CLIAS

CENTRO DE INTELIGENCIA ARTIFICIAL Y SALUD PARA AMÉRICA LATINA Y EL CARIBE

Roadmap for the implementation of Artificial Intelligence in Health in Latin America and the Caribbean

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EXECUTIVE SUMMARY

To integrate artificial intelligence (AI) into healthcare, it's important to start from a fundamental reality: healthcare systems in Latin America and the Caribbean are not all at the same level of preparedness. This situation varies depending on the country, the level of care, and the different dimensions of the healthcare system.

In this context, before making implementation decisions, the **first step is to understand the current state of each system** . Without a clear diagnosis of the starting point, decisions about how to develop and implement AI are based on assumptions about the system's capabilities that may not reflect reality. This can lead to selecting unsuitable solutions, implementing them in environments that are not prepared to support them, or failing to achieve the expected results in practice.

To integrate AI systems into the health sector, it is first necessary to assess what basic conditions are available: sufficient and high-quality data, systems capable of exchanging information, adequate infrastructure and connectivity, and institutional capacities to support its use.

This document **proposes that countries first assess the enabling conditions of their healthcare systems for integrating AI,** identifying what has been resolved, what is under development, and where gaps exist and how to prioritize them. **Based on this assessment, a roadmap is presented to guide how to move forward gradually and strategically, depending on each system's starting point.**

1. INTRODUCTION

AI is gaining increasing relevance in the healthcare sector, with the potential to contribute to improved quality of care, service efficiency, and clinical and public health decision-making. However, its effective implementation depends not only on the availability of technologies but also on the existence of suitable conditions within healthcare systems that allow for its integration in a safe, sustainable, and population-focused manner.

In Latin America and the Caribbean, health systems exhibit varying levels of development in digital health, which directly impacts their capacity to incorporate new technologies. Aspects such as governance, data quality and availability, information system interoperability, technological infrastructure, and workforce training are key factors for the effective use of artificial intelligence in the sector.

In this context, it is essential **to have tools that allow countries to assess their level of preparedness and guide decision-making in a progressive and contextualized manner** . This document proposes a **preparedness framework for implementing AI in healthcare, designed to support the teams using it in identifying enabling conditions, analyzing gaps, and defining a roadmap for advancing its implementation** .

This roadmap allows for gradual progress, prioritizing interventions according to the level of preparedness of each system, and facilitating the progressive implementation of AI initiatives in health based on existing conditions.

1.1. METHODOLOGY

The development of this framework began with a comprehensive review of documents, strategic frameworks, and planning tools on AI and digital transformation in healthcare. The objective was not to replicate any existing model, but rather to identify common elements from various international experiences that could be adapted to the diversity of Latin America and the Caribbean.

Three documents were consulted as structural references: the PAHO's 8 guiding principles for digital transformation in health [1]; the National Policy Roadmap for Artificial Intelligence in Healthcare from the Australian Alliance for Artificial Intelligence in Healthcare (AAAiH) [2];

[1] https://www.paho.org/es/documentos/inteligencia-artificial-sinopsis-politicas
[2] https://aihealthalliance.org/2023/11/28/news/

and the 2026–2028 Digital Health Strategic Plan of the Community of Madrid [3]. The geographical diversity of these sources was intentional: to avoid building the framework from a single regulatory tradition.

The conceptual framework is based on the seven enabling building blocks that the WHO identifies for digital health ecosystems, which function as the institutional, regulatory, and human dimensions necessary for integrating technologies sustainably [4]. To translate these dimensions into a practical self-assessment tool, the WHO's Global Digital Health Monitor [5]and the "Artificial Intelligence in Public Health Readiness" report were used as references. Assessment Toolkit developed [6]by PAHO/WHO and the IDB.

The result is a guiding and flexible instrument, designed to be useful in countries with different levels of digital development, recognizing **from the outset that the diversity of the region is not an obstacle, but a design condition** .

1.2 WHY THIS DOCUMENT IS USEFUL

This document aims to support government teams, ministries of health and technology, and health authorities at the provincial, state, and national levels in a crucial preliminary stage: defining the conditions for the responsible integration of AI in healthcare. Its starting point is a specific question: **what capabilities, resources, and conditions does the healthcare system currently possess to move forward in this direction?**

Answering that question requires first examining the existing reality. Before defining goals, projects, or technological solutions, it is necessary to understand the current state of the system: its institutional capacities, its technical infrastructure, the availability and quality of its data, its human resources, its regulatory frameworks, and its governance mechanisms. Without this initial assessment, any roadmap risks becoming a list of aspirations that are difficult to implement.

Therefore, the document proposes a route organized in three stages.

1. **A self-assessment** aimed at identifying the situation of the health system in key dimensions.

2. **A gap analysis** that allows us to distinguish between those that are critical, those that can be addressed with our own capabilities, and those that require coordination with other actors.

3. **A roadmap** which orders the necessary actions to advance gradually, realistically and sustainably in the implementation of AI in health.

[3] https://www.comunidad.madrid/file/513314/download
[4] https://www.bmz-digital.global/wp-content/uploads/2025/10/02-Los-siete-pilares-del-sistema-de-salud-electronica.pdf
[5] https://digitalhealthmonitor.org/
[6] https://www.paho.org/en/documents/artificial-intelligence-public-health-readiness-assessment-toolkit

2. THE 7 ENABLING CONDITIONS

The implementation of AI in healthcare depends not only on having advanced technologies. For these tools to be integrated safely, effectively, and sustainably into healthcare systems, certain preconditions must exist within the system itself.

In this document, these conditions are organized into **seven key dimensions** , which we call enabling conditions. Each one represents an aspect of the healthcare system that directly influences the possibility of developing, implementing, and scaling AI solutions.

These dimensions allow for the analysis of different components of the health system, including the existence of **governance and regulatory frameworks** , the availability of **financing** , the **technological infrastructure** , the **quality of health data** , the capacity of systems to **exchange information** , the preparedness of the **workforce** , and the mechanisms to ensure an **ethical and equitable use** of these technologies.
Taken together, the seven enabling conditions offer a simple framework for analyzing a country's or health system's starting point before moving forward with the implementation of artificial intelligence.

HOW TO USE THESE ENABLING CONDITIONS?

Each dimension describes an aspect of the health system that influences the possibility of implementing AI and presents a series of guiding questions to analyze the current situation.

These questions are designed to help reflect on the reality of the health system: to identify which conditions already exist, which are under development, and which still represent a significant gap.

The goal is not to answer them theoretically, but to analyze the current state of the system: **what is resolved, what is in process, and what still needs to be built** .
At the end of this section are two supplementary tables. The first (section 2.8) is the detailed scoring tool: for each dimension, three guiding questions are presented, answered with Yes, Partially, or No, and the points are added together to obtain a maturity level for each dimension. The second (section 2.9) is a one-at-a-glance diagnostic summary, where the result for each dimension is combined to provide an overall view.

This exercise provides a quick overview of the healthcare system's readiness to implement AI. At the same time, it helps identify which areas warrant initial focus before moving on to the implementation roadmap presented later in this document.

DIMENSION	CENTRAL QUESTION EXAMPLE

1. Governance and regulation	Are there rules or guidelines for the use of AI in healthcare at any of these levels? - Country or province/state: mandatory laws or regulations (hard law) and/or guidelines or standards (soft law). - Institution where you work (hospital, clinic, etc.): guidelines, protocols or internal codes (software) law).
2. Financing	Do we have sustainable financial resources to implement, maintain, and scale AI solutions in healthcare, from any of the following sources? Own public resources; international financing; private sector; subsidies, research projects; innovation funds
3. Connectivity and infrastructure	Does the technological infrastructure (connectivity, hardware, and computing capacity) allow for the deployment of digital solutions at different levels of the healthcare system?
4. Quality data	Are the available health data, generated at different levels of the system, sufficient, reliable, complete, standardized, and accessible to be used effectively in AI solutions?
5. Interoperability	a) Is there interoperability between institutions in the same subsector (for example, public hospitals among themselves)? b) Is there interoperability between different subsectors of the health system (public, private and social security)? c) Is there interoperability between levels of government (national, provincial/state and local)? d) Are common standards used for information exchange?
6. Skilled workforce	Does the healthcare system staff, including healthcare professionals, technical teams, IT managers, and decision-makers (directors and managers), have the necessary skills to use, interpret, and monitor AI tools?
7. Ethics, equity and citizen participation	Are there rules, policies, or guidelines that address the ethical aspects of using AI in healthcare at any of these levels? - Country or province/state: rules or policies on ethics in research with people and protection of personal and sensitive data. - Institution where you work (hospital, clinic, etc.): ethics committees, research protocols and internal guidelines for the use of data and technologies.

2.1. GOVERNANCE AND REGULATION

Governance and regulation are two distinct yet complementary concepts. Regulation is the legal and normative framework that establishes what is permitted and what is prohibited. Governance is the set of structures, processes, and actors that make decisions about how the use of AI in healthcare is implemented, monitored, and corrected, whether or not a specific law exists.

In Latin America and the Caribbean, although AI regulation is still in its infancy, this does not mean starting from scratch: existing data protection frameworks, medical device regulation (SaMD) and digital health frameworks are the basis on which to build responsible governance today.

2.1.2 ON REGULATION: WHAT ASPECTS MUST BE DEFINED TO IMPLEMENT AI IN HEALTH?

- There should be a law on AI or, if there isn't one, at least rules regulating its use in the healthcare system.
- If the country has an AI law, it should be clear which agency is responsible for implementing it and whether it includes specific rules for the health sector.
- If there is no AI law, it should be defined who oversees its use in health (for example, the Ministry of Health, the data protection authority or another body, or a combination of several).
- There should be a personal data protection law that includes health data and an authority to monitor its compliance.
- That the country has rules for software as a medical device (SaMD) or, at least, a medical device regulation that can be applied to AI systems.
- There should be standards for health research that include ethical considerations and clear rules for developing and testing AI systems.

2.1.3 ON GOVERNANCE: WHAT DO I NEED TO HAVE RESOLVED?

- That there is a policy or strategy (national or institutional) for digital health or AI in health that guides the decisions of the sector.
- That the roles and responsibilities of the actors involved are clearly defined (e.g., Ministry of Health, health regulator, data protection authority and other relevant bodies).

- That there are ethical guidelines for the use of AI in health, even if they are not formalized in a law.

- That contracts with technology providers include key aspects such as the use and ownership of data, the possibility of auditing, the transparency of the system, liability in case of errors or failures and the existence of insurance or coverage mechanisms against possible damages.

2.1.4 SIGNS THAT WE ARE ON THE RIGHT TRACK

- The country has at least one personal data protection law applicable to health data, with an active supervisory authority.

- Is there a designated body, or a clearly assigned function to an existing one, to oversee the use of AI in health?

- The health regulator has initiated or published guidelines on software as a medical device (SaMD) or on the use of AI in health.

- There is a digital health or AI in health policy or strategy that guides decisions in the sector.

- The roles and responsibilities among the key actors (health, regulation, data, etc.) are defined, at least initially.

- There are ethical guidelines for the use of AI in health, although they are not formalized in a law.

Without frameworks to guide the use of AI from its initial design and implementation, AI in health is unlikely to generate institutional and social trust; and a technology that does not generate trust or adherence is unlikely to transform health systems.

2.2. FINANCING

AI requires initial investment, ongoing maintenance, model updates, and training. Many pilot projects fail because there is no financial sustainability plan.

2.2.1 WHAT NEEDS TO BE RESOLVED?

- Specific budget line for digital health and AI within the health budget.
- Mixed financing strategy: own resources, international cooperation, public-private partnerships.
- Public procurement mechanisms for technology that allow for the contracting of AI solutions.
- Life cycle cost plan: not only the cost of acquisition, but also of operation, upgrades and support.
- Prioritization criteria to decide which areas to invest in first, including the perspective of all stakeholders (not all at the same time).

2.2.2 SIGNS THAT WE ARE ON THE RIGHT TRACK

- The health budget includes an allocation for technology and digital innovation.
- There is at least one legal mechanism for contracting technological solutions under service or cloud models.
- There are pilot projects with funding secured beyond the first year.

AI isn't implemented solely through good ideas or pilot projects. Without sustained funding to operate, maintain, and update solutions over time, innovation is unlikely to become public policy.

2.3. CONNECTIVITY AND INFRASTRUCTURE

Many AI solutions in healthcare rely on connectivity and technological environments that are not uniformly available across all regions. The gaps between urban and rural areas can severely limit their effectiveness. The infrastructure needed to implement AI is not limited to internet access: it also includes suitable hardware, a stable power supply, and computing power to process and store data. When these conditions are not guaranteed, the adoption of AI technologies becomes uneven or simply impossible.

2.3.1 WHAT NEEDS TO BE RESOLVED?

- Health system connectivity diagnosis: what percentage of establishments have reliable internet.
- Expansion plan or alternative solutions for establishments without connectivity. Computing infrastructure: local servers, public or private cloud, or hybrid solutions.
- Basic hardware available: computers, tablets , or data capture devices at the points of care.
- Equipment maintenance and replacement plan.

2.3.2 SIGNS THAT WE ARE ON THE RIGHT TRACK

- The healthcare facilities where AI solutions are planned to be implemented have adequate connectivity for their operation, or there is a defined plan to progressively expand that capacity.
- There is a cloud or data center policy for the healthcare sector.
- Top-tier establishments have at least one functional digital device per service area.

AI relies on the healthcare system's infrastructure. When connectivity, hardware, or computing power are limited, its implementation becomes uneven or difficult to sustain, and the potential of these technologies to improve access to and quality of care is restricted to a few better-resourced settings.

2.4. QUALITY DATA

AI learns from data. If the data is incomplete, biased, or not digitized, the models will produce unreliable, and potentially dangerous, results in a clinical setting.

2.4.1 WHAT NEEDS TO BE RESOLVED?

- Electronic health record systems are operational in key facilities.
- Clinical coding standards adopted: ICD-10/11, SNOMED CT, LOINC or other equivalents.
- Data audit and control processes: who verifies that the data is correct and complete.
- Open or controlled access data policy for research and innovation.
- Diagnosis of current data quality: completeness, consistency, currency.

2.4.2 SIGNS THAT WE ARE ON THE RIGHT TRACK

- Medical records are mostly digitized at all three levels of care.
- Clinical data are recorded using recognized coding standards (e.g., ICD, SNOMED CT, or LOINC), allowing for analysis and reuse.
- There is a clear record of the main health databases available in the country and defined rules for accessing them for public health and research purposes.
- There is at least one repository of structured health data, at the national or institutional level, that can be used for pilot projects in data analysis or artificial intelligence.
- Periodic reviews are conducted to assess data quality, including aspects such as completeness, consistency, and detection of duplicates.

Data is the foundation upon which AI operates. Algorithms learn from the data they receive; if that data is incomplete, inconsistent, or of poor quality, the results will be too. Even the most advanced models produce unreliable conclusions when fed with flawed data.

2.5. INTEROPERABILITY

A fragmented healthcare system, where each hospital, clinic, or program uses its own information system without communicating with others, seriously hinders the effective use of artificial intelligence. When data remains isolated across multiple, unconnected systems, it becomes difficult to build a comprehensive view of patients, services, or population health issues. Interoperability aims to solve this problem: it is the ability of systems to securely exchange information and use it effectively. Through interoperability, data can circulate between different levels of care, institutions, and digital platforms, allowing information to be transformed into knowledge and support clinical and management decision-making.

2.5.1. WHAT NEEDS TO BE RESOLVED?

- Interoperability standards adopted at the national level: HL7 FHIR, OpenHIE or other recognized frameworks.
- Unique patient identifier that works across the entire health system (public and private, if applicable).
- Platform or integration layer that connects existing systems (HIE-Health Information Exchange).
- Interoperability policy that obliges or incentivizes technology providers to comply with standards.
- Map of existing health information systems and their integration capabilities.

2.5.2. SIGNS THAT WE ARE ON THE RIGHT TRACK

- The country has formally adopted a health interoperability standard.
- There is a functional and widely covered unique patient identifier.
- At least two key health systems exchange data automatically and in a structured manner.

Without interoperability, data remains fragmented, and artificial intelligence loses much of its potential to transform healthcare systems. When information cannot flow between institutions and levels of care, the knowledge that could be generated from that data is also limited. Ultimately, AI's ability to improve healthcare delivery and management depends on data being able to be connected, understood, and used together.

2.6. SKILLED WORKFORCE

The most sophisticated technology loses its value if healthcare workers don't know how to use it, don't trust it, or lack the time and support needed to integrate it into their daily practice. Digital tools only have an impact when those working in the healthcare system understand them, integrate them into their processes, and perceive that they truly improve their work and patient care. Therefore, digital transformation is not merely a technological change: it is, above all, a process of change in people, their skills, their confidence, and the way they work within the healthcare system.

2.6.1. WHAT DO WE NEED TO HAVE RESOLVED?

- Digital skills assessment of healthcare personnel (clinical, administrative and IT).
- Digital health and AI training program for healthcare professionals, not just technicians.
- Critical thinking training regarding AI: when to trust the algorithm, when to question it.
- Defined roles for AI management in healthcare: who supervises it, who configures it, who is responsible for its results.
- Change management strategy to introduce new tools without institutional resistance.
- Members accustomed to working in multidisciplinary teams and with a transformative view of gender and diversity.

2.6.2. SIGNS THAT WE ARE ON THE RIGHT TRACK

- There is a national or regional digital health training program with content on AI.
- Health professional training centers include digital skills in their curricula .
- There is at least one digital health or IT representative in secondary and tertiary level establishments.

HUMAN IN THE LOOP

AI is designed to support clinicians, not replace them. But for that support to be real, professionals must understand how it works, what its limitations are, and how to critically integrate it into their clinical practice. Only then can AI become a tool that expands medical judgment, rather than replacing it.

2.7. ETHICS, EQUITY AND CITIZEN PARTICIPATION

AI is not neutral: it learns from data, decisions, and the structures of the system in which it operates. If this data reflects existing inequalities in access to care, service quality, or the representation of certain populations, AI systems can reproduce these patterns and even amplify them. For this reason, responsible implementation of AI in healthcare must begin with a people-centered approach, in which technologies are designed and evaluated considering their impacts on different population groups. Citizen participation, transparency in data use, and ethical integration from the design stage are not secondary elements of the technological process, but rather essential conditions for ensuring that AI contributes to fairer, more inclusive healthcare systems focused on people's well-being.

2.7.1. WHAT NEEDS TO BE RESOLVED?

- Ethical framework for the use of AI in health, based on principles such as non-maleficence, equity, transparency, accountability and privacy protection, aimed at ensuring that the development and use of these technologies prioritize the well-being of people and trust in the health system.
- Bias analysis in data and algorithms before deployment.
- Mechanisms for community and patient participation in the design and evaluation of AI solutions.
- Special attention to vulnerable populations: indigenous peoples, rural communities, people with disabilities.
- That the development and testing of AI systems in health (research stage) complies with current legal regulations and national and international ethical standards applicable to health research.

2.7.2 SIGNS THAT WE ARE ON THE RIGHT TRACK

- AI projects in health include equity analysis in their design and evaluation.

- AI projects in health are developed by multidisciplinary, diverse teams with balanced gender participation, which allows for the incorporation of different perspectives on the problem to be solved, anticipating possible ethical and social impacts, and maintaining an ethical perspective from the initial conceptualization to the evaluation and monitoring of the project.
- AI systems implemented in the health system undergo ethical evaluation or review processes prior to deployment.
- Patients and communities have access to clear information about when and how AI systems are used in their care.
- Mechanisms exist to report and review potential unintended effects or negative impacts of AI systems in health.
- Periodic assessments are conducted to identify potential biases or unequal impacts on different population groups.
- Healthcare institutions are incorporating responsible or human-centered AI principles into their digital innovation policies.

The most advanced technologies alone cannot correct the inequalities of a system. Only when they are designed with an awareness of these gaps, with social participation, and with a clear ethical framework, can they become real tools for improving people's health.

2.8. SELF-ASSESSMENT TOOL

The following table allows you to analyze the current status of each of the seven enabling conditions. Guiding questions are provided for each dimension. The table allows you to select the option that best describes the system's reality: Yes (2 points), Partial (1 point), or No (0 points). Add up the points at the end of each dimension to determine whether you are at a consolidated level, developing, or facing a critical gap.

MATURITY ASSESSMENT TOOL: AI IN HEALTH

Yes = **2 points** | Partial = **1 point** | No = **0 points**
Maximum score per dimension: **6 points**

DIMENSION	ASSESSMENT QUESTION	YEAH	PAIR-CIAL	NO	MATURITY LEVEL
1. Governance and regulation	Does the country have an AI law?	☐ 2	☐ 1	☐ 0	
	Is there a designated body to oversee the use of AI in healthcare?	☐ 2	☐ 1	☐ 0	
	Are there ethical guidelines for the development and implementation of AI in healthcare?	☐ 2	☐ 1	☐ 0	
	Do the contracts with suppliers include clauses on data ownership, audits, algorithmic transparency, and liability for failures?	☐ 2	☐ 1	☐ 0	
	Is there a personal data protection law applicable to health data?	☐ 2	☐ 1	☐ 0	
	Has the health regulator initiated or published guidelines on SaMD or AI as a medical device?	☐ 2	☐ 1	☐ 0	
	Does the country have an AI law?	☐ 2	☐ 1	☐ 0	
	Total points (max. 6) →	___			☐ Consolidated (5-6) ☐ In development (3-4) ☐ Critical gap (0-2)
2. Financing	Does the health budget include an allocation for technology and digital innovation or AI?	☐ 2	☐ 1	☐ 0	
	Is there a legal mechanism for contracting technological solutions under service or cloud models?	☐ 2	☐ 1	☐ 0	
	Are there any pilot projects with guaranteed funding beyond the first year?	☐ 2	☐ 1	☐ 0	

	Is there a mixed financing strategy (own resources, international cooperation, public-private partnerships)?	☐ 2	☐ 1	☐ 0	
	Are there defined prioritization criteria for deciding which areas of AI to invest in first?	☐ 2	☐ 1	☐ 0	
	Is there a lifecycle cost plan that includes operation, upgrades, and support?	☐ 2	☐ 1	☐ 0	
	Total points (max. 6) →	___			☐ Consolidated (5-6) ☐ In development (3-4) ☐ Critical gap (0-2)
3. Connectivity and infrastructure	The healthcare facilities where AI solutions are planned to be implemented have adequate connectivity for their operation, or there is a defined plan to progressively expand that capacity.	☐ 2	☐ 1	☐ 0	
	Is there a cloud or data center policy for the healthcare sector?	☐ 2	☐ 1	☐ 0	
	Do top-tier establishments have at least one functional digital device per service area?	☐ 2	☐ 1	☐ 0	
	Is there a health system connectivity assessment that identifies the percentage of facilities with reliable internet?	☐ 2	☐ 1	☐ 0	
	Is there an expansion plan or alternative solutions for establishments without connectivity?	☐ 2	☐ 1	☐ 0	
	Is there a plan in place for equipment maintenance and replacement?	☐ 2	☐ 1	☐ 0	
	Total points (max. 6) →	___			☐ Consolidated (5-6)

					☐ In development (3-4) ☐ Critical gap (0-2)
4. Quality data	Are medical records mostly digitized at the different levels of care?	☐ 2	☐ 1	☐ 0	
	Are clinical data recorded using recognized coding standards (ICD, SNOMED CT, LOINC or others)?	☐ 2	☐ 1	☐ 0	
	Is there at least one structured repository of health data usable for AI projects?	☐ 2	☐ 1	☐ 0	
	Are there processes in place for auditing and quality control of data (completeness, consistency, currency)?	☐ 2	☐ 1	☐ 0	
	Is there a clear record of the main health databases available in the country and rules for accessing them?	☐ 2	☐ 1	☐ 0	
	Is there an open data or controlled access policy for research and innovation?	☐ 2	☐ 1	☐ 0	
	Total points (max. 6) →	___			☐ Consolidated (5-6) ☐ In development (3-4) ☐ Critical gap (0-2)
5. Interoperability	Has the country formally adopted a health interoperability standard (HL7 FHIR, OpenHIE or others)?	☐ 2	☐ 1	☐ 0	
	Is there a functional and widely covered unique patient identifier?	☐ 2	☐ 1	☐ 0	
	Do at least two health information systems exchange data automatically and in a structured manner?	☐ 2	☐ 1	☐ 0	

	Is there a platform or integration layer (HIE) that connects existing systems?	☐ 2	☐ 1	☐ 0	
	Is there a map of existing health information systems and their integration capabilities?	☐ 2	☐ 1	☐ 0	
	mandatory interoperability policy that incentivizes technology providers to comply with standards?	☐ 2	☐ 1	☐ 0	
	Total points (max. 6) →	___			☐ Consolidated (5-6) ☐ In development (3-4) ☐ Critical gap (0-2)
6. Skilled workforce	Is there a national or regional digital health training program with AI content?	☐ 2	☐ 1	☐ 0	
	Do healthcare professional training centers include digital skills in their curricula ?	☐ 2	☐ 1	☐ 0	
	Is there at least one digital health or IT representative in secondary and tertiary level establishments?	☐ 2	☐ 1	☐ 0	
	Is there a diagnosis of digital skills of healthcare personnel (clinical, administrative and IT)?	☐ 2	☐ 1	☐ 0	
	Are there defined roles for the management of AI in healthcare (who supervises, configures, and is accountable for its results)?	☐ 2	☐ 1	☐ 0	
	Is there a change management strategy for introducing new tools without institutional resistance?	☐ 2	☐ 1	☐ 0	
	Total points (max. 6) →	___			☐ Consolidated (5-6) ☐ In development (3-4)

					☐ Critical gap (0-2)
7. Ethics, equity and citizen participation	Do AI projects in healthcare include equity analysis and ethical assessment prior to deployment?	☐ 2	☐ 1	☐ 0	
	Do patients and communities have access to clear information about when and how AI is used in their care?	☐ 2	☐ 1	☐ 0	
	Are there mechanisms in place to report and review potential unintended effects or negative impacts of AI systems in healthcare?	☐ 2	☐ 1	☐ 0	
	Are AI teams in healthcare multidisciplinary and do they have a balanced composition in terms of gender?	☐ 2	☐ 1	☐ 0	
	Is there an ethical framework for the use of AI in health (principles of non-maleficence, equity, transparency, accountability and privacy)?	☐ 2	☐ 1	☐ 0	
	Are periodic assessments conducted to identify potential biases or unequal impacts on different population groups?	☐ 2	☐ 1	☐ 0	
	Are there mechanisms for community participation in the design and evaluation of AI solutions?	☐ 2	☐ 1	☐ 0	
	Total points (max. 6) →	___			☐ Consolidated (5-6) ☐ In development (3-4) ☐ Critical gap (0-2)

Consolidated: **5–6 points** | In development: **3–4 points** | Critical gap: **0–2 points**

2.9 DIAGNOSTIC SUMMARY

Once the table above is completed, the results for each dimension can be transferred here. This summary provides an overview of the health system's preparedness level and identifies at a glance where the main gaps are concentrated. The dimensions with critical gaps are the priority starting point for the action plan.

DIMENSION	CONSOLIDATED (5-6)	IN DEVELOPMENT (3-4)	CRITICAL GAP (0-2)
1. Governance and regulation	☐	☐	☐
2. Financing	☐	☐	☐
3. Connectivity and infrastructure	☐	☐	☐
4. Quality data	☐	☐	☐
5. Interoperability	☐	☐	☐
6. Skilled workforce	☐	☐	☐
7. Ethics, equity and citizen participation	☐	☐	☐

The purpose of this exercise is not to ensure that all dimensions are in the green before initiating AI initiatives, but to clearly understand where the main gaps lie and what aspects need to be strengthened to move forward safely and strategically.

3. FROM IDENTIFYING GAPS TO PRIORITIZING ACTION

Once the diagnosis in section 2.9 is complete, the next step is to interpret what the results show about the current state of the healthcare system. This analysis is necessary because not all gaps are equally significant, nor can they all be addressed simultaneously or from the same perspective.

Some gaps can prevent the start of any AI project in healthcare, such as the lack of basic digital data or insufficient connectivity in the facilities where the solution is planned. Other gaps don't necessarily block a pilot project, but they can affect its sustainability or scalability, such as a lack of comprehensive staff training or sustained funding. There are also gaps that cannot be resolved solely within the healthcare sector and require collaboration with other agencies, such as those responsible for technology, budgeting, data protection, health regulation, or digital infrastructure.
This stage, therefore, serves as a space for strategic analysis. Its objective is to identify which aspects should be addressed first, which can be developed in parallel, and which require inter-institutional coordination before moving towards implementation.

3.1 HOW TO ANALYZE THE IDENTIFIED GAPS?

Based on the diagnostic summary, it is proposed to review each gap using three simple questions.

A. DOES THIS GAP PREVENT STARTING?

Several conditions are essential for launching any AI project in healthcare. These include having a minimum amount of digital data, sufficient connectivity in the facilities where the solution will be implemented, a governance framework to monitor the use of the technology, and an authority or team responsible for the process. If these conditions are not in place, they will likely need to be strengthened before implementation begins.

B. CAN THIS GAP BE RESOLVED FROM THE HEALTH SECTOR?

Some gaps can be addressed directly by the Ministry of Health, a healthcare institution, or the project team. Others, however, require higher-level decisions or coordination with other government agencies. For example, the regulation of personal data, the national digital infrastructure, cloud policies, the public budget, or the procurement of technological solutions may depend on actors outside the healthcare sector.

C. DOES THIS GAP AFFECT THE PILOT OR MAINLY THE ESCALATION?

Not all gaps prevent progress. Some allow for a pilot program, provided their limitations are acknowledged and efforts are made simultaneously to strengthen them. For example, a pilot program can be launched in a facility with suitable conditions, even if there isn't yet uniform connectivity throughout the system. However, scaling up this solution will require progressively addressing gaps in infrastructure, training, funding, and governance.

3.2 GUIDING QUESTIONS FOR REFLECTION

Before moving on to the roadmap, it is recommended that the responsible team answer the following questions simply and honestly:

- What gaps are blocking any attempt at implementation?
- What gaps allow progress with a pilot program, even if they need to be strengthened in parallel?
- What gaps can be resolved with our own resources and capabilities?
- What gaps require coordination with other ministries, agencies, or external actors?
- What minimum conditions must be present before starting the first use case?
- Are we trying to solve too many things at the same time?

3.3 A KEY PRINCIPLE: NOT EVERYTHING NEEDS TO BE RESOLVED BEFORE STARTING

The goal of this exercise is not to reach an optimal level in all dimensions before taking any action, but to make more realistic, orderly, and responsible decisions.
In many cases, it will be possible to move forward with pilot projects while some gaps continue to be addressed. However, this does not mean ignoring the minimum necessary conditions. Moving forward without sufficient data, basic connectivity, clear institutional responsibility, or oversight mechanisms can lead to the implementation of solutions that are unsustainable or that pose risks to individuals and the healthcare system.

Therefore, the key is not to resolve everything before starting, but to distinguish which conditions are indispensable to begin, which aspects can be strengthened during the process, and which decisions require coordination with other actors.

3.4 EXPECTED RESULT OF THIS SECTION

At the end of this analysis, the team should have:

- A clear identification of priority gaps.
- A distinction between gaps that must be resolved before starting and those that can be strengthened in parallel.
- An identification of the gaps that can be addressed from the health sector and those that require coordination with other organizations.
- A first definition of where to start, based on the reality of the system.

This exercise lays the groundwork for the roadmap, ensuring that the actions proposed in the next section respond to real needs and not to general assumptions.

SELF-ASSESSMENT, GAP ANALYSIS, AND IMPLEMENTATION OF AI IN HEALTH

MARK WITH AN X ACCORDING TO THE CURRENT SITUATION OF YOUR TEAM OR ORGANIZATION

SELF-ASSESSMENT QUESTION	YEAH	PARTIAL	NO
1. How critical are our gaps?			
Do we have enough digital data to begin implementation?	☐	☐	☐
Is there basic connectivity in the establishments where AI would be used?	☐	☐	☐
Is there a gap that completely blocks any progress?	☐	☐	☐
Are the gaps structural (infrastructure) or process-related (operational)?	☐	☐	☐
2. From where can we address each gap?			

Can we address the main gaps from within our own team or ministry?	☐	☐	☐
Are there gaps that require coordination with other ministries or agencies?	☐	☐	☐
Have we identified who has the authority to resolve each critical gap?	☐	☐	☐
Is there any coordination with data or technology regulatory bodies?	☐	☐	☐
3. Are we ready to begin?			
Are there any areas with minimum conditions to start a pilot project?	☐	☐	☐
Does the team know what can start now and what to expect?	☐	☐	☐
Are we trying to make progress on too many things at the same time?	☐	☐	☐
Are the non-critical gaps being developed in parallel with the pilot?	☐	☐	☐
4. What type are our gaps?			
Did we identify critical enabling gaps (that block everything if not addressed first)?	☐	☐	☐
Did we identify progressive development gaps (they don't block, but they limit the scale)?	☐	☐	☐
Did we identify gaps in institutional coordination (requiring other state actors)?	☐	☐	☐

Final reflection from the team — What are the first 3 concrete actions?

1. _____

_____

2. _____

_____

3. _____

4. ROADMAP. HOW TO MOVE FORWARD

4.1 WHAT IS A ROADMAP AND WHAT IS IT FOR?

A roadmap is a planning tool that organizes the steps needed to reach a goal in a logical sequence. It's not a detailed plan with fixed dates or an execution timeline. Above all, it's a guiding document: it helps you know where to start, what to resolve before taking the next step, and how to move forward in an organized way without trying to solve everything at once.

Within the framework of this proposed working model, the roadmap not only translates the diagnostic results from section 2 into a concrete course of action, but also incorporates the strategic gap analysis developed in section 3. This means not only knowing where we are, but also understanding what kind of gaps we face, which ones should be addressed first, which ones can be developed in parallel, and which ones require coordination with other government actors. If the diagnostic answers the question "Where are we?", and the gap analysis allows us to understand what to prioritize and why, the roadmap answers "Where do we go from here?".

This roadmap is equally valid for a large country with established technical capacity and for a small island nation taking its first steps in digital health. What changes is not the logical sequence, but the pace, scale, and resources with which progress is made.

4.2 WHAT IS EXPECTED OF THOSE WHO USE THIS TOOL?

The team using this roadmap is not expected to have in-depth technical knowledge of AI. They are expected to be able to make informed decisions: identify priorities, assign responsibilities, manage resources, and coordinate stakeholders within the healthcare system, ensuring that ethics are integrated from the project's inception.

In small health systems or those with limited institutional capacity, some steps may require external support: technical cooperation from international organizations, assistance from other countries in the region, or partnerships with the academic or private sectors. This roadmap does not assume that everything should be resolved independently. It recognizes that seeking help and building collaboratively are also part of the process.

4.3 HOW TO READ THE FOLLOWING TABLE?

The table presents **six steps** in sequence. For each step, the specific action to be taken is described, along with the minimum condition that must be met before proceeding, expressed in terms of the dimensions evaluated in section 2, and the specific result expected upon completion.

The Minimum Required Condition column connects this roadmap to the diagnostic process: if a dimension appears as a critical gap in section 2.9, that is precisely the point where the system needs to work before moving on to the next step. Not as an obstacle, but as a clear indication of where to begin.

PASSED	ACTION	MINIMUM REQUIRED CONDITION	EXPECTED RESULT
01. **System Diagnosis**	With the diagnosis performed in section 2.8 and the summary in 2.9, you now have your gap map. Review the results by dimension and identify which gaps remain critical, which are developing, and which have been consolidated.	*No prerequisites. This step can be performed at any time.*	**Gap map by dimension with identified maturity level.**
02. **Strategic Prioritization**	Identify the two or three most critical areas to strengthen first. Consider the potential impact on care, feasibility based on the context, and available resources. It's not necessary to address everything at once.	*Diagnosis completed (Step 1).*	**Prioritized action plan, with identified institutional managers and resources.**
03. **Construction of minimum conditions**	Ensure the basic institutional conditions for initiating AI projects: that there is at least a regulatory framework (it doesn't necessarily have to be a law) or governance structure, a	*Governance: at least in development. Quality data: at least in development.*	**Minimum viable institutional environment for developing and testing pilot projects safely.**

	usable digital data source, and an institutional authority responsible for overseeing the use of the technology. Also verify that the technological solution to be used has documented clinical validation and complies with applicable regulatory standards (SaMD, ISO, or other recognized frameworks in the field of digital medical devices).		
04. **Implementation of a pilot**	Select a specific use case: high-impact, low-complexity, and appropriate to the context. To do this, you must first thoroughly understand the workflow of the process you want to improve. Identify what is done step by step, who does it (actors), and with what tools or systems (software). Then, break down that workflow into **tasks and subtasks** to pinpoint where AI can add value. (A good understanding of the workflow is essential.)	*Governance: at least in development. Connectivity: at least in development. Quality data: at least in development.*	Practical evidence on technical feasibility, adoption by professionals, value to the health system, and validation of specific tasks where AI adds value.
05. **Assessment and learning**	Evaluate the pilot using clear criteria: clinical effectiveness, equity of access, staff usability, patient safety, and operational sustainability. Document the lessons learned to inform the decision to scale up, adjust, or discontinue.	*Pilot implemented (Step 4). Ethics and equity: at least In development.*	**Informed decision about whether to scale, adjust, or discontinue the solution.**
06. **Progressive escalation**	Expand solutions that have proven value through phased implementation. Support scaling with sustained funding, staff training, and ongoing technical support. Monitor results and make adjustments based on the evidence.	*Positive pilot evaluation (Step 5). Funding: at least In development. Workforce: at least In development.*	**Progressive implementation on a larger scale with continuous monitoring and sustained improvement.**

5. GUIDING GUIDELINES

Guiding principles should inform the process of implementing AI in healthcare, extending beyond the specific steps of the roadmap. They are not rigid rules or prerequisites for progress; rather, they are best practice criteria applicable at any stage, in any type of healthcare system, and with any level of available resources.

Its function is to guide decisions when there isn't a single right answer: when you have to choose between different paths, prioritize among competing demands, or evaluate whether a solution is appropriate for the context. A guideline doesn't tell you exactly what to do: it helps you decide how to do it well.

GUIDELINES	DESCRIPTION
Advance gradually	It's not necessary to have everything figured out before starting, but it is essential to have certain minimum conditions in place: a clear ethical framework, oversight mechanisms, and sufficiently high-quality data. Moving forward without these foundations doesn't accelerate the process; it puts it at risk.
Always provide context	A solution that works in Brazil may not work in Haiti, Bolivia, or Barbados. The epidemiological, social, linguistic, and technological context matters. Adaptation is not an optional step: it's part of the design.
Don't reinvent the wheel	There are international standards, open-source tools, and proven regional practices. Before developing something from scratch, it's worth exploring what already exists and can be adopted or adapted to the local context.
Focus on people	AI in healthcare is a means, not an end. The goal is to improve people's health and care experience. This includes involving communities in the design process, especially populations that have historically been excluded or underserved .
Designing for diversity	Many AI systems are developed using datasets that don't always adequately represent the diversity of the populations where they are later applied. When this happens, there is a risk that the models will produce less accurate or less equitable results for certain population groups. For this reason, every AI project in healthcare should actively assess the representativeness of the data used and analyze potential differential impacts on different groups.

Govern before climbing	Before expanding an AI solution, oversight mechanisms, institutional responsibility, and accountability channels must be clearly defined. Scaling without governance consolidates risks on a larger scale. Uncontrolled expansion is not success; it multiplies the problem.
Guaranteeing data sovereignty	Health data is a strategic national asset. When contracting for technology solutions, countries must ensure that the data remains under their control, with clear agreements on ownership, storage, and use.
Collaborate regionally	Many countries in Latin America and the Caribbean face the same challenges. Technical cooperation, the exchange of experiences, and the joint development of solutions are strategic assets that reduce costs, shorten timelines, and strengthen capacities throughout the region.
Monitor and learn	Every AI implementation must include clear monitoring indicators from the outset: clinical effectiveness, equitable access, usability, and sustainability. What isn't measured can't be improved or corrected. Monitoring isn't the end of the process; it's an ongoing part of it.
Incorporating ethics into design	Ethics and responsibility are not a final validation step or a box to tick: they must be present from the moment you define what problem you want to solve with AI, how the data is collected, and who participates in the design. Ethical AI isn't certified at the end; it's built from the beginning.
Provide ongoing training	Implementing AI doesn't end with deploying a tool. The staff using it need initial training, support during adoption, and regular updates as the technology evolves. Training isn't a one-off event; it's an ongoing process that must be planned and funded.
Learn from other experiences	Other countries and regions have already implemented AI in healthcare: some with good results, others with avoidable errors. Examining these experiences critically, without simply copying solutions from vastly different contexts, allows for more informed decision-making, shortens learning curves, and prevents the repetition of problems that already have documented solutions.

6. FINAL REFLECTION

This document starts from a simple premise: before deciding how to incorporate AI in health, it is necessary to clearly understand where we are starting from.

AI can open up significant opportunities for healthcare systems, but its value depends not only on the available technology, but also on the institutional, technical, human, ethical, and regulatory conditions that allow for its responsible implementation. Therefore, rather than offering a definitive answer or a single solution, this document proposes a way of looking at things: a framework that helps us observe reality, organize its main dimensions, and make decisions in a field where uncertainty is not the exception, but rather an inherent part of the process.

But this perspective only truly makes sense when confronted with the concrete reality of each healthcare system. No framework, however robust, can transform institutions, practices, or decision-making processes on its own. Systems change when the people and organizations within them manage to interpret that framework, adapt it to their own circumstances, and test it against the specific problems they must solve.

This document should be understood as a working framework to guide reflection and decision-making. It does not propose a single path or a uniform answer, because each healthcare system starts from different conditions. Therefore, each team should use it within its own context, considering its capabilities, limitations, priorities, and institutional conditions. In this concrete application, the framework acquires its true value: it helps to identify what is possible to do, what needs to be adjusted, and which decisions should be prioritized.

A roadmap can guide the way, but it doesn't replace the decisions that must be made in each context. In that sense, it functions like a house plan: it organizes the design, helps anticipate needs, and allows for risk assessment, but it doesn't completely determine the construction. The final form will depend on the available resources, the terrain, the team's capabilities, and the adjustments that need to be made during the process. There is no universal implementation method, nor a single sequence applicable to all systems; each institution must translate the general guidelines to its own reality, identifying which conditions are already in place, which need strengthening, and which decisions should be prioritized.

Therefore, the value of this document lies not only in proposing a framework, but also in helping to formulate better questions: what problem do we seek to solve, what capabilities exist, what risks should be anticipated, which actors should participate, and what minimum conditions must be present before moving forward? In complex contexts, progress does not mean having all the answers from the outset, but rather building more responsible decisions based on a clear understanding of the starting point.

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