Deliverable 2: Needs report

Prepared by: Fundación
de Ayuda por Internet
FUNDAPI

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1. Background

The Open Government Partnership represents a multilateral strategy that advocates the establishment of governance models based on essential pillars: transparency, collaboration and citizen participation. This international coalition has the participation of 77 nations, 76 local governments and a broad representation of civil society. Since July 18, 2018, Ecuador has joined this alliance, committing to the proposed principles and objectives.

The concept of Open Government is seen as an opportunity to transform the traditional paradigm of governance, constituting a new dynamic of interaction between government and citizens at a global level.

Within the framework of the Second Open Government Plan (2022-2024) in Ecuador, a commitment has been made to "Co-create a national policy for the digital transformation of the health sector, with a focus on achieving universal health coverage". This initiative seeks to collaboratively generate digital transformation policies in the health sector, involving the public, private, academic and civil society sectors, with the aim of strengthening universal health coverage in the country.

In this context, the aim is to promote spaces for dialogue with the public to highlight the imperative need for the Ecuadorian health sector to move towards the digital era. It also emphasizes the importance of co-creating political, legal and regulatory frameworks that facilitate this digital transformation.

To materialize this commitment, a collaboration is being carried out between the Ministry of Public Health of Ecuador, as the entity responsible for the commitment, and as counterparts of the commitment, the Fundación de Ayuda por Internet (FUNDAPI) and the Corporación Ecuatoriana para el Desarrollo de la Investigación y la Academia (CEDIA). In addition, FUNDAPI, as a member of the Transform Health coalition, and CEDIA, in its role as coordinator of the coalition, are working together to achieve the objectives of the commitment. This alliance also has the support of the other organizations that are part of the Transform Health coalition, which strengthens the joint commitment to improving the health system in Ecuador.

Transform Health represents a global coalition made up of different actors of society such as: community leaders, health professionals, the private sector, civil society, research institutions, international organizations and governments, focused on generating recognition of the importance of digital transformation, technological tools and the use of data to strengthen national health systems, through initiatives encompassed in data governance, adjusted to the needs of society that can be applied to the national context allowing to meet the objectives set out by

The coalitions are focused on promoting Universal Health Coverage. Currently the coalitions around the world representing Transform Health Global are: Kenya, Indonesia, Mexico, Senegal, India and Ecuador.

In July 2023, CEDIA entered into a collaboration agreement with AMREF Health Africa and Transform Health, in order to expand the actions of the Transform Health Coalition in Ecuador, with three main objectives:

- Development of a proposal to improve the national educational offer, including subjects aligned with global digital health trends and other aspects related to the digital transformation of the health sector.
- Support in the co-creation of national policies for the digital transformation of the health sector, with the goal of achieving universal health coverage.
- Development of a budget plan to suggest actions to support the fulfillment of the goals established in the Ten-Year Health Plan 2030, specifically regarding digital health goals.

In this context, Fundapi applied to the call socialized by CEDIA on "Proposal for the construction of a proposal for public policy on digital transformation of health". On January 3, 2024, with official letter number JRS-AC-2024-0001, Fundapi was awarded the project related to this call. Subsequently, Consultancy Contract No. JLE-CO-2024-0005 was signed for the Construction of Public Policy Proposal on Digital Health Transformation for Transform Health Ecuador, which according to its seventh clause has a term of two hundred and seventy-three (273) calendar days, effective from the date of the last signature stamped on it, i.e. from March 12, 2024.

Therefore, this advance of Deliverable 2: Needs Report is presented for review and comments by CEDIA, to be incorporated into the final version of this document.

2. Diagnosis of the Health Sector in Ecuador with a focus on digital transformation

2.1 Introduction

To understand the context in which the proposal for the Public Policy on Digital Health Transformation in Ecuador will be built, it is important to know that the country's health system is divided into subsystems (Ministry of Public Health, Ecuadorian Institute of Social Security, Institute of Social Security of the Armed Forces and the Institute of Social Security of the National Police) that are implemented in different modalities, limiting the integration of the systems and causing weaknesses in terms of fragmentation and segmentation. This is one of the main

challenges that must be addressed when seeking to create instruments that have an impact on the state of this system as a whole.

As mentioned in the Ten-Year Health Plan [1] 2022-2031, the main causes of this situation include political instability and ruptures in the democratic order, which have affected the continuity and effectiveness of health policies; in addition, changes in economic and social development models over the years have also influenced the formulation of health policies, which have not always prioritized the benefits of development and public health for the majority of the population.

Although efforts have been made to move towards a progressive model of universal access to health care, especially since the enactment of the Constitution of the Republic of Ecuador in 2008 [2] which recognizes the universal right to health care and universal insurance, there are still important challenges to be met.

In relation to the digital transformation of the health sector, the implementation of digital tools has been raised as a priority in different governments in recent years, being included in various instruments created, such as the Ten-Year Health Plan of the Ministry of Public Health[3] , the Digital Health Agenda of the Ministry of Public Health[4] , the Digital Transformation Agenda of the Ministry of Telecommunications and the Information Society[5] , among others.

Along these lines, the implementation of proposals to strengthen digital health, such as the Electronic Health Record (EHR) and hospital information systems (HIS), would not only improve the organization and access to medical records, but could also facilitate coordination between different levels of care and the provision of telehealth services, especially important in a country like Ecuador with a diverse and dispersed geography.

However, although there have been advances and pilot programs with important results, significant challenges persist in the effective implementation of digital health in the country. For example, the existence of multiple health facility information systems, which limits interoperability among them, continues to be a barrier to the effective implementation of digital health in the country.

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[1] Ten-Year Health Plan 2022 - 2031, Ministry of Public Health. https://www.salud.gob.ec/wp-content/uploads/2022/07/Plan_decenal_Salud_2022_ejecutivo.18.OK_.pdf

[2] Constitution of the Republic of Ecuador, 2008. https://www.defensa.gob.ec/wp-content/uploads/downloads/2021/02/Constitucion-de-la-Republica-del-Ecuador_act_ene-2021.pdf

[3] Ten-Year Health Plan 2022-2031, Ministry of Public Health. https://www.salud.gob.ec/wp-content/uploads/2022/07/Plan_decenal_Salud_2022_ejecutivo.18.OK_.pdf

[4] Digital Health Agenda 2023-207, Ministry of Public Health. https://www.salud.gob.ec/wp-content/uploads/2023/06/Manual_Agenda_Digital_2023_Seg.pdf

[5] Agenda de Transformación Digital 2022-2025, MINTEL. https://www.arcotel.gob.ec/wp-content/uploads/2022/08/Agenda-transformacion-digital-2022-2025.pdf

This makes it difficult to exchange clinical data among the different actors that make up the health system in Ecuador[6].

Another important challenge is related to guaranteeing the inclusion and accessibility of information and communication technologies (ICTs) in the health sector[7]. Although the adoption of digital tools can improve the efficiency and quality of medical care, it is essential to ensure that all health system users have access to and benefit from these technologies, regardless of their geographic location or socioeconomic level.

In this context, recognizing that there have been advances in the digital transformation of healthcare, it is important to include the different initiatives in a public policy that will become a comprehensive strategic framework that will allow the different inputs and tools that are already available to be promoted and harmonized, taking full advantage of their diverse capabilities and scope, defining strategies that address the aspects that are still pending, such as the implementation of interoperability in all healthcare facilities, a framework for the governance of healthcare data, the application of standards for interoperability, among others.

2.2 International instruments

Although there are different international regulatory frameworks, recommendations, strategies and reference frameworks of importance in terms of digital health transformation, this diagnosis considers those that were identified as most relevant for the Ecuadorian context, mainly based on the integration that these frameworks offer with other initiatives both globally and regionally.

2.2.1 Sustainable Development Goals

The Sustainable Development Goals (SDGs) of the United Nations (UN)[8] , established since September 25, 2015 by different countries, represent a global commitment to eradicate poverty, safeguard the planet and ensure prosperity for all as part of a new sustainable development agenda. Each of these goals sets specific targets to be achieved by 2030.

Ecuador has advanced in its commitment to the Sustainable Development Goals (SDGs) by declaring the 2030 Agenda as national public policy. The National Assembly has endorsed

[6] First International Workshop on Medical Informatics - Digital Health, Vice-Presidency of the Republic 2021. https://www.vicepresidencia.gob.ec/wp-content/uploads/2021/12/Por-que%CC%81-la-necesidad-de-interoperar-en-los-sistamde-de-salud-Ecuador-Paula-Otero.pdf

[7] ICTs AS AN OPPORTUNITY FOR SOCIAL INCLUSION IN LATIN AMERICA AND THE CARIBBEAN, Martín Hopenhayn, ECLAC. https://dds.cepal.org/eventos/presentaciones/2010/1020/tic-inclusion-social-America-Latina-Caribe-Martin-Hopenhayn.pdf

[8] Sustainable Development Goals - https://www.un.org/sustainabledevelopment/es/objetivos-de-desarrollo-sostenible/

This initiative by committing to the implementation of the SDGs, making them a fundamental framework for their legislative work. At the local level, several decentralized autonomous governments have aligned their planning strategies with the SDGs to contribute to the fulfillment of this global agenda. In addition, the private sector, civil society and academia have joined this national effort, recognizing the importance of collaborating in the achievement of shared goals that promote equal opportunities and a dignified life for all citizens[9].

With regard to the digital transformation of healthcare, the following SDGs are identified in relation to this topic:

- **Objective 3:** Ensure a healthy existence and promote well-being for all people at all stages of life.
- **Goal 5:** Achieve gender equality and empower all women and girls.
- **Goal 9:** Build resilient infrastructure, promote sustainable industrialization and stimulate innovation.
- **Goal 10:** Reduce inequality within and between countries.

2.2.2 Global Digital Health Strategy 2020-2025

The Global Strategy for Digital Health of the World Health Organization (WHO)[10] was developed based on resolutions approved by the United Nations General Assembly[11] and the World Health Assembly[12]; as well as global and regional reports issued by the WHO, regional strategies, technical reports of the International Organization for Standardization (ISO) on health informatics and e-health architecture13. The aim of this strategy is to improve health systems through the application of technologies aimed at all the actors that make up the health ecosystem.

Having been approved by the Member States of the United Nations and represented at the World Health Assembly, the strategy has a broad outlook with respect to globally applicable strategies. Therefore, it is essential to align the strategic lines of a

[9] Sustainable Development Goals - Ecuador - https://ecuador.un.org/es/sdgs
[10] World Health Organization. (2021). Global digital health strategy 2020-2025. World Health Organization. https://iris.who.int/handle/10665/344251.
[11] United Nations General Assembly Resolutions 73/218 (2019). https://unctad.org/es/system/files/official-document/ares73d218_en.pdf and 70/125 (2016). https://www.itu.int/en/ITU-D/Regional-Presence/UN/Documents/GA_Resolutions_ICTs/ares70d125_es.pdf
[12] Resolutions WHA58.28 (2005),WHA66.24 (2013), WHA69.24 (2016) and WHA71.7 (2018); also relevant are, inter alia, the following regional committee resolutions: EM/RC53/R.10 (2006), AFR/RC56/R8 (2006), AFR/RC60/R3 (2010), CD51.R5 (2011), AFR/RC63/R5 (2013) and WPR/RC69/8 (2018).
[13] ISO. Part 1 - Health informatics: capacity-based eHealth architecture roadmap. Part 2 - architectural components and maturity model. TR 14639-1. Geneva:International Organization for Standardization; 2014.

policy in digital health transformation towards a digital health promotion approach at the national level.

The vision of the global digital health strategy focuses on improving global health by accelerating the adoption of people-centered digital health solutions that are appropriate, accessible, affordable, scalable and sustainable.

The overall Digital Health strategy is articulated around four strategic objectives:

- Promote global collaboration and foster knowledge transfer in digital health.
- Promote the implementation of national digital health strategies.
- Strengthen digital health governance at the global, regional and national levels.
- Advocate for people-centered health systems enabled by digital health.

2.2.3 Eight principles for the digital transformation of the healthcare sector

The digitalization of healthcare services implies significant cultural changes for both healthcare personnel and the population as a whole. The Pan American Health Organization (PAHO) presented in 2020 Eight Principles for the Digital Transformation of the Health Sector[14] after a regional consultation process, which aim to guide the countries of the Region of the Americas in the process of transformation towards digital health.

This consultative approach ensured a broad and comprehensive perspective in their formulation. Rather than being a stand-alone strategy, these principles complement and strengthen the guidelines established in the global digital health strategy. They establish specific lines of action, which digital health systems in countries must implement to achieve effective transformation.

In this sense, they promote the use of digital technologies as fundamental tools to advance towards universal health coverage in the era of digital interdependence.

The purpose of these principles is to support countries in making informed decisions, setting short- and long-term objectives, and formulating sound and sustainable public policies, with a commitment to leave no one behind.

In general terms, the 8 principles address the following elements:

1. Universal connectivity.
2. Digital assets.
3. Inclusive digital health.

[14] Anon (2021). Eight guiding principles for the digital transformation of the health sector. A Pan-American call to action. (https://iris.paho.org/handle/10665.2/53730).

4. Interoperability.
5. Human rights.
6. Artificial intelligence.
7. Information security.
8. Public health architecture.

2.2.4 Health Data Governance Principles

The growing importance of data in healthcare systems has increased the level of complexity in its collection, storage and use. Globally, policies and laws are being implemented to address this complexity and ensure appropriate governance of health data. However, there is not yet a universal set of principles to guide this governance. It is in this context that the Health Data Governance Principles developed by Transform [Health15] emerge, designed to provide a common framework for the various stakeholders involved in health data management. These principles seek to be adopted by governments, companies and other institutions responsible for health data management, with the aim of promoting sound and equitable governance of these data.

These principles are as follows:

- **Protecting people:**
  - Protecting people and communities.
  - Building confidence in data systems.
  - Ensure data security.
- **Promote the value of health:**
  - Improve health systems and services.
  - Promote data exchange and interoperability.
  - Facilitating innovation through the use of health data.
- **Prioritizing equity:**
  - Promote the equitable benefits of health data.

2.3 National instruments

2.3.1 Ten-Year Health Plan 2022-2031

The Ten-Year Health Plan (PDS) [2022-203116] is an instrument developed by the Ministry of Public Health of Ecuador (MSP) to define the strategic lines to improve the health and living conditions of people living in the country. Beyond having a

[15] Principles of Health Data Governance - https://healthdataprinciples.org/sp/
[16] Ten-Year Health Plan - https://www.salud.gob.ec/wpcontent/uploads/2022/07/Plan_decenal_Salud_2022_ejecutivo.18.OK_.pdf

focus on improving comprehensive healthcare, it also includes certain digital development perspectives to address the challenges faced by the healthcare system.

The Ten-Year Health Plan has 5 major objectives:

1. Health equity.
2. Health promotion.
3. Preventive medicine.
4. Timely and quality attention.
5. Integrated and efficient health system.

With regard to digital transformation in healthcare, the PDS refers to it in the following objectives, strategies and actions:

- **Objective 4: Timely and quality care**

  Strategy
  4.2. Management model framed within the digital agenda for the integration of the health services network of the National Health System (NHS), to improve its efficiency, timeliness and quality.
  Shares
  4.2.4 Development of a digital agenda to strengthen the operational and decision-making capacity of the health services network.

  Strategy
  4.4 Digital agenda and information management.
  Shares
  4.4.1 Strengthen the digital ecosystem to contribute to the quality of health care.
  4.4.2 Promote innovation and strengthen digital health.

2.3.2 Digital Transformation Agenda 2022-2025

The Digital Transformation Agenda [2022-2025][17] is an instrument generated by the Ministry of Telecommunications and the Information Society (MINTEL) with the aim of modernizing the country in all areas, including the health sector. The Agenda seeks to make the digitalization of services effective through the advanced application of ICTs, strengthen regulatory and normative frameworks and promote changes in the digital culture of citizens.

[17] Digital Transformation Agenda - https://www.telecomunicaciones.gob.ec/wp-content/uploads/2022/08/Agenda-transformacion-digital-2022-2025.pdf

The Digital Transformation Agenda is structured in 7 axes:

1. Digital infrastructure.
2. Culture and digital inclusion.
3. Digital economy.
4. Emerging technologies for sustainable development.
5. Digital government.
6. Interoperability and data processing.
7. Digital security and trust.

With regard to digital transformation in health, this agenda aims to promote a digital culture through the adoption, productive use and appropriation of ICTs by citizens, developing digital skills and competencies necessary for employment, education, health and productivity.

Along these lines, axis 2 and pillar 4 for this topic mention the following:

- **Pillar 2: Digital Culture and Inclusion Pillar 4: Digital Health**

  17. Build and implement a digital health transformation plan.
  18. Implement the Single Electronic Health Record and establish the interoperability of public and private information systems in the health sector.
  19. Promote programs and projects in the area of digital health, considering the promotion of telemedicine and preventive health services in rural and urban areas. in priority groups.
  20. Promote technological implementation projects to strengthen Digital Health in Ecuador.
  21. Promote the use of data in the health sector, in order to foster research and innovation, observing and complying with the legal regulations on personal data protection.
  22. Promote inter-institutional cooperation between the public and private sectors to promote digital health in Ecuador.

2.3.3 Digital Health Agenda 2023 - 2027

The Digital Health Agenda [2023-2027][18] is an input created by the Ministry of Public Health (MSP) with the aim of integrating and improving the quality and consistency of information through the implementation of digital tools for the analysis and generation of knowledge. This digital agenda responds to the strategic lines of action set out in the Agenda

[18] Digital Health Agenda https://www.salud.gob.ec/wp-content/uploads/2023/06/Manual_Agenda_Digital_2023_Seg.pdf

MINTEL's Digital Transformation Plan, which refers to the construction and implementation of a digital health transformation plan.

The Digital Health Agenda is framed as a public policy instrument for the conduction, articulation and promotion of the intensive use of ICTs with the aim of accelerating and sustaining the process of digital transformation in healthcare. In this context, the Agenda has 3 strategies mentioned below:

1. Improve the timeliness, quality and consistency of information, through the implementation of digital tools and their use for analysis, knowledge generation and decision making
2. Strengthening the digital ecosystem to contribute to the quality of health care.
3. Promoting innovation and strengthening digital health governance

In addition to the 3 general strategies, the implementation process encompasses 6 dimensions, mentioned below:

1. Governance and management.
2. Knowledge management and public health.
3. Infrastructure.
4. Infostructure.
5. Components and systems.
6. People and culture.

The overall objective of the Digital Health Agenda is to promote digital transformation in the health sector over the next 5 years (2023 - 2027), in order to strengthen access, coverage and quality of health care and its management on a national scale.

2.4 Legal framework

Article 32 of the Constitution of the Republic of Ecuador[19] states that *"Health is a right guaranteed by the State, whose realization is linked to the exercise of other rights, including the right to water, food, education, physical culture, work, social security, healthy environments and others that support good living".*

The Constitution also states in Article 16, paragraph 2, that "*All persons, individually or collectively, have the right to universal access to information and communication technologies...*". Furthermore, Article 57, paragraph 12, refers to guaranteeing the collective right to "*Maintain, protect and develop collective knowledge; its sciences, technologies...*".

[19] Constitution of the Republic of Ecuador - https://www.lexis.com.ec/biblioteca/constitucion-republica-ecuador

The Organic Health Law[20] establishes in its Art. 7, paragraph f), that: "*Every person, without discrimination for any reason whatsoever, has in relation to health...*", the right to "*have a single medical record written in precise, understandable and complete terms; as well as the confidentiality of the information contained therein...*".

Chapter III "*Common Information System*", Art. 215, states that: "*The national health authority, with the participation of the members of the National Health System, will implement the common information system in order to know the health situation, identify the risks for people and the environment, dimension the available resources and the production of services, to guide political and managerial decisions and articulate citizen participation at all levels, among others...*".

Article 141, paragraph 2 of the Organic Law of Telecommunications[21] establishes as competencies of the Governing Body of Telecommunications and the Information Society, "*To formulate, direct, guide and coordinate the policies, plans and projects for the promotion of information and communication technologies and the development of telecommunications, as well as to supervise and evaluate their compliance*".

Article 3, paragraph 11 of the Regulations to the Organic Law on Telecommunications[22] defines the Information Society as "*...that which uses and appropriates telecommunications and ICTs to improve the quality of life, competitiveness and economic growth*".

The Organic Law on Personal Data Protection[23], in its Chapter II, "*Principles*", Art. 10, regarding the principle of confidentiality, states that "*The processing of personal data must be conceived on the basis of due confidentiality and secrecy, i.e., it must not be processed or communicated for a purpose other than that for which it was collected, unless one of the grounds for a new processing occurs in accordance with the legitimate processing assumptions set forth in this law...*".

Article 30 of the aforementioned Law, regarding health-related data, establishes that: "*...The institutions that make up the National Health System and health professionals may collect and process data related to the health of their patients who are or have been under treatment by them...*".

This article also mentions that "Data *controllers and data processors, as well as all persons involved in any phase of data processing, shall be subject to the following conditions*

[20] Organic Health Law - https://www.salud.gob.ec/wp-content/uploads/2017/03/LEY-ORG%C3%81NICA-DE-SALUD4.pdf
[21] Organic Telecommunications Law - https://www.telecomunicaciones.gob.ec/wp-content/uploads/downloads/2016/05/Ley-Org%C3%A1nica-de-Telecomunicaciones.pdf.
[22] Reglamento Ley Orgánica de Telecomunicaciones - https://www.gobiernoelectronico.gob.ec/wp-content/uploads/2018/10/Reglamento-General-a-la-Ley-Org%C3%A1nica-de-Telecomunicaciones.pdf
[23] Ley Orgánica de Protección de Datos Personales - https://www.telecomunicaciones.gob.ec/wp-content/uploads/2021/06/Ley-Organica-de-Datos-Personales.pdf

to the duty of confidentiality, in such a way as to ensure adequate security of personal data, including protection against unauthorized or unlawful processing and against loss, destruction, accidental damage, through the implementation of appropriate technical organizational measures. This obligation shall be complementary to professional secrecy on a case-by-case basis".

The Model of Comprehensive Community and Intercultural Family Health Care (MAIS-FCI) of the Ministry of Public Health[24], issued through Ministerial Agreement No. 725-1162 of May 3, 2012, regarding Integrity in the National Health System refers that: "*....The integration of health units in the three levels of care should result in continuous care to the users through a network with appropriate organization and technology, hierarchized to provide rationalized care to patients, according to the degree of medical and technological complexity of the problem and its treatment.*"

Additionally, through Ministerial Agreement No. 00002687 of the Ministry of Public Health of December 21, 2012[25], published in Official Register No. 871 of January 15, 2013, the Automated Daily Registry of Outpatient Consultations and Care (RDACAA) was approved, which is a web platform for collecting outpatient care data in real time from the health facilities of the National Health System.

Ministerial Agreement No. 0009 of the Ministry of Public Health, published in Official Register No. 968 of March 22, 2017[26], issues the Regulation for the Management of the Electronic Health Record, with the purpose of defining the guidelines for its application, in health service provider establishments, throughout the national territory.

Ministerial Agreement No. 00115 of the Ministry of Public Health, published in Official Gazette No. 378 of January 26, 2021[27], issued the Regulation for the Management of the Single Clinical History (HCU), which aims to regulate its content and the requirements for its application by health professionals in the health facilities of the National Health System.

Ministerial Agreement No. 00083 of the Ministry of Public Health, published in the Second Supplement of the Official Gazette No. 100 of July 7, 2022[28], issued the Ten-Year Health Plan 2022-2031, conceived as a technical and legal instrument through which

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[24] Model of Integrated Community and Intercultural Family Health Care (MAIS-FCI) of the Ministry of Public Health - http://librodigital.sangregorio.edu.ec/librosusgp/B0033.pdf

[25] Ministerial Agreement 00002687 Ministry of Public Health - https://aplicaciones.msp.gob.ec/upload/upload/1_00002687_2012_ac_00002687_2012_RO.pdf

[26] Ministerial Agreement No. 0009-2017 Ministry of Public Health. http://esacc.corteconstitucional.gob.ec/storage/api/v1/10_DWL_FL/eyJjYXJwZXRhIjoicm8iLCJ1dWlkIjoiMTFhYTQ5MWUtNjJmMi00NTllLWE1N2YtZWUzOWVlMTBjN2VjLnBkZiJ9

[27] Agreement No. 00115-2021 Ministry of Public Health - https://www.registrofical.gob.ec/index.php/registro-oficial- web/publications/registro-oficial/item/14271-registro-oficial-no-378

[28] Ministerial Agreement No. 00083 Ministry of Public Health - http://esacc.corteconstitucional.gob.ec/storage/api/v1/10_DWL_FL/eyJjYXJwZXRhIjoicm8iLCJ1dWlkIjoiOTI0NGQ0ZTctMmI4Yi00MWM4LWE0MGUtMDRkMmI4ZTk2NWI3LnBkZiJ9

which includes the national policy aimed at improving the level of health and quality of life of the population of Ecuador and making effective the right to health guaranteed in the Constitution of the Republic and in international instruments, refer that "*...the National Health Authority identified the digital transformation as a critical axis for the improvement of the management of the sector...*".

Finally, through Ministerial Agreement No. 00228-2023 of the Ministry of Public Health of December 6, [202329], the publication of the "*Digital Health Agenda 2023- 2027"* is issued, which provides that this instrument *is "mandatory for the institutions that make up the Integrated Public Health Network (RPIS) and the Complementary Private Network (RPC), as appropriate, in accordance with current legislation.*

2.5 Overview of the Digital Health Transformation in Ecuador

2.5.1 Health System in Ecuador

Following the COVID-19 pandemic, the weaknesses and structural problems in Ecuador's health [system30] as well as in the disease-centered care models have been widely evidenced. During this period, the health system had to adapt quickly, making a technological leap and implementing digital tools, such as telemedicine, to maintain contact with patients. Although telemedicine was a vital resource, the pandemic continued to accelerate the digital transformation, generating new needs for the health sector and forcing governments to change the paradigm.

In this scenario, the Ministry of Public Health prioritizes digital transformation in the National Health System and, in collaboration with the Inter-American Development Bank (IDB), created the preliminary proposal for the Digital Health Agenda in 2019. This agenda aims to integrate and improve the quality and consistency of information through digital tools for analysis and knowledge generation.

In this context, this diagnosis is based on the key aspects and dimensions that frame the Digital Health Agenda of the Ministry of Public Health, in order to expand the paradigm of digital transformation in the health sector.

[29] Ministerial Agreement No. 00228-2023 Ministry of Public Health - https://newsite.cite.com.ec/download/ministerio-de- salud-publica-00228-2023/

[30] El sistema de salud ecuatoriano y la COVID- 19, Organización Internacional del Trabajo, 2021. https://www.ilo.org/wcmsp5/groups/public/---americas/---ro-lima/---sro-lima/documents/publication/wcms_799790.pdf

2.5.2 Digital Transformation in Ecuador

2.5.2.1 Digital Readiness Level (DRA)

The Digital Transformation Team of the United Nations Development Programme (UNDP) and the Ministry of Telecommunications and Information Society conducted a Digital Readiness Level Perception Survey in 2023, to assess the level of digital development in the country[31]. This instrument collected information through different digital channels such as: social networks, email, dissemination to business associations, among others, reaching 706 invitations sent and 150 completed surveys.

According to the results of this exercise, Ecuador is located in the third phase (systematic phase) of 5 possible phases with respect to the scope of digital impact. This third phase indicates that "*the country is advancing in key areas of digital transformation based on identified priority areas".*

Phases	Digital Impact
Basic	The basic foundations of digital transformation are lacking (in particular infrastructure and digital skills), which which makes the process more difficult for later stages.
2. Timely	The country is making progress in selected areas of digital transformation, but without a coordinated strategy.
3. Systematic (ECUADOR LEVEL)	The country is systematically making progress in key areas of digital transformation based on of identified priority areas.
4. Differential	The country has an established foundation and clear strengths in digital transformation.
5 Transformational	The country is making progress in all areas of national digital transformation with based on an integrated strategy.

On the other hand, the survey also takes into account 5 fundamental pillars (infrastructure, governance, regulation, business and people) to analyze the progress in digital transformation.

[31] Digital Readiness in Ecuador https://www.undp.org/es/ecuador/publicaciones/nivel-de-preparacion-digital- dra-en-ecuador

As for these, 4 of the 5 pillars were found to be in a systematic stage, reflecting the following results for Ecuador:

Pilar	Description	Stage
Infrastructure	Growing connectivity. Limited developer and business ecosystems.	Systematic Stage
Government	Shared vision and strategy. Public support.	Systematic Stage
Regulation	Initial laws and policies established.	Systematic Stage
Business	Collaboration between sectors, financing.	Systematic Stage
Persons	High levels of digital penetration.	Differential Stage

It is important to mention that the "people" pillar reflects the perspective of those who were surveyed and the score corresponds mostly to their perception and not necessarily to objective data.

Although this survey does not focus specifically on digital transformation in healthcare, it is relevant to review the existing analyses on digital impact at the national level to have an overview of progress in different contexts, in line with the fact that there can be no digital transformation in the healthcare sector without the implication of a holistic and comprehensive progress at the national level.

2.5.2.2 Global Digital Health Monitor

The HealthEnabled Global Digital Health Monitor (GDHM) is an interactive resource that aims to track, monitor and evaluate the enabling environment for digital health around the world[32]. For each country there is an overall score based on an average of the GDHM indicator scores, which are as follows:

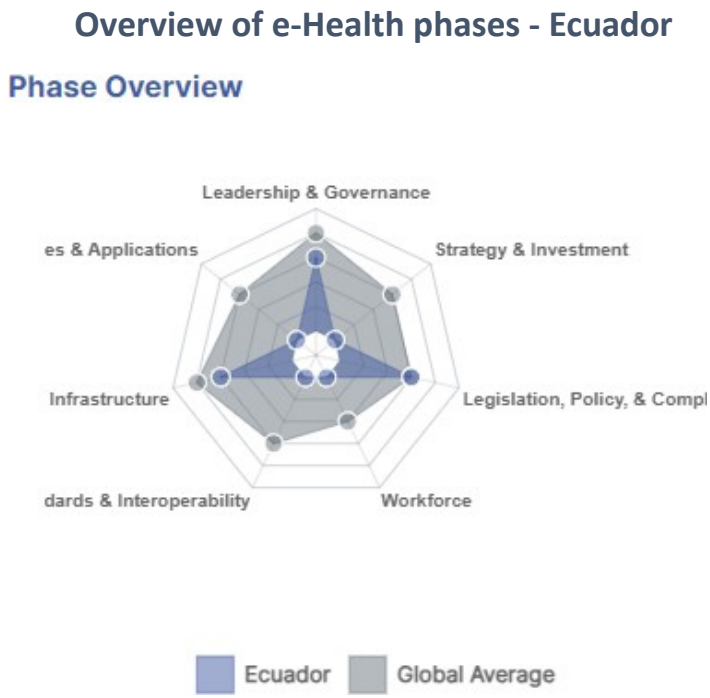
- Leadership and Governance.
- Strategy and Investment.
- Legislation, policy and compliance.

[32] Digital Health Monitor https://digitalhealthmonitor.org/

- Personnel (workforce).
- Standards and Interoperability.
- Infrastructure.
- Services and Applications.

According to the latest assessment conducted by the Global Digital Health Monitor in 2023, Ecuador is in phase 3, with the following score by indicator:

Indicator	Phase
Leadership and Governance	Phase 3
Strategy and Investment	Not available
Legislation, policy and compliance	Phase 3
Personnel (workforce)	Not available
Standards and Interoperability	Phase 3
Infrastructure	Phase 3
Services and Applications	Not available



Ecuador's results compared to the world average. Source: GDHM 2023

2.5.2.3 Electronic Health Record

According to the study "Regulatory Framework for Digital Health in Latin America and the Caribbean" by the Inter-American Development Bank (IDB)[33] , the Electronic Health Record (EHR) is defined as a "*personal electronic record, the result of health care, which is contained in a database, generated by computer programs, and certified with the electronic signature of the health professional. Without prejudice to the fact that the health service providers are the custodians of the Electronic Health Record, the patients are the owners of the data stored in the Electronic Health Record".*

In March 2017, the MSP issued Ministerial Agreement [0009-201734], for the use of the Electronic Health Record, in order to provide for its implementation and to define the guidelines for its application in institutions providing health services nationwide.

On the other hand, in 2020, the Inter-American Development Bank (IDB) prepared a document called "Regulatory Framework for Digital Health in Latin America and the Caribbean "[35] , which proposes different conceptual frameworks for the analysis of regulations related to digital health and, in particular, to the implementation of the Electronic Health Record in the countries.

The methodology used to rate the percentage progress was based on the legislation enacted, regardless of its date of entry into force. In the first instance, each country's legislation was surveyed for each of the 5 categories of the conceptual reference framework. In this sense, we searched for the regulations related in each country to specific legislation on:

A. Electronic medical records.
B. Protection of patient data and secondary use of information.
C. Legislation related to the actions of health professionals.
D. Role of patients in relation to their EHR.
E. Health standards and EHR interoperability.

[33] Marco Normativo para la Salud Digital en América Latina y El Caribe" (Regulatory Framework for Digital Health in Latin America and the Caribbean). Inter-American Development Bank. 2020. https://publications.iadb.org/en/regulatory-frameworks-digital-health-latin-american-and-caribbean-electronic-health-records

[34] Ministerial Agreement No. 0009-2017 Ministry of Public Health - https://vlex.ec/vid/expidese-reglamento-manejo- history-671988073

[35] Regulatory Framework for Digital Health in Latin America and the Caribbean - https://publications.iadb.org/es/marco-normativo- para-la-salud-digital-en-america-latina-y-el-caribe-el-caso-de-las-historias

In this context, the IDB study for the case of Ecuador mentions that there have been key advances that allow for a conceptual framework of reference for the implementation and use of the Electronic Health Record.

The results for Ecuador were as follows:

Category	% of Progress
A. EHR specificities: ● Specific regulations on EHR. ● Types of information in the EHR. ● Minimum data to be included in the EHR (pending progress). ● Regulation of the transition from paper to electronic.	75%
B. Protection of patient data and secondary use of information: ● Protection of personal data. ● Information exchange at the national level. ● Security in the storage of patient data. ● Secondary use of health information.	100%
C. Actions of health professionals: ● Digital signature of the professionals. ● Electronic documents. ● Access restrictions. ● Emergency access. ● Electronic prescriptions.	100%
D. Role of patients in relation to their health data: ● Consent to the use of personal health data. ● Patient identification and authentication. ● Patient access to their personal health data. ● Patients and the right to edit their personal health data (Pending developments).	75%
E. Health standards and EHR interoperability: ● Interoperability and standards. ● Codifications and health standards.	100%

2.5.2.4 Telemedicine

Telemedicine has emerged as a key practice to favor access to health care, improve quality of care and organizational efficiency[36]. In the Ecuadorian and global context, the COVID-19 pandemic acted as a catalyst to broaden the vision regarding the use of new technologies to care for patients due to mobility restrictions and limitations of face-to-face care.

An important input for promoting telemedicine in the country was the document "Consensus of recommendations for palliative care in the SARS-CoV-2/COVID-19 pandemic" of the Ministry of Public Health[37], which suggests *"ensuring continuity of care for patients with palliative needs, through coordinated referral to the palliative care team of the first level of care or establishing follow-up through telemedicine when possible".*

In 2022, the IDB published the study "Telemedicine Regulatory Framework "[38], which compiles evidence, practices and recommendations for all the actors involved in these processes. The study evaluated 7 categories:

A. Telemedicine regulations.
B. Telemedicine governance.
C. Protection of personal data in telemedicine.
D. Technological aspects of telemedicine.
E. Performance of health institutions and teams in telemedicine.
F. Role of patients in telecare.
G. Principles and human rights transversal to telemedicine.

In the case of Ecuador, it is mentioned that there are still pending challenges for the deployment of telemedicine in the country, with the following results:

[36] Pan American Health Organization, Framework for Implementing a Telemedicine Service. Washington DC, 2016. https://iris.paho.org/handle/10665.2/28413

[37] Consensus of Recommendations for Palliative Care in the SARS-Cov-2/COVID-19 Pandemic, Ministry of Public Health, 2020. https://www.salud.gob.ec/wp- content/uploads/2020/07/Consenso_de_recomendaciones_Cp_Pandemia_SARS-CoV-2-COVID-19_2020.pdf

38Inter-American Development Bank, Telemedicine Regulatory Framework, 2022. https://publications.iadb.org/es/marco- telemedicine-regulatory-framework-current-status-and-pending-tasks.

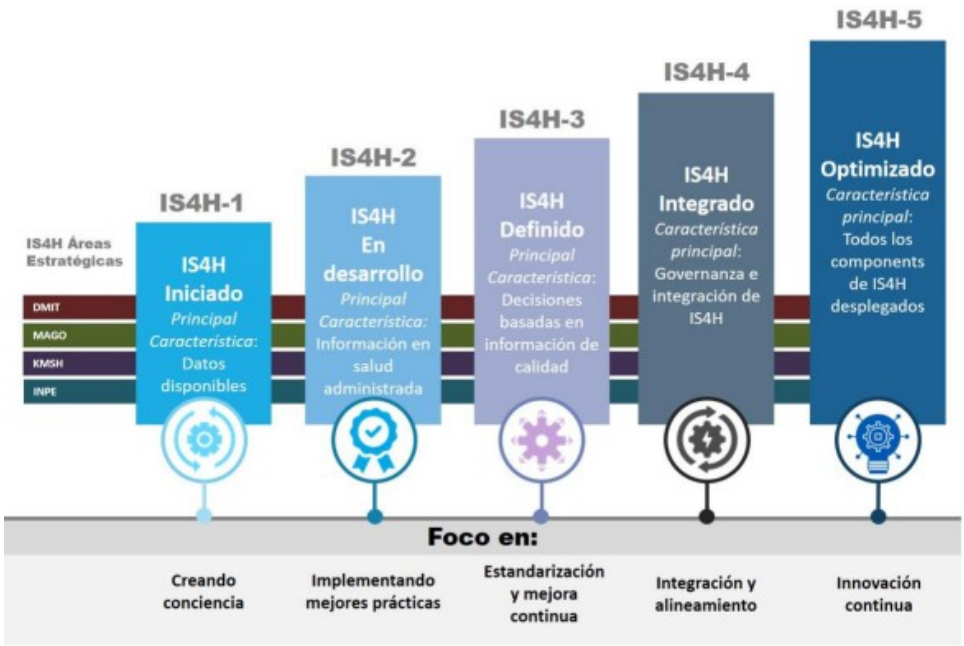
Category	% of Progress
A. Telemedicine regulations: ● General telemedicine regulatory issues. ● Provision of services ● Authority of application. Functions.	0%
B. Governance in Telemedicine: ● National strategies and/or specific government plans ● Telemedicine education and training ● Scope of implementation in the health system	0%
C. Protection of personal data in telemedicine: ● Legal protection of personal health data. ● Ownership, use and transfer of health data. ● Health data security.	67%
D. Technological aspects of telemedicine: ● Infrastructure and connectivity. ● Technical and/or technological specificities specific to telemedicine. ● Digital services and tools related to telemedicine.	29%
E. Performance of health institutions and teams in telemedicine: ● Qualification framework for the practice of telemedicine. ● Issues related to the practice of telemedicine. ● Provision of interjurisdictional services. ● Humanization of the telemedical act.	16%
F. Role of patients in telecare: ● Consent to very personal rights. ● Access and equity. ● Rights and obligations of patients.	9%
G. Principles and human rights transversal to telemedicine: ● Reduction of digital divides. ● Barrier reduction. ● Environmental protection. ● Principles of digital bioethics.	0%

2.5.2.5 Health Information Systems Maturity

The Pan American Health Organization (PAHO) proposes an Information Systems Maturity Model for Health (IS4H-MM)[39] framework that guides health information systems along the journey of change marked by the information and knowledge revolution, and shows how countries and organizations can increase their capacity to operate, interact and benefit from them.

This model proposes 5 maturity levels: IS4H Initiated, Under Development, Defined, Integrated, Optimized; which are applied to 4 strategic areas:

- Data management and information technologies.
- Management and governance.
- Knowledge management and exchange.
- Innovation.



Source: Maturity model analysis tool (conceptual framework).

In 2023, the MOH conducted an analysis and evaluation of the Maturity Level of the National Health System Information System in Ecuador[40]. The analysis was carried out in cooperation

[39] World Health Organization, IS4H Levels of Maturity Analysis, 2019. https://www3.paho.org/ish/images/toolkit/IS4H-MAL-ES.pdf

[40] Information Systems for Health Information Systems Maturity Analysis Report (IS4H), Pan American Health Organization, 2023 - https://drive.google.com/file/d/1Jml7jBy1T78U4wDJ1ywUlAys_Pv5IGHF/view

with the Pan American Health Organization (PAHO) teams. The results of this evaluation were as follows:

Strategic area	Self-assessed level
Data management and information technologies.	**Level 2.6 of 5**, implies: **Data sources (LEVEL 2):** ● Sometimes data are obtained from only a few sources. ● Data are often of little use due to problems with quality or disaggregation. ● Data are mainly collected on paper, although for some data sources that are systematically collected from all major sources simple electronic tools, such as electronic spreadsheets, could be used. ● Some indicators are defined, but it is not easy to obtain or exchange data on them. **Information products (LEVEL 3):** ● Various information systems in the country produce a range of information products in an efficient and systematic manner. ● Dissemination of information products is generally limited to senior decision makers. **Quality and interoperability standards (LEVEL 3):** ● Some standards have been identified for certain data sources and there are formal plans to adopt them. **Data governance (LEVEL 3):** ● Data management processes and best practices (e.g., data quality frameworks, data standards, policies, standard operating procedures) are used in some facilities, units or teams. ● Basic data sets are easy to obtain. ● Data from different sources are rarely integrated for analysis. ● Some metadata (compendium or indicators, data dictionaries) are documented and maintained. ● Within the national health authority there is a body in charge of data governance.

	Information Technology (IT) Infrastructure (LEVEL 2): ● Basic tools are g e n e r a l l y available, but many are old or do not work well.
Management and Governance	**Level 1.8 out of 5,** implies: **Leadership and coordination (LEVEL 2):** ● Decisions on IS4H investments are coordinated at the management level of individual national health authorities (e.g., ministry of health, regional health authorities, health facilities), but are not formally coordinated among health authorities or other national stakeholders. **Strategic and operational plans (LEVEL 2):** ● There is a national strategic health plan, but it does not address IS4H. Some units, departments, and facilities include IS4H components in their operational plans. **Institutional structures and functions (LEVEL 2):** ● Some of the IS4H functions are formally defined and carried out, but there are large gaps. **Human resources (LEVEL 1):** ● Little is known about the human resources needed for IS4H. **Financial resources (LEVEL 2):** ● Annual unit or program budgets of national health authorities indicate IS4H-related activities, but these activities are not integrated or harmonized across units or programs. ● The financial resources needed to effectively maintain IS4H have been identified, but there are no plans to address the gaps. **Multi-sector collaboration (LEVEL 2):** ● There are some relationships with other public sector partners with respect to particular information needs and

	services. However, participation and coordination take place on an ad hoc basis. **Legislation, policy and compliance (LEVEL 2):** ● The laws, regulations and compliance mechanisms necessary for IS4H to function have been identified, but solutions have not yet been implemented. **National and international agreements (LEVEL 2):** ● Data and reporting obligations set out in national and international agreements are often met, but with a large impact on resources.
Knowledge management and sharing	**Level 2.5 out of 5,** implies: **Knowledge processes (LEVEL 2):** ● There are some basic knowledge management mechanisms and processes (e.g., formal meeting notes, trip reports, standard operating procedures, documentation, etc.), but they are not always accessible or up-to-date and are not required by policy or practice. **Knowledge architecture (LEVEL 2):** ● Managers and staff are aware of the main concepts and the importance of knowledge management. ● Some isolated knowledge management and knowledge sharing pilot projects are carried out (not necessarily at the initiative of management). **Strategic communications (LEVEL 2):** ● There is an informal strategy for public health communications, but it is not implemented. ● Strategic public health communications cover issues related to healthy lifestyles and prevention. **Social participation (LEVEL 3):** ● Civil society participation in the health system is actively encouraged in social networks and through formal roles in governance bodies and advisory groups.

	Academic and scientific community (LEVEL 4): ● No formal relationships have been established between the health authorities and the academic and scientific community. **Networks (LEVEL 2):** ● Staff participate in knowledge networks (e.g., communities of practice, conferences, listservs) on an ad hoc basis.
Innovation	**Level 2.4 of 5,** implies: **Key concepts (LEVEL 2):** ● Although some IS4H concepts are understood, not all concepts are well understood by managers and staff. **Tools (LEVEL 2):** ● Basic tools for health analysis (e.g., electronic spreadsheets, statistical packages) are routinely used, and data are stored in relational databases. **Health analysis for decision making (LEVEL 2):** ● Data generally flow from sources to central decision makers for health analyses, but there is little health information for local decisions. ● There is evidence that data and information are regularly used to inform regulatory and management decisions. **Digital Health (LEVEL 2):** ● Digital health tools, such as electronic records, laboratory and pharmacy information systems, and electronic entry of physician instructions, are being adopted to digitize manual processes and increase the efficiency of operations. ● A roadmap has been developed, based on an analysis, to better integrate digital technologies into health systems, including regulatory and technical aspects.

	Electronic public administration (LEVEL 3): ● There are signs of e-government initiatives that are transforming the interaction between the public administration and the public, businesses or other organizations in the health field (e.g., online appointment request, patient portals, electronic case referral, health card enrollment, etc.). **Open Government (LEVEL 4):** ● Open data principles have been formally incorporated into policies. **Preparedness and resilience (LEVEL 2):** ● There are indications that methods are used to ensure continuity of operations in the event of a disaster (e.g., systematic off-site backups, standard operating procedures for manual processes during system outages, etc.). ● There are some key data sets for disaster response (e.g., facility and human resources for health databases, emergency center database, mortality data, etc.).

2.5.2.6 Global Data Barometer

The Global Data Barometer is a multidimensional study that assesses the state of data in 109 countries. Data collection was coordinated across 12 regional centers with support from 6 partner organizations: Open Ownership, Open Government Partnership, Transparency International, GIFT, Land Portal, and Open Contracting Partnership.[41] The barometer assesses the state of data availability and open data in different countries, a survey of experts covered the period from May 2019 to May 2021 and provided evidence on data governance, capacity, availability, and use in a variety of sectors, including health.

The health module and COVID-19 rely on both primary indicators and secondary data sources to assess the availability of:

[41] Global Data Barometer. https://globaldatabarometer.org/

- Vital statistics (primary indicator).
- Sanitation system capacity data (secondary source).
- Real-time health system capacity data (primary indicator).

This module also incorporates indicators specifically focused on COVID-19, which evaluate the availability of:

- Vaccination data (primary indicator).
- Test data (secondary source).

For the health data dimension, Ecuador obtains the following results in 2020 (all out of a maximum score of 100):

Indicator Country	Score for Ecuador
Health and COVID-19	32
Vital statistics	21
Real-time health system data	39
COVID-19 vaccination data	6
Health system data	52
COVID test data	100

2.5.2.7 Standards and Interoperability

Within the framework of Open Data Day 2024, the Ministry of Public Health (MOH) participated in the Webinar "Exploring the future of health with open data" on March 7, 202442. During this webinar, representatives of the Ministry of Public Health shared advances in digital health and, among other topics, commented that one of the standards that the MOH has adopted is the HL7 FHIR (Fast Healthcare Interoperability Resources)[43] standard. This standard is built from a set of modular components called "resources" that can be integrated into functional systems that solve clinical and administrative problems. HL7 FHIR can be applied in a variety of contexts such as cell phone applications, cloud communications, data interchange

42Webinar, "Exploring the future of healthcare with open data",2024
https://twitter.com/ECGobAbierto/status/1765792783338488165
43 https://hl7.org/fhir/

based EHRs, server communication in large institutional healthcare providers, among others.

HL7 FHIR can be used to implement the International Patient Summary (IPS), which is defined as a synthesis of the electronic health record that incorporates critical data for use in unplanned care situations in cross-border, local, regional and other settings. It is a standardized set of essential clinical information that covers the most relevant aspects related to health and medical care, thus ensuring safe and effective medical [care44].

In accordance with the future actions mentioned in the framework of this event, the MOH plans to begin implementing the standard in the coming months in the different health facilities, with the aim of facilitating the exchange of health information, not only at the national level, but also internationally through the international patient summary (IPS).

2.5.2.8 Universal Health Coverage and Digital Transformation

Universal Health stems from the 1978 Primary Health Care strategy of the Pan American Health [Organization45], which aimed to achieve the goal of "Health for All" by the year 2000. Universal Health encompasses several dimensions, including adequate living conditions, equitable access to essential health services, as well as to quality information and data from the health sector. The purpose is that all people, regardless of their socioeconomic, demographic, ethnic and other status, are guaranteed access to quality, accessible and timely health services.

The Universal Health Coverage (UHC) service coverage index combines 14 tracer indicators of service coverage into a single summary measure, as a measure of SDG [3046] indicator 3.8.1. According to this index, Ecuador achieves a score of 77 out of 100 points (2021), with respect to coverage of essential health services expressed as the average score of the 14 indicators evaluated. The statistics even indicate that since 2000, universal health coverage in the country has increased by 26 points up to 2021.

[44] International Patient Summary Terminology - https://www.snomed.org/international-patient-summary-terminology
[45] Declaration of Alma-Ata, Pan American Health Organization.
https://www3.paho.org/hq/dmdocuments/2012/Alma-Ata-1978Declaracion.pdf
[46] Universal Health Coverage Service Coverage Index, World Health Organization.
https://data.who.int/es/indicators/i/9A706FD

Source: UHC 2021 Index score for Ecuador

The dimensions and indicators that make up this index are as follows:

Dimension	Indicators
Reproductive, maternal, newborn and child health (RMNCH)	1. Family Planning (FP). 2. Prenatal care, 4+ visits (ANC). 3. DTP3 immunization (DTP3). 4. Seeking care for suspected pneumonia (pneumonia).
Infectious diseases (ID)	1. Treatment of tuberculosis (TB). 2. HIV therapy (ART). 3. Insecticide-treated mosquito nets (ITNs). 4. Basic sanitation (WASH).
Non-communicable diseases (NCDs)	1. Blood pressure (BP) not elevated. 2. Mean fasting plasma glucose (FPG). 3. Non-consumption of tobacco.
Capacity from service and access (Capacité)	1. Hospital bed density (Hospital). 2. Health Worker Density (HWF). 3. RSI Core Capability Index (IHR).

On the other hand, in line with the Ten-Year Health Plan 2022-2031, the consolidation of networks and the strengthening of the quality of care are fundamental.

as part of the promotion of the first level of care. Based on this, in September 2023, under the direction of the Ministry of Public Health of Ecuador and with the technical support of the Pan American Health Organization/World Health Organization (PAHO/WHO), the Integrated Health Services Networks (RISS) were developed and strengthened in the country[47]. Two specific areas, the networks of Yaruquí - Tumbaco in Quito and Monte Sinai - Pascuales in Guayaquil, were selected as pilot experiences where short and medium term strategies and programs were implemented.

As part of these strategies to improve network services, the Essential Conditions Assessment tool was introduced. This tool provided a detailed understanding of the conditions under which health services are provided, integrating six fundamental components of quality: safety, efficiency, effectiveness, timeliness, person-centered approach and equity[48].

This focus on improving the quality of care and consolidating health networks is crucial to moving toward Universal Health Coverage. By strengthening primary care infrastructure and services, a solid foundation is laid to ensure that all people have access to essential health services. Implementing these tools not only improves the quality of health care, but also contributes to building more resilient and equitable health systems, which are fundamental to achieving Universal Health Coverage at the national level.

2.6 Conclusions

In Ecuador, there is a clear political will and commitment to promote initiatives that drive the integration and modernization of health information systems in the country. Strategies such as the Digital Health Agenda, and others mentioned in this document, provide a solid framework to guide and coordinate the efforts of all stakeholders. In addition, the current landscape has provided a different perspective to the development and integration of health information systems, in an intersectoral and integrative manner.

Despite the progress mentioned above, it is crucial to recognize that there are still significant challenges that need to be addressed to ensure the success of the digital transformation in the health sector, especially in the implementation of legal and regulatory frameworks to help achieve universal coverage. One of the main challenges is data governance, which involves establishing a clear data management architecture and management mechanisms to ensure compliance with standards of quality, security, privacy and accessibility of health sector data. In addition, interoperability

[47] Thanks to the support of the Alliance for Universal Health Coverage (UHC-P), Ecuador builds integrated networks with quality health services, PAHO 2023 - https://www.paho.org/es/noticias/8-9-2023-gracias-al- apoyo-alianza-para-cobertura-universal-salud-uhc-p-por-siglas

[48] Assessment of Essential Conditions - https://hsvce.paho.org/introduction

continues to be a key aspect of achieving efficient and accurate data exchange.

On the other hand, it is necessary to adopt a rights-based approach in the implementation of actions and strategies for the construction and application of the public policy of digital transformation in health, ensuring that access to information and digital health services is equitable and respects the human rights approach.

Based on the above, a policy proposal for the digital transformation of the healthcare sector could consider developing the following elements:

1. Guiding Principles

It is important to establish guiding principles that are cross-cutting and consistent with respect for human rights, promoting diversity, equity and inclusion as an essential part of it.

2. Strategic Objectives

To have strategic objectives that are linked to weaknesses and challenges identified in the digital health field as well as in the system as a whole.

3. Strategic Lines

Define lines of work aligned with the different instruments in force and applicable to the context of digital transformation with a focus on universal health coverage.

4. Areas of Intervention

Specifying specific areas in which actions will be implemented will make it possible to adequately dimension the scope of the policy and the possibilities for evaluating its impact.

5. Action Plan

Based on the areas of intervention, strategic lines and objectives, while maintaining the guiding principles, propose activities defining times, resources and those responsible for their implementation.

6. Governance Model

Define roles and actors that will be involved in carrying out the Action Plan, establishing their functions and responsibilities.

7. Monitoring and evaluation

Establish indicators and periodic procedures to evaluate the progress of policy implementation.

3. Glossary of terms and acronyms

IDB: Inter-American Development Bank.

CEDIA: Ecuadorian Corporation for the Development of Research and Academia.

ECLAC: Economic Commission for Latin America and the Caribbean.

Universal Health Coverage: Principle that promotes equitable and non-discriminatory access to essential, quality and affordable health services for the entire population, regardless of socioeconomic status, gender, age or geographic location.

Health Data: Information related to an individual's health, including clinical, historical, diagnostic, treatment and follow-up data, that is collected, stored and used in the context of health care delivery and medical research.

Equity in Health: Principle that seeks to ensure that all people have equal access to health services and opportunities to achieve and maintain optimal health, regardless of their ethnic origin, gender, sexual orientation, religion, socioeconomic status or other personal characteristics.

FUNDAPI: Fundación de Ayuda Por Internet

Data Governance: A framework of policies, regulations and processes that ensure the ethical, secure and effective management of health data, including its collection, storage, processing, use and sharing, while protecting users' rights to privacy and confidentiality.

Electronic Health Record (EHR): A comprehensive electronic record of a patient's medical information, including medical history, diagnoses, treatments, test results, allergies and other relevant data, accessible to different health care providers and health services.

Interoperability: The ability of health information systems and devices to exchange, interpret and use data effectively and consistently across different organizations and technology platforms, ensuring continuity and coordination of patient care.

IPS: International Patient Summary.

MINTEL: Ministry of Telecommunications and Information Society.

MSP: Ministry of Public Health.

SDGs: Sustainable Development Goals.

WHO: World Health Organization. **UN:**

United Nations. **PAHO:** Pan American Health

Organization.

Digital Health: Also known as eHealth, it refers to the use of information and communication technologies (ICT) to improve the health and well-being of people, including the provision of health services, medical information management and health education.

Telemedicine: Remote medical practice through the use of information and communication technologies (ICT), which allows the evaluation, diagnosis, treatment and follow-up of patients without direct physical contact between doctor and patient.

UHC: Universal Health Coverage.

Daniela Lamb

Digitally signed by Daniela Lamb
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