



# 168th SESSION OF THE EXECUTIVE COMMITTEE

*Virtual Session, 21-25 June 2021*

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*Provisional Agenda Item 4.3*

CE168/10  
5 May 2021  
Original: English

## ROADMAP FOR DIGITAL TRANSFORMATION OF THE HEALTH SECTOR IN THE REGION OF THE AMERICAS

### Introduction

1. Frequently, those who need most from the health system are those who have least access to it. Digital technologies have the potential to increase access, but populations with the greatest health vulnerability typically have the lowest levels of digital health connectivity and literacy. In the Region of the Americas, hundreds of millions of people continue to experience structural discrimination, exclusion, and inequality due to lack of access to digital technologies and to the potential health benefits associated with their use. There is an urgent need for digital transformation of the health sector, but it must specifically aim to ensure equitable access to all populations, especially those living in situations of vulnerability. A non-equitable approach to digital transformation could end up being counterproductive, disadvantaging vulnerable populations even more.

2. The COVID-19 pandemic has accelerated the need for a rapid adoption of digital solutions in public health. Information systems and digital health solutions that are accessible and ready to use have proved crucial to the delivery of care at all levels of the system: the patient, the community the care team, the health care organization, and the political and economic environment. Digital solutions will also be key to post-pandemic recovery and rebuilding. The response to the pandemic has shown that for digital solutions to be effective, systemic changes are required. Such changes can result in new and innovative ways to fulfill the mandate of the health sector.

3. This policy aims to support ministries of health to participate in a safe, ethical, equitable, inclusive, and cost-effective way in the digital transformation processes of governments, with a view to accelerating the adoption and implementation of interoperable digital health solutions across all sectors through a multi-stakeholder approach. As digital health tools vary in scope and purpose, this requires an understanding of the specific value and requirements of each technology, but should also consider access to mobile phone, electricity and internet. Also needed are guidelines that will help countries co-create and adopt joint solutions and develop public policies, taking into account the perspectives and

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knowledge of multiple stakeholders. This process should always be guided by respect for individual rights, by ethical considerations regarding management of personal data and by informed consent, with particular focus on privacy, security, ownership, safekeeping and confidentiality.

## **Background**

4. The Roadmap for Digital Transformation of the Health Sector in the Region of the Americas builds on resolutions adopted by the United Nations General Assembly, the World Health Assembly, and the Directing Council of the Pan American Health Organization (PAHO), as well as on related global and regional strategies and recommendations of United Nations (UN) panels on digital transformation.

5. Since 2016, PAHO has collaborated with Member States to develop a renewed framework for information systems for health, along with guidelines, tools, and training materials. The Organization has supported interventions that employ an innovative approach to the development and use of interoperable and interconnected databases and digital tools. Moreover, the World Health Organization (WHO) has recognized the need to expand this model to other WHO Regions to meet the recently established goals of the Global Strategy on Digital Health 2020-2025 (1). Additionally, the Sustainable Health Agenda for the Americas 2018-2030 (2) recognized the importance of strengthening information systems for health to support the development of evidence-based policies and decision making (Goal 6) and the development of capacity for the generation, transfer, and use of evidence and knowledge in health, promoting research, innovation, and the use of technology (Goal 7).

6. This policy is framed in the context of major global commitments and initiatives that recognize that digital transformation of the health sector is needed and should be included in any broader plans for digital transformation of governments. Digital transformation for health implies digital interdependence among stakeholders because no single entity has all the knowledge, creativity, or human, financial, and technological resources that are required. Accordingly, the policy is fully aligned with the UN Secretary-General's Roadmap for Digital Cooperation (3). It also encompasses or complements previously approved PAHO resolutions on eHealth (4), universal access to health and universal health coverage (5), information systems for health (6), vital statistics (7) and health in all policies (8), as well as the resolution on digital health approved in 2018 by WHO (9).

7. Although significant progress has been made toward launching a digital transformation in health, many challenges remain. There is a need for revised and updated policies, legislation, and guidelines aimed at ensuring ethical use of data, interoperability, and cybersecurity. Also needed are mechanisms for a secure, ethical, and equitable adoption of modern technologies such as artificial intelligence and blockchain.

## Situation Analysis

8. As the pandemic disrupted the provision of services at primary health care facilities around the world, existing and newly developed digital solutions emerged as a cornerstone of universal access to health care and continuity of care. This widening use of digital delivery provided a learning environment that has drastically changed the way we think about the delivery of health services. While not completely replacing direct contact, telehealth provided an important way for people to interact with the health sector to address their health needs. Digital solutions also strengthened the capacity of all stakeholders to access the information needed to understand complex scenarios.

9. Many unmet health needs can be addressed virtually by adapting and adopting information technologies. Digital transformation actions can facilitate the assessment, diagnosis, and management of health problems in a safe and effective manner, thereby fostering greater equity in access to timely medical care. Drawing on the Universal Health framework, digital transformation can contribute meaningfully at several stages that collectively define successful Universal Health: availability, accessibility, acceptability, quality, and contact, collectively leading to effective coverage. This transformation does not occur automatically, but requires a culture change. Among other things, it is necessary to provide secure environments, train human resources, and promote continuous assessment of the quality of care and of the efficiency and effectiveness of interventions in all stages of the process.

10. Toward this end, it is essential to support digital access and literacy for all, with special attention to the most vulnerable populations. Currently, 3.6 billion people across the globe have no Internet access. According to the International Telecommunication Union, an investment of \$428 billion is needed to connect 3 billion people to the Internet and achieve broadband access for everyone by 2030 (10). This situation poses a fundamental challenge for the capture of data that can be processed in information systems for decision making. Moreover, access to digital solutions can be impacted by structural factors such as cost, copyright, and intellectual property laws, as well as other determinants such as digital health and data literacy, language, age, gender, geographic area, and disability, among other barriers.

11. Internet access is growing worldwide but remains higher in the most developed economies and countries. South Korea (94%), Australia (93%), and Canada (90%) have the highest access rates, while rates above 80% are also seen in the United States, the United Kingdom, Spain, Israel, and Germany. Among countries of Latin America and the Caribbean (LAC), by contrast, median access is 64%, with the highest rates found in Chile (78%) and Argentina (71%) and the lowest in Mexico (54%) and Peru (52%) (11). In LAC overall, 54% of the population has regular Internet access, according to the Digital Ecosystem Observatory of CAF, Development Bank of Latin America (12). This compares with 77% for countries of the Organization for Economic Co-operation and Development (OECD). Mobile telephone service has achieved a penetration of 110% in LAC (more cellphones than population), while 57% of the population has mobile broadband and

41% has a fixed broadband connection. Smartphone penetration in LAC stands at 46%, while the figure in the OECD countries is 67%.

12. There are also marked disparities between localities and populations within individual countries and territories. Worldwide, at-home Internet access is twice as high in urban areas as in rural areas. In the Americas, the gap is slightly less, at 74% urban and 50% rural (13).

13. It is essential to support global cooperation in the use of artificial intelligence and any emerging technologies that support public health. Nonetheless, while these advanced technologies have the potential to bring benefits, their complexity or cost often excludes the most disadvantaged populations. Thus, public policies must be adopted that will make it possible to evaluate and correct algorithmic and data-driven biases to guarantee social inclusion and equity at all stages, from system design to implementation.

14. Making data findable, accessible, interoperable, secure and reusable, for health care managers, policy makers, and researchers while at the same time providing reliable information that meets the health information needs of individual users in a multicultural context, poses a challenge—especially in resource-poor settings. One of the problems that the COVID-19 pandemic exposed is the existence of a vast amount of information, shared across diverse popular communication and social media platforms, that frequently does not come from reliable evidence-based sources. WHO has defined this phenomena as the “infodemic.” Efforts are being made to improve the quality of information and prevent inaccurate messaging, but these measures are not uniform across nations and are heavily influenced by different variables. Digital transformation policies should include efforts to fight the infodemic by examining its determinants and seeking solutions.

## **Proposal**

15. This policy has been developed to ensure consistency and convergence in the development of inclusive national policies and regulatory environments for digital transformation in health. It calls for the development of human capital and infrastructure that allow digital technologies to be used inclusively, ethically, and securely, for the purpose of enhancing cooperation in the broader public health ecosystem.

16. It calls for an interdisciplinary and multi-stakeholder approach that will contribute to the timely, secure, and ethical adoption of digital technologies and artificial intelligence algorithms for the benefit of the entire public health system within the framework of people-centered health.

17. Taking into account their own contexts and priorities, actions to guide countries in the process of digital transformation of the health sector are proposed below. These actions provide technical orientation for the adoption of digital solutions and artificial intelligence as well as standards for ensuring interoperability among information systems and platforms and for the use of emerging and complex technologies in policy and decision making.

18. The Pan American Sanitary Bureau (PASB) will provide technical cooperation to the Member States for the implementation of these priority actions. The actions are aligned with eight principles for digital transformation of the health sector, adapted from the UN Roadmap for Digital Cooperation, that were co-created with Member States and presented by the Director of PASB at a conference on information systems for health in February 2021 (14). Those principles relate to universal connectivity, digital public health goods, inclusive digital health, interoperability, human rights, artificial intelligence, information security, and public health architecture.

***Alignment with United Nations digital transformation***

19. In mid-2020, the United Nations endorsed eight areas of collaboration for strengthening technical cooperation in the age of digital interdependence, based on the recommendations of a high-level panel (3). Priority actions for supporting digital transformation processes in the health sector in the Region of the Americas, listed below, are fully aligned with these eight areas defined by the United Nations.

20. *Universal connectivity: Achieve universal connectivity in the health sector by 2030.* Successful initiatives to position the health sector in the age of digital interdependence should include sustainable public policies that consider the needs and challenges of people, communities, and service providers, as well as the benefits that will accrue to governments by positioning connectivity and bandwidth as a high priority for public health interventions at all levels and ensuring an equitable approach, in particular for vulnerable populations.

21. *Digital goods: Co-create digital public health goods for a more equitable world.* To improve the health and well-being of the population of the Region, public policies should include digital public health goods, including more equitable access to the Internet, use of open-source software, open standards, transparent algorithms for automatic decision making, open data with provisions for individual data protection, and applications. These should be designed with appropriate architecture and licensing to scale them globally in different populations and contexts, with the capacity for local adaptation.

22. *Inclusive digital health: Accelerate progress toward inclusive digital health, with emphasis on the most vulnerable populations.* Leaving no one behind in the digital age requires reaching not only populations in conditions of greater social, economic, geographic, or cultural vulnerability, but also people and population groups that are not digitally literate. Digital transformation policies have the potential to reduce health inequalities by giving women and men in diverse populations access to digital information and tools for prevention and care, in the right format, when needed. Digital inclusion requires access and appropriate digital skills, as well as the development of digital technology solutions that are user-friendly and easy to navigate.

23. *Interoperability: Implement open, sustainable, interoperable digital information and health systems.* Through standards for interoperability, timely open access to properly disaggregated data, the integration of national and local systems, and the use of common

information and communication technologies (ICT), information systems for health can facilitate *a)* effective identification, reporting, and analysis of health events; *b)* early case-finding; and *c)* can secure interoperable systems that support identification of trends to address specific needs of at-risk populations.

24. *Human rights: Mainstream human rights across all areas of digital transformation in health.* Guaranteeing the protection of human rights in digital health requires an immediate in-depth review of legal and regulatory instruments directly or indirectly related to the health sector. Human dignity in its individual and social dimensions should be one of the basic values that guides this process. Regulatory frameworks should be fair, equitable, and free of any geographic, cultural, policy, religious, literacy, sexual orientation, gender identity, or gender bias that could result in inequitable or unjust acts.

25. *Artificial intelligence: Participate in global cooperation on artificial intelligence and any emerging technology.* The principle of global cooperative support in artificial intelligence and any emerging technology means including the individual and social dimension in a globalized interconnected reality that is now part of the human condition. This cooperation, as well as multisectoral interdisciplinary networking, is vital for the design, creation, and implementation of solutions based on trustworthy artificial intelligence. These solutions should be technically robust, using secure, reliable, and open algorithms. They should be lawful, meet internationally accepted ethical standards, promote equity, and take into account gender and cultural diversity.

26. *Information security: Establish mechanisms for ensuring the confidentiality, integrity and security of information in the digital public health setting.* Steps should be taken to adopt regulatory instruments for the treatment and protection of sensitive health information, as well as international guidelines and security standards for patient-centered information systems for health. Implementation should respect patient health rights, creating a culture of secure and reliable data management that strikes a balance between the need for access to data and the privacy of that data.

27. *Public health architecture: Design public health architecture for the age of digital interdependence within the framework of a digital governance agenda.* This architecture should be cross-cutting, permitting proper coordination of the different areas of governance and achieving optimization of strategic planning and management of the resources allocated to it. Its implementation should be based on the optimization of standards and procedures that benefit multiple areas and are not limited exclusively to public health. For example, connectivity and bandwidth are key elements that impact health, education, and other sectors.

### ***Promotion of Policy Action***

28. Effective implementation of the Roadmap for Digital Transformation of the Health Sector in the Region of the Americas depends on substantive interventions that employ an interdisciplinary and multi-stakeholder approach. Toward this end, it will be necessary to

a) identify national policy gaps with respect to the adoption of internationally agreed or recognized standards for the rapid uptake of digital solutions, achievement of interoperability, and secure, ethical, and disaggregated data management; b) propose policy frameworks based on the rapid but secure and ethical adoption of digital solutions; c) promote the review, adaptation, and effective implementation of existing policies in keeping with an evidence-based approach; d) build shared regulatory frameworks to ensure the quality, reliability, and safety of digital health technology in the care of patients, and e) promote and facilitate the full participation of digitally disconnected people and institutions. Different modalities that acknowledge gender inequalities and cultural diversity should be utilized, with a focus on ensuring equity.

### ***Strategic Partnerships and Knowledge Sharing***

29. Networking approaches that enable collaboration, co-creation, and knowledge sharing in digital transformation processes appear to be especially relevant in the context of public health policies. A shared knowledge platform for all Member States will be a critical factor for success in creating digital health solutions and interoperable digital health ecosystems.

30. This area of intervention seeks to promote effective participation, joint efforts, commitment, and strategic partnerships among health authorities, other state and private institutions, local organizations, academia, knowledge networks, and the general population to foster action to increase digital inclusion. This should include direct engagement with representatives of user groups who have been identified as being potentially disconnected.

### ***Capacity Development at All Levels***

31. It is essential to implement digital health literacy programs at all levels, targeting institutional personnel, health workers, and members of the general public who can benefit from digital solutions. This should include efforts to accelerate the incorporation of emerging technologies such as artificial intelligence and blockchain where determined beneficial. Furthermore, the design of technical and professional health curricula should be grounded in an inter-programmatic and intersectoral approach.

32. Capacity development should consider gender balance as well as representation of indigenous peoples, Afro-descendants, other ethnic groups, and people with disabilities, based on the respective national and local contexts, in order to promote ethical, equitable, and culturally appropriate and gender-sensitive digital health solutions.

### **Monitoring and Evaluation**

33. The Roadmap for Digital Transformation of the Health Sector in the Region of the Americas contributes to the achievement of the PAHO Strategic Plan 2020-2025 and the Sustainable Health Agenda for the Americas 2018-2030. The monitoring and evaluation of

this policy are aligned with the Organization's results-based management framework and with its performance monitoring and evaluation processes. After five years, in 2026, an evaluation will be conducted to identify strengths and weaknesses in the the overall execution of the policy. A progress report will be presented to the Governing Bodies with the results of the evaluation.

### **Action by the Executive Committee**

34. The Executive Committee is invited to review the Roadmap for Digital Transformation of the Health Sector in the Region of the Americas, provide any comments it deems pertinent, and consider approving the proposed resolution presented in Annex A.

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## 168th SESSION OF THE EXECUTIVE COMMITTEE

*Virtual Session, 21-25 June 2021*

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CE168/10  
Annex A  
Original: English

### ***PROPOSED RESOLUTION***

#### **ROADMAP FOR DIGITAL TRANSFORMATION OF THE HEALTH SECTOR IN THE REGION OF THE AMERICAS**

##### ***THE 168TH SESSION OF THE EXECUTIVE COMMITTEE,***

(PP) Having considered the *Roadmap for Digital Transformation of the Health Sector in the Region of the Americas* (Document CE168/10),

##### ***RESOLVES:***

(OP) To recommend that the 59th Directing Council adopt a resolution along the following lines:

#### **ROADMAP FOR DIGITAL TRANSFORMATION OF THE HEALTH SECTOR IN THE REGION OF THE AMERICAS**

##### ***THE 59TH DIRECTING COUNCIL,***

(PP1) Having considered the *Roadmap for Digital Transformation of the Health Sector in the Region of the Americas* (Document CD59/\_\_);

(PP2) Bearing in mind the commitments that Member States have made for the strengthening of information systems for health, vital statistics, critical data management, digital literacy, and digital health;

(PP3) Recalling the principles enshrined by the United Nations Secretary-General's Roadmap for Digital Cooperation;

(PP4) Considering the need to accelerate progress toward inclusive digital health with emphasis on the most vulnerable populations, especially those in conditions of greater social, economic, geographic, or cultural vulnerability and population groups that are not digitally literate or lack internet access;

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(PP5) Observing that the Member States of the World Health Organization affirmed their commitment to digital health at the 71st World Health Assembly in 2018 by requesting development of a global strategy on digital health, which was approved by the 73rd World Health Assembly through Decision WHA73(28);

(PP6) Recognizing the cross-cutting nature of this policy and its alignment with the objectives of the PAHO Strategic Plan 2020-2025 and the Sustainable Health Agenda for the Americas 2018-2030,

**RESOLVES:**

(OP)1. To approve the *Roadmap for Digital Transformation of the Health Sector in the Region of the Americas* (Document CD59/\_\_\_).

(OP)2. To urge Member States, considering their own contexts and priorities, to:

- a) Strengthen institutional and community capacity at all levels to implement digital health solutions, helping, among other things, to support access to quality health services, to produce sufficient quality data and generate evidence in the adoption of emerging technologies such as artificial intelligence and blockchain, among others, where determined beneficial;
- b) Increase, promote, and support the participation of indigenous peoples, Afro-descendants, Roma, and members of other ethnic groups in the development and implementation of digital transformation policies, considering gender and cultural differences;
- c) As appropriate, prepare and implement national and subnational policies, plans, programs, and interventions informed by the Roadmap for Digital Transformation of the Health Sector in the Region of the Americas, making the necessary resources and legal framework available and focusing on the needs of at-risk populations in vulnerable situations.

(OP)3. To request the Director to:

- a) Provide technical support to Member States in the implementation of a coordinated Roadmap for Digital Transformation of the Health Sector at the national, subregional, regional, and inter-institutional levels,
- b) Promote technical cooperation to assist countries in strengthening health system capacity to include digital health solutions in line with the Sustainable Development Goals and applicable international and regional human rights instruments;
- c) Facilitate the co-creation, production, and dissemination of tools, studies, and reports in support of national policies and digital health solutions;
- d) Report periodically to the Governing Bodies on the progress and challenges encountered in the implementation of the Roadmap for Digital Transformation of the Health Sector in the Region of the Americas.

## Report on the Financial and Administrative Implications of the Proposed Resolution for PASB

**1. Agenda item:** 4.3 - Roadmap for Digital Transformation of the Health Sector in the Region of the Americas

**2. Linkage to [Program Budget of the Pan American Health Organization 2020-2021](#):**

*Outcome 20:* Integrated information systems for health developed and implemented with strengthened capacities in Member States and the Pan American Sanitary Bureau.

Work toward this outcome focuses on the development and implementation of integrated, interoperable information systems for health in countries and territories, with ethical management of data from various sources, using effective information and communication technologies to generate disaggregated strategic information for the benefit of public health.

**3. Financial implications:**

**a) Total estimated cost for implementation over the lifecycle of the resolution (including staff and activities):**

The estimated cost of implementing this policy over the period 2021-2022 will be US\$ 2,500,000. This includes expenditures corresponding to technical and administrative staff, as well as direct technical cooperation activities for implementing national plans and policies on information systems for health. The estimated gap is 15% of the total budgeted amount. Meeting the goals of this regional policy will require commitment and investment by Member States in its implementation, as well as support from PAHO/WHO Collaborating Centers and relevant partners.

Area	Estimated cost (US\$)
Human resources	1,200,000
Training	450,000
Consultants/service contracts	500,000
Travel and meetings	100,000
Publications	150,000
Supplies and other expenses	100,000
<b>Total</b>	<b>2,500,000</b>

**b) Of the estimated cost noted in a), what can be subsumed under existing programmed activities?**

Of the estimated cost, 40% could be subsumed under existing programmed activities.

**4. Administrative implications:**

**a) Indicate the levels of the Organization at which the work will be undertaken:**

All levels of the Organization (regional, subregional, and national) will participate in activities to implement the regional policy, in keeping with their defined responsibilities.

**b) Additional staffing requirements (indicate additional required staff full-time equivalents, noting necessary skills profile):**

It will be necessary to work with experts in a network and engage in formal collaboration with institutions of excellence, strengthening current initiatives and taking advantage of existing capacities in Member States. Additional posts will not be needed.

**c) Time frames (indicate broad time frames for the implementation and evaluation):**

Time frames for the implementation and evaluation activities are aligned with those established in the Organization's strategic and operational planning: that is, with the Program Budgets and the Strategic Plan, following the schedule adopted by the Governing Bodies.

## Analytical Form to Link Agenda Item with Organizational Mandates

1. <b>Agenda item:</b> 4.3 - Roadmap for Digital Transformation of the Health Sector in the Region of the Americas
2. <b>Responsible unit:</b> Department of Evidence and Intelligence for Action in Health
3. <b>Preparing officers:</b> Dr. Sebastian Garcia Saiso, Mr. Marcelo D'Agostino
4. <b>Link between Agenda item and the <a href="#">Sustainable Health Agenda for the Americas 2018-2030</a>:</b> <i>Goal 6:</i> Strengthen information systems for health to support the development of evidence-based policies and decision-making. <i>Goal 7:</i> Develop capacity for the generation, transfer, and use of evidence and knowledge in health, promoting research, innovation, and the use of technology.
5. <b>Link between Agenda item and the <a href="#">Strategic Plan of the Pan American Health Organization 2020-2025</a>:</b> <i>Outcome 20:</i> Integrated information systems for health developed and implemented
6. <b>List of collaborating centers and national institutions linked to this Agenda item:</b> <ul style="list-style-type: none"> <li>• Inter-American Development Bank (IDB), Social Protection and Health Division</li> <li>• George Alleyne Chronic Disease Research Centre, Caribbean Institute for Health Research, University of the West Indies</li> <li>• Italian Hospital of Buenos Aires, Department of Health Information (PAHO/WHO Collaborating Center for Knowledge Management)</li> <li>• Universitat Oberta de Catalunya (PAHO/WHO Collaborating Center in eHealth)</li> <li>• University of Illinois, Center for Health Informatics (PAHO/WHO Collaborating Center for Information Systems for Health)</li> <li>• National Center of Technological Excellence in Health (CENETEC), Mexico</li> <li>• Harvard Medical School</li> <li>• Telemedicine University Network, Brazil</li> </ul>
7. <b>Best practices in this area and examples from countries within the Region of the Americas:</b> <ul style="list-style-type: none"> <li>• Open Government Partnership initiative (<a href="https://www.opengovpartnership.org/">https://www.opengovpartnership.org/</a>)</li> <li>• Global Digital Health Index (<a href="https://www.digitalhealthindex.org/">https://www.digitalhealthindex.org/</a>)</li> <li>• Principles for Digital Development (<a href="https://digitalprinciples.org/">https://digitalprinciples.org/</a>)</li> </ul>