digital technologies to achieve national health and well-being goals;
- 2) establish a knowledge management approach to identify and share good practices, knowledge about implementation of new methods and techniques, evidence and lessons learned on digital health across countries and international communities;
- 3) support countries in establishing information centres for disease surveillance to manage and implement timely decisions during epidemics and other public health emergencies;
- 4) align countries and stakeholders to address collectively global, regional and national challenges and opportunities; identify, manage and communicate risks; and mitigate threats associated with the use of digital technologies to improve health and enable universal health coverage, the core of the health-related Sustainable Development Goals.

### Outputs

The following outputs are envisaged:

- 1) digital health is prioritized and integrated into health systems at global, regional and national levels through dedicated bodies and mechanisms for governance;
- 2) multistakeholder groups are convened on a regular basis to support the appropriate use and scaling up of digital health and innovation in order to accelerate progress towards the health-related Sustainable Development Goals;



- 3) information centres for disease surveillance are established or strengthened at national, regional and global levels.

## 2

### Advance the implementation of national digital health strategies

Strategic objective 2 aims to stimulate and support every country to own, adapt and strengthen its strategy on digital health in a way that best suits its vision, national context, health situation and trends, available resources and core values.



Strategic objective 2 encourages the development of a national strategy on digital health through an all- inclusive multistakeholder approach including actors collaborating within communities of practice and with consideration to the following core components: (1) leadership and governance; (2) investment and operations; (3) services and applications for scaling up (4) integration and sustainability, while (5) standards and interoperability are respected; (6) a flexible digital infrastructure; (7) an adaptable health workforce and (8) legislation, ethics policies and compliance; and (9) a people-centred approach. These should all be developed while the necessary alignment of country stakeholders is ensured in order that the needs and expectations with given resources be met.

The strategic objective aims to develop cross-sectoral partnerships at national level to align resources and investments to ensure the sustainability and growth of digital health. The objective also seeks to work with existing digital health partnerships to advance global digital health efforts. Developing national partnerships for the sustainability of digital health advances would accelerate their adoption by Member States.

Although each country is expected to review or develop and own its strategy from inception to implementation, this strategic objective aims to build human and institutional capacity for the safe and appropriate use and scale-up of digital health by strengthening the commitment and systematic engagement of all stakeholders in every country. The objective underpins the promotion of innovative integration of digital technologies into health systems.

To strengthen health systems by introducing digital technologies, a key objective is to find ways to build capacity and create a digitally-capable health workforce. Needs will vary from country to country, but they often include basic capacities, such as leadership and governance, and the development of a skilled health and technological workforce.

### Policy options and actions

The following policy options and actions are proposed:

- 1) stimulate and support every country to adopt or review, own, and strengthen its national digital health strategy in a way that enhances the level of country maturity regarding digital health to achieve positive health outcomes in line with the national health plans, updated norms and standards recommendations, and universal health coverage;
- 2) ensure that institutions, decision-makers and personnel involved in the provision of health care services and all end-user communities and beneficiary populations are adequately engaged in the design and development phases;
- 3) facilitate a systematic engagement of all relevant stakeholders in the realization of the vision and its strategic objectives as part of an integrated digital health ecosystem at the national level;
- 4) define a national digital health architecture blueprint or road map, adopt open-source health data standards and aim for reusable systems or assets including interoperability of health information systems both at national and international levels in order to establish an innovative integration of different digital technologies using shared services, ensuring data are of good and comparable quality;
- 5) adopt legal and ethical frameworks for assuring patient safety, data security, appropriate use and ownership of health data, privacy data recoverability, as well as protection of intellectual property rights;

- 6) identify and promote sustainable financing models in support of digital health development and sharing of learning to inform future products and services. This is especially important in artificial intelligence including machine learning, implementation, integration and maintenance, including economic incentives; and
- 7) design, implement and monitor a change management plan, to support conducive organizational behaviour surrounding newly digitized health processes and practices.

### Outputs

The following outputs are envisaged:

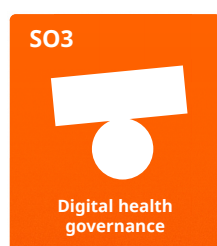
- 1) a national digital health strategy or equivalent strategic framework exists, is integrated in the national health strategy and is actively used to guide development and accelerate progress towards the health-related targets of the Sustainable Development Goals and in the context of digital transformation of health systems; and
- 2) a dynamic digital health maturity model assessment to guide prioritization of national investment in digital health is made in support of primary health care and universal health coverage.

## 3

### Strengthen governance for digital health at global, regional and national levels

This strategic objective focuses on strengthening the governance of digital health at national and international levels through the creation of sustainable and robust governance structures and building the capacity for digital health at global and national levels. Governance for digital health aims to strengthen the capabilities and skills needed for countries to promote, innovate and scale up digital health technologies.

The strategic objective promotes standards for safety, security, privacy, interoperability, and the ethical use of data within and outside the health sector. Actions to strengthen governance



should include defining principles and reaching cross-sectoral and international agreements for data sharing, quality and accuracy of health data and prioritization of investment plans and policy. It should also include principles for the ethical use of health data in technologies such as artificial intelligence and big data analytics.

It also aims to improve measurement and monitoring of and research on the application of digital health in the health sector. The research agenda should meet the need to improve and disseminate evidence and information on the use of digital health at all levels. Research on and evaluation of digital health outcomes and impact are essential to support its safe implementation, to establish and promote accountability and to justify the financial investment. The agenda should also address the need to stimulate the development and testing of technologies, methods and infrastructures that overcome obstacles to the application of digital health to health priorities. This agenda is closely linked to capacity-building of research teams and the improvement and sharing of methods and data analytics.

### Policy options and actions

The following policy options and actions are proposed:

- 1) strengthen governance of digital health at national and international levels by leveraging existing structures and as appropriate creating sustainable and robust governance structures, including regulatory frameworks, and the capacity for the implementation of evidence-based and proven digital health solutions at global and national levels;
- 2) coordinate investments in evidence-based approaches to assess promote and disseminate new and innovative health technologies for national scaled digital health programmes using a person-centred approach to facilitate actions and investments based on informed decisions;
- 3) promote and facilitate digital health competencies in the education and training curricula of all health professionals and allied workers; and



- 4) promote capacity-building for leaders of public health authorities, affiliated agencies and policy-makers to take informed decisions to support digital health investments.

## Outputs

The following outputs are envisaged:

- 1) governance exists, in accordance with Secretariat-led development of regulatory framework, to agree on global appropriate use of health data and on concepts such as health data as a global public good and to outline principles of equitable data-sharing principles for research, consistent metadata and definitions, artificial intelligence and data analytics, and primary and secondary use of data;
- 2) a voluntary guideline on global interoperability standards for digital health is developed in collaboration with stakeholders and adopted, that a) tries to build upon results already broadly achieved, b) includes a list of commonly agreed use cases for the public health care sector, its functional requirements and a set of functional and technical specifications, standards, semantics and profiles derived thereof, c) defines requirements for a sound legal and regulatory framework with clearly defined roles for data governance and d) encompasses political leadership regarding public investment, procurement and standardization to create an interoperable digital health ecosystem at the national and international levels;
- 3) global guidance on planning, development and use of digital hospitals, digital clinical trials and digital therapeutics is developed; and
- 4) a set of recommendations is developed for pseudonymization and anonymization of health data.

## 4

**Advocate people-centred health systems that are enabled by digital health**

This strategic objective advances digital health literacy, gender equality and women's empowerment and inclusive approaches to adoption and management of digital health technologies.



The strategic objective places people at the centre of digital health through the adoption and use of digital health technologies in scaling up and strengthening health service delivery. The individual is an essential component in the delivery of trust-based, people-centred care. This focus covers not only patients, families and communities but also the health workers who need to be prepared to deploy or use digital health technologies in their work. Planning for capacity-building includes workforce assessment, ranging from professionals in information and communication technologies to health workers providing care services. Being intrinsically multidisciplinary and interdisciplinary, capacity-building entails instilling capabilities, attitudes and skills which may range from computer sciences, strategic planning, finance and management to health sciences and care delivery, depending on the digital health application and its context. Assessment of the workforce should also consider the implications for the health labour market of introducing digital technologies and their management. This objective would call for countries to move away from the current disease focused systems to an integrated approach with the patient at the centre.

Attitudes to, practices in and public awareness of digital health should also be addressed. Possible actions include improving digital health literacy at the population level, engagement of patients, families and communities, and education of patients about health. Better responding to the social and commercial determinants of health to improve digital health-enabled health systems will need the engagement of civil society but also non-health sectors and actors. Increasing awareness of evidence based self-management tools and increasing access to these is a further action to consider.

## Policy options and actions

The following policy options and actions are proposed:

- 1) place people at the centre of digital health through the appropriate health data ownership, adoption and use of digital health technologies and development of appropriate literacy; the focus will cover not only patients, families and communities but also health workers;
- 2) develop approaches to the management of health at the population level through digital health applications that move health and well-being from reactive-care models to active community-based models, and reduce the burden of data collection from front-line workers by reorienting reporting-based tools into service delivery tools;
- 3) establish monitoring and evaluation models to facilitate monitoring the contribution of digital systems to health system processes, health workforce processes, and individual and community health needs;
- 4) strengthen gender equality and health equity approaches and accessibility for people with disabilities to promote inclusive digital society with enhanced digital health skills. When planning and prioritizing digital health interventions, relevant factors of inequality should be assessed in order to ensure that the introduction of digital health technologies does not aggravate these (“do no harm”) and that access for specific population groups is guaranteed. In addition, the specific potential of digital technologies to promote health equity should be leveraged. Designed properly, digital solutions can propel inclusiveness as digital connectivity can transcend physical barriers;
- 5) implement mechanisms for more effective public participation and transparency in national and international digital health decision-making processes, such as through international consultation processes or a stakeholder forum;
- 6) develop digital health training or Massive Open Online Courses to improve digital health literacy; and