Fundación Ceibal

The State of Digital Transformation in Education: Where Are We and Where Are We Heading?

Executive Summary

EdTech Initiative

RED LATE

IDRC · CRDI Canada

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Foreword

Roberto Porzecanski
Director, Ceibal Foundation

Since 2014, Uruguay's Ceibal Foundation has been promoting the transfer of knowledge from Ceibal[1] and encouraging research to contribute to a sustainable and equitable digital transformation in education.

Since its creation in 2007, Ceibal has proven that it is possible to promote long-term public policies that combine inclusion, quality, and innovation, promoting the meaningful integration of digital technologies into teaching and learning processes. The path set out has helped to consolidate its strategic role as a center for educational innovation with digital technologies in Uruguay. Its mission to improve learning, expand opportunities, and enable personal development careers through the pedagogical use of technology has made it a regional and global benchmark.

Ceibal Foundation, for its part, extends and projects this leadership to the region by promoting the circulation, adaptation, and appropriation of knowledge generated in Uruguay and other countries. Through research initiatives, technical cooperation, and knowledge mobilization, Ceibal Foundation contributes to ensuring that the accumulated learning can inspire, guide, and strengthen efforts toward digital transformation of education in different contexts. Its role as a regional coordinator allows it to connect actors, promote collective thinking, and generate evidence that helps education systems make informed decisions.

Thus, Ceibal and Ceibal Foundation have established themselves as drivers of a regional agenda that understands innovation not as an end in itself, but as a tool for extending rights, reducing inequalities, and building more resilient, relevant, and future-oriented education systems. At a time when the region faces significant challenges, this report reaffirms the importance

1 Uruguayan public agency dedicated to promoting the integration of digital technologies in the education system.

of committing to cooperation, knowledge sharing, and evidence-based planning in order to move toward an inclusive and sustainable digital transformation.

The development of this "Diagnóstico sobre el estado de la Transformación Digital Educativa" (Assessment on the State of Digital Transformation of Education), based on responses from government and non-governmental stakeholders in 25 countries in Latin America and the Caribbean, is an essential step in guiding public action in the region. No transformation process —particularly one of the scale required to integrate technology into education systems— can be sustained without robust data that enable a clear understanding of current conditions, pressing challenges and the strategies that demonstrate the strongest results. Evidence strengthens political decision-making, providing a common ground from which to build consensus and prioritize interventions.

This assessment clearly identifies the areas where the greatest progress has been made, whether in structural, political, or institutional conditions; planning for digital transformation; access to devices and connectivity; consolidation of the digital environment for educational resources and content; program development; and/or teacher training proposals. At the same time, it candidly exposes those areas in which there are significant gaps and where there is still a long way to go. Recognizing these contrasts is essential: only then can countries plan realistic, sustainable policies that are aligned with their needs and possibilities.

The richness of the process is also shaped by the diversity of voices involved. The responses reflect complementary perspectives from officials, technical teams, academics, educators, school management staff, civil society organizations, and private sector stakeholders. Each perspective approaches education systems from a different yet complementary standpoint, allowing for a more complete and honest picture of the current situation. Integrating these perspectives is key to designing policies that not only respond to the vision of governments, but are also relevant and applicable in the field.

This collective effort demonstrates the value of generating shared knowledge in the region and reaffirms the conviction that evidence-based State planning is a prerequisite for achieving digital transformation that is truly inclusive, relevant, and sustainable over time.

Study framework: EdTech Initiative

Ceibal Foundation leads *the EdTech Initiative*, a project committed to strengthening local capacities to drive a sustainable and impactful Digital Transformation of Education in Latin America and the Caribbean (LAC), funded by Canada's International Development Research Centre (IDRC). The project is structured around three specific objectives:

1. Generating evidence on the current state of educational technology integration in countries in the region. This objective is addressed through i. conducting a regional assessment, the executive summary of which is presented in this report, and ii. launching calls for research proposals focused on priority topics derived from the regional assessment.
2. Strengthening the capacities of the technical teams of the ministries involved.
3. Mobilizing regional knowledge. To address this objective, the Latin America and the Caribbean Network for Digital Transformation of Education (LATE Network) has been launched, a platform that brings together strategic actors —governments, academia, and civil society— promoting a comprehensive vision of the incorporation of technology in education.

It is important to note that the *EdTech Initiative* is being implemented in partnership with four strategic subregional hubs, which represent the different subregions of Latin America and the Caribbean and ensure a pluralistic and decentralized approach: Movimiento STEM (Mexico and the Andean Region): a leader in educational innovation and the promotion of 21st-century skills; Fundación Zamora Terán (Central America): a pioneer in digital inclusion through massive programs providing access to devices and connectivity; University of the West Indies – UWI (Caribbean): a regional academic center that promotes research and training in digital education; MegaEdu (Southern Cone): a coordinator of public and private actors for digital transformation of education systems.

Concepts guiding Digital Transformation of Education

Digital Transformation of Education (DTE):

A systemic reconfiguration of teaching practices, learning, management, and institutional culture through digital technologies, involving structural, pedagogical, organizational, and cultural changes, and integrating public policies, infrastructure, teacher training, contents, assessment, and digital governance, in dialogue with international frameworks and regional experiences.

Digital inclusion:

An approach that conceives digital technologies as public goods and proposes that equity is not limited to access, but that requires the promotion of meaningful pedagogical uses through platforms, content, and educational practices that develop skills relevant to the 21st century.

Pedagogical innovation:

Intentional integration of strategies and resources to strengthen teaching and learning processes. Pedagogical innovation through digital technologies is understood as a complex process that articulates pedagogy, change management, and technology, and whose effectiveness depends on the balance between these dimensions.

Digital governance:

A set of principles, standards, processes, and institutional provisions aimed at regulating the creation, use, and oversight of educational technologies and data in order to maximize public value, protect rights, ensure equity, and promote transparency and accountability.

Digital ethics and citizenship:

A dimension that refers to the values, norms, competencies, and responsibilities that guide individual and institutional behavior in digital environments, including the critical and safe use of information, respect for rights, civic participation, and the shared responsibility of States, platforms, and companies in shaping safe and democratic digital ecosystems.

International policy and programmatic framework

The following are the main instruments that guide public action in education and digital transformation of education.

Scan the QR codes to access each document

1. 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT SUSTAINABLE DEVELOPMENT GOAL 4 (UN, 2015)[2]

2030 Agenda: Global framework adopted in 2015 by the United Nations Member States, which guides public action and policy planning through 17 SDGs and 169 integrated sustainable development goals.

SDG 4 – Education: Seeks to ensure inclusive, equitable, and quality education and lifelong learning, recognizing digital technologies as a key enabler for its fulfillment.

2. EDUCATION 2030: INCHEON DECLARATION AND FRAMEWORK FOR ACTION (UNESCO, 2015)[3]

A political agreement that operationalizes SDG 4 and guides its implementation, monitoring, and evaluation. It recognizes ICTs as key tools for inclusion, educational quality, strengthening education systems, and improving teaching and learning processes.

3. QINGDAO DECLARATION. LEVERAGING ICT FOR ACHIEVING EDUCATION 2030. SEIZE DIGITAL OPPORTUNITIES, LEAD EDUCATION TRANSFORMATION (UNESCO, 2015)[4]

A document with recommendations for integrating ICT at all levels of education through comprehensive national strategies, prioritizing digital equity, universal Internet access, and

2 Available at: https://www.un.org/sustainabledevelopment/en/sustainable-development-goals/

3 Available at: https://unesdoc.unesco.org/ark:/48223/pf0000245656.locale=en

4 Available at: https://unesdoc.unesco.org/ark:/48223/pf0000233352

the development of digital skills, in line with lifelong learning and the SDGs. It establishes the commitment to ensure, by 2030, universal access for children to connected devices and appropriate digital learning environments.

4. ICT COMPETENCY FRAMEWORK FOR TEACHERS. VERSION 3 (UNESCO, 2018)[5]

It guides policies and training programs to integrate ICT into pedagogical innovation and the development of 21st-century skills, promoting uses adapted to national and institutional contexts.

5. PARIS DECLARATION. RECOMMENDATION ON THE ETHICS OF ARTIFICIAL INTELLIGENCE (2021)[6]

The first global policy instrument on the ethics of AI, which includes a specific section on education and research and promotes the responsible use of AI in education, with an emphasis on data protection, non-discrimination, and algorithmic transparency. It is a reference framework for the digital transformation of education with Artificial Intelligence (AI).

6. UNESCO RECOMMENDATION ON OPEN EDUCATIONAL RESOURCES (OER): SUPPORTING UNIVERSAL ACCESS TO INFORMATION THROUGH QUALITY OPEN LEARNING MATERIALS (2019)[7]

An international treaty that promotes free and equitable access to digital knowledge through Open Educational Resources, with the aim of ensuring that digital learning contributes to inclusion, reduces educational gaps, and supports the Sustainable Development Goals.

5 Available at https://unesdoc.unesco.org/ark:/48223/pf0000265721

6 Available athttps://unesdoc.unesco.org/ark:/48223/pf0000380455

7 Available athttps://unesdoc.unesco.org/ark:/48223/pf0000383205

7. GLOBAL DIGITAL COMPACT AT THE 2024 UNITED NATIONS SUMMIT OF THE FUTURE[8]

Global framework for digital cooperation and AI governance, aimed at a secure, inclusive, and people-centered digital future, promoting universal access to the internet, ethical regulation of AI, and the fight against disinformation.

8. SIX PILLARS FOR THE DIGITAL TRANSFORMATION OF EDUCATION: A COMMON FRAMEWORK (2025)[9]

Building on the momentum generated by the Global Digital Compact, the partners of the Digital Transformation Collaboration (DTC) —a subgroup of the Global Education Coalition launched by UNESCO in March 2020— agreed on a common framework for digital transformation focused on the specific needs of the education sector.

9. STATEMENT ON INCLUSIVE AND SUSTAINABLE ARTIFICIAL INTELLIGENCE FOR PEOPLE AND THE PLANET[10]

Adopted by 61 countries, it promotes open, inclusive, ethical, accessible, transparent, and trustworthy AI to reduce the digital gap; it remains open to new members, with initial participation —at the regional level— from Brazil, Chile, Mexico, and Uruguay.

8 Available athttps://www.un.org/en/summit-of-the-future/global-digital-compact

9 Available athttps://unesdoc.unesco.org/ark:/48223/pf0000391299

10 Available at https://onu.delegfrance.org/statement-on-inclusive-and-sustainable-artificial-intelligence-for-people-and

Assessment methodology

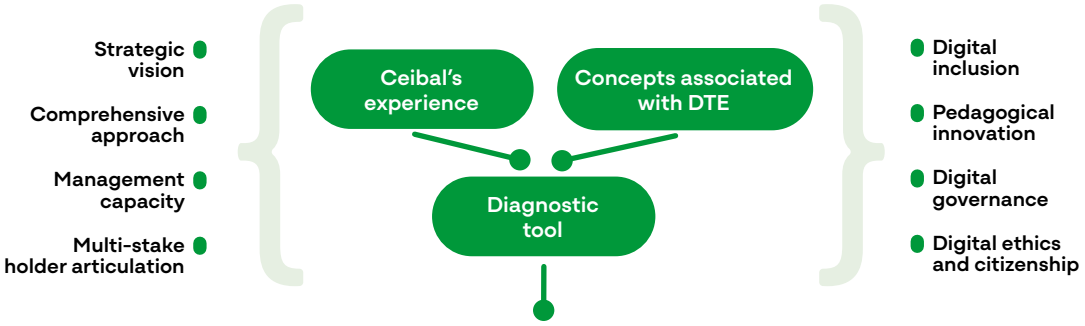
From the conceptual framework to the assessment tool

The assessment tool developed by Ceibal Foundation aims to operationalize the principles and concepts associated with DTE through a practical instrument designed to assess the level of maturity of education systems in their digital transformation processes.

The conceptual framework that guides this tool is based on the premise that DTE should be approached as a systemic process that articulates strategic, pedagogical, organizational, and technological dimensions, rather than as separate silos.

From this perspective, Ceibal systematized the lessons learned over more than 18 years of experience in the implementation of public policies on educational technology, integrating them with international evidence and contemporary theoretical frameworks. The result is an assessment tool that draws on both elements. This tool translates the principles of DTE into pillars, dimensions, and observable indicators, allowing the current state of a system to be described and tensions, gaps, and opportunities to be identified.

Figure 1. Framework for the construction of the diagnostic tool



Data collection instrument that includes closed responses (dimension scores analyzed statistically) and open responses (narratives from the five profiles)

In line with this systemic view, DTE is understood as something that cannot be fully grasped or assessed from the standpoint of a single actor, as this would capture only fragments of what is, by definition, interdependent and relational.

The information used in this study was obtained from the distribution of the questionnaire designed as a Diagnostic Tool among multiple actors linked to DTE in countries of the region. It aims to capture all the aspects that need to be taken into account when planning and implementing DTE within a jurisdiction.

The 180 responses obtained, distributed across 25 countries, came from five stakeholder profiles: three government and two non-governmental[11]:

1. Education system leader — government stakeholder
2. Educational leader — government stakeholder
3. Technology leader — government stakeholder
4. School stakeholder in basic education / educational community
5. Third sector / civil society / researchers / universities

Figure 2. Countries participating in the regional diagnostic

11 Methodological note: The information collected for this assessment is based on the views, perceptions, and representations of the stakeholders who responded to the questionnaire. The results reflect situated and contextual interpretations of ongoing DTE processes and are not intended to constitute an exhaustive or official evaluation of national education policies or systems. Their value lies in offering an analytical approach based on the experience and knowledge of the five profiles considered.

The questionnaire was structured around nine thematic pillars, divided into three strategic pillars and six tactical pillars: "**Context of the Education System**", "**Identification of Problems**", "**Definition of Success**", "**Devices**", "**Connectivity**", "**Platforms**", "**Programs**", "**Teacher Training**" and "**Data**".

Each pillar included between three and six dimensions, for which an assessment of the level of maturity was requested.

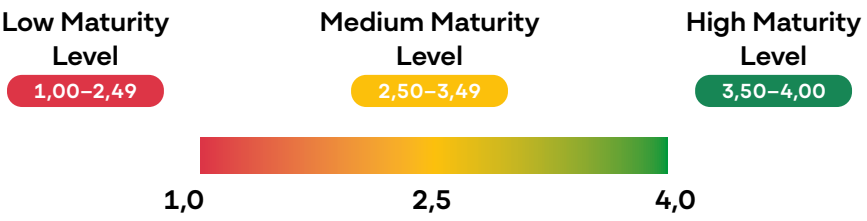
Mixed methodological approach: it integrated quantitative and qualitative strategies using a data collection instrument that included closed-ended responses (statistically analyzed ratings by dimension) and open-ended responses (narratives of the five profiles) from 25 LAC countries. Numerical and textual data are combined to diagnose the degree of progress of DTE processes in the region.

Quantitative responses were structured using a four-point ordinal scale, ranging from 1 to 4, where 1 corresponds to 'very low,' 2 to 'low,' 3 to 'high,' and 4 to 'very high.

1. very low
2. low
3. high
4. very high

Based on this four-category ordinal scale, a maturity assessment system was defined consisting of three levels, with the following cut-off points: low (1,00–2,49), medium (2,50–3,49), and high (3,50–4).

Figura 3. Maturity assessment system for Digital Transformation in Education



The colors are distributed gradually from red (low rating) to green (high rating), passing through yellow (medium rating), following the same scale as the heat map.

The cut-offs scores were defined by qualitative thresholds frequently used in institutional maturity models.

- **A score of 2,50 indicates a shift from critical perception to emerging progress.**
- **A score of 3,50 indicates consolidation and maturity.**

In addition, the report includes a qualitative clustering that groups countries with similar characteristics in their digital educational development. The purpose of this grouping is to guide the exchange of good practices among countries in the region, recognizing the advances and critical issues that arise in different scenarios or clusters.

Regional results by pillar

The table below shows the average score and key findings for each of the pillars around which the questionnaire was structured.

Table 1. Average, maturity rating and key findings by thematic pillar at the regional level

Thematic Pillar	Overall Average[12]	Degree of maturity	Key Findings
Context of the education system	2,48	Low	Advances in coverage and regulation coexist with territorial gaps and implementation limitations that render inequalities invisible.
Identification of problems	2,71	Medium	Growing capacity to identify priority challenges. Limitations in systematic and participatory diagnostic processes hinder the design of evidence-based policies, especially from a territorial and equity perspective.
Definition of success	2,45	Low	The lack of indicators, pedagogical criteria, and monitoring weakens the translation of strategic visions into effective policies that are consistent with the territorial experience.
Devices	2,43	Low	Significant progress in initial coverage, but fragility in sustainability and systemic coordination. A lack of planning for technological renewal, limited technical support, and territorial inequality are evident as the main challenges.
Connectivity	2,44	Low	There are infrastructure expansion initiatives with limitations in quality, coverage, and sustainability. Connectivity is poorly aligned with pedagogical uses, which limits its educational impact.
Platforms	2,44	Low	Progress has been made in the development and availability of platforms. However, this does not guarantee their pedagogical effectiveness. Challenges remain in terms of usability, coverage, and pedagogical integration.

12 Methodological note: Values were calculated by averaging the governmental and non-governmental scores ((governmental average + non-governmental average) / 2) and then averaging the result across all countries. This value reflects the average level of development achieved in each pillar at the regional level. A weighting strategy by type of actor was applied to preserve balance between state and non-state perspectives.

Thematic Pillar	Overall Average[12]	Degree of maturity	Key Findings
Programs	2,40	Low	The lack of curricular coordination, inter-institutional continuity, and impact assessment weakens the transformative scope of programs, especially in vulnerable communities.
Teacher training	2,39	Low	Teacher training strategies in digital technologies are being implemented. Their scope, equity, and effectiveness are limited, revealing territorial gaps and a lack of impact assessment.
Data	2,39	Low	Progress in the development of educational information systems. Challenges in interoperability and culture of use for educational decision-making.

Context of the Education System Pillar

This pillar refers to the set of structural, political, institutional, and cultural conditions that influence the possibilities for advancing in DTE processes.

Overall average for this pillar: 2,48 → indicates a **moderate** perception **but with concerns** about the structural capacity of education systems.

Table 2. Average by dimension included in the Context of the Education System Pillar

Dimension	Definition	Average	Maturity level
Experience	It refers to the degree to which the education system has designed and implemented policies or programs that integrate technologies into it.	2,84	Medium
Governance	It refers to the existence of legitimate governance, characterized by clear leadership, political commitment and institutional capacity to sustain digital transformation efforts.	2,77	Medium
Lifelong learning	It refers to the education system's role in fostering key skills for lifelong learning, in light of the challenges and opportunities posed by digital transformation.	2,59	Medium
Equity	It refers to the active use of technology to support students at risk of dropping out and accompany them in their educational journey, especially in vulnerable contexts.	2,22	Low
Artificial intelligence	It refers to the existence of regulatory frameworks or national policies that promote the use of AI and guide its application in education.	2,01	Low

Equity and AI are the most critically assessed dimensions, reflecting **structural weaknesses in the use of technologies to support learning trajectories in vulnerable communities and a lack of systematic innovation as a feature that hinders the use of AI in education**.

Government stakeholders (2,69): they recognize policies and institutional reforms that have been developed in recent years.

Non-Governmental stakeholders (2,16): they provide a more critical view, highlighting territorial inequalities and lack of resources.

Qualitative analysis / Key issues commonly referenced within this pillar:

Structural and territorial inequalities. Inequality between rural and urban areas.

"Education technology is still in the process of becoming widespread; there are still areas where there is inadequate connectivity and greater investment in technological equipment is required. The gaps are most pronounced in rural areas of the country and in rainforest region."
Technology leader, Peru.

Fragmentation and outdated public policies. Lack of continuity in the face of changes in government. Limited intersectoral coordination and weak integration of sectoral plans with core areas such as infrastructure.

"There is no national strategy for educational innovation. What exists is partial or limited to isolated cases."
University representative, Honduras.

Governance and emerging innovation. Regulatory advances stand out. Implementation challenges. Integration of generative artificial intelligence into education systems as a critical dimension, due to low institutional preparedness.

"There is still no regulation of AI, although seminars and workshops on the subject have been held."
Representative of the education system, Dominican Republic.

Problem Identification Pillar

This pillar assesses the education system's ability to identify the problems it seeks to address through DTE, from a contextual and situated perspective.

Overall average for this pillar: 2,71 —the highest of the nine pillars— indicating a **moderate-high** perception and placing this pillar at a medium level of maturity.

Table 3. Average by dimension included in the Problem Identification pillar

Dimension	Definition	Average	Maturity level
Target population	It refers to the degree to which the population most affected by the problem is clearly identified, including its level of vulnerability.	2,82	Medium
Digital transformation focus	It refers to the areas that have been the primary focus of digital transformation efforts to date: school management and improvements in learning.	2,65	Medium
Problems	It points to the clear identification of the bottlenecks that digital transformation seeks to address, ensuring that they are relevant and supported by concrete data. A relevant and urgent problem is understood to be one that has a significant impact on the equity, quality, or efficiency of the education system, and whose resolution is considered a priority by key stakeholders.	2,64	Medium

Progress has been made in identifying the population most affected by the limitations in digital technology integration processes, particularly in those systems that have developed more systematic institutional diagnostic mechanisms (dimension "Target Population").

Government stakeholders (2,95): they refer to adequate institutional assessment mechanisms.

Non-governmental stakeholders (2,45): they offer a more critical perspective. Among them, **school level stakeholders observe limitations in channeling their demands** and experiences, while the **third sector organizations points to a lack of depth in planning and poor representation of territorial diversity**.

Country assessments: **great regional heterogeneity**, countries with greater institutional diagnostic capacity, and others with significant weaknesses in identifying needs.

Qualitative analysis / Key issues commonly referenced within this pillar:

Lack of structured diagnostic systems. Representatives of the third sector organizations and universities refer to the absence of systematic mechanisms for identifying and prioritizing problems.

"Everything is based on intuition or political urgency. There is no system that uses real data to identify what is happening."
University representative, Colombia.

Limited inclusion of school stakeholders in the identification of needs and critical bottlenecks. Teachers and school management staff report that their voices are not taken into account when defining priorities.

"Assessments are conducted from the capital cities, without reaching the local level."
Representative of *a civil society organization* (CSO), Peru.

Limited monitoring of structural gaps (fragmented, outdated, or non-existent).

"There is no real follow-up on how the gaps are evolving."
Academia Representative, Argentina.

Definition of success Pillar

This pillar studies whether education systems have a clear, shared, and measurable definition of "success" in digital transformation of education processes.

Overall average for this pillar: 2,43. This represents a **weak** perception of the systems' ability to establish a solid definition of success in digital transformation.

Table 4. Average by dimension included in the "Definition of Success" pillar

Dimensión	Definición	Promedio	Grado de madurez
Target population	It refers to the degree to which the population most affected by the problem is clearly identified, including its level of vulnerability.	2,82	Medium
Digital transformation focus	It refers to the areas that have been the primary focus of digital transformation efforts to date: school management and improvements in learning.	2,65	Medium
Problems	It points to the clear identification of the bottlenecks that digital transformation seeks to address, ensuring that they are relevant and supported by concrete data. A relevant and urgent problem is understood to be one that has a significant impact on the equity, quality, or efficiency of the education system, and whose resolution is considered a priority by key stakeholders.	2,64	Low
Artificial Intelligence	It refers to the integration and promotion of the use of AI in the education system to improve student learning and educational management.	2,07	Low

There are generic definitions of success, although the inclusion of pedagogical criteria and, above all, specific indicators is very limited.

Most critical aspects: I. identification and monitoring of gaps (equity) and II. integration of AI tools for both learning enhancement and educational management.

Government stakeholders (2,63): they recognize the progressive development of strategic frameworks that define the success of DTE.

Non-governmental stakeholders (2,22): they focus on the remaining challenges: **school stakeholders** point to a lack of operational clarity and pedagogical relevance, while representatives of **third sector organizations** highlight **the absence of sustained evaluation and monitoring mechanisms**.

Qualitative analysis / Key issues commonly referenced within this pillar:

Most frequently referenced indicators in the survey:

Table 5. Indicators and frequency of mention

Indicator / Metric	Frequency
Number of devices delivered	Very high
Connectivity or platform coverage	High
Participation in teacher training	Medium
Use of technological tools	Medium
Improvements in learning	Low
Perceptions of education stakeholders (survey-based)	Very low

Lack of clarity and operability. School stakeholders indicate that success is not defined in a practical or assessable way.

"They talk to us about 'transformation', but there are no concrete indicators or impact assessment."
School stakeholder (Management Staff), Guatemala.

The success is defined only in terms of technical components, without any connection to pedagogy.

"Measuring success by how many devices were delivered is not an educational definition."
CSO representative, Mexico.

There is a need to strengthen monitoring and evaluation mechanisms. It is essential to move forward in consolidating systems to measure progress toward defined success that are sustained as state policy.

"The strategies are not monitored, so it is impossible to know if they are successful."
CSO representative, Ecuador.

Devices Pillar

It assesses the degree of maturity of the system for integrating devices as a tool for learning. It considers both provision policies and maintenance planning, replacement, and equity in distribution.

Overall average for this pillar: 2,45. This corresponds to a **medium–low level of maturity** in the integration of devices within digital transformation of education, marked by progress in initial provision alongside persistent weaknesses in planning for sustainability and effective use in teaching and learning processes.

Table 6. Average by dimension included in the "Devices" pillar

Dimension	Definition	Average	Maturity level
Objective	It refers to whether the objectives of introducing devices into the education system are clear and aligned with the expected pedagogical use.	2,59	Medium
Market and supply of educational devices	It indicates that the selection of devices takes into account pedagogical objectives and needs and accessibility for vulnerable contexts. The aim is to identify whether the system has explored or compared alternatives for devices suitable for different educational levels and contexts.	2,57	Medium
Support and Maintenance	It refers to the existence of strategies for technical support, maintenance, and renewal of devices used in the education system.	2,20	Low

Support and maintenance is the most critical dimension of the pillar.

Government Stakeholders (2,70)
Non-Governmental Stakeholders (2,20)

Large disparities between countries: Uruguay (3,47) / Bahamas (1,56).

Qualitative analysis / Key issues commonly referenced within this pillar:

Effective initial distribution, but without continuity. Many plans do not provide for renewal or maintenance.

"Devices were delivered, but many are now obsolete and there is no replacement plan."
Technology leader, Argentina.

Significant regional inequality. School and third sector stakeholders agree that rural and peripheral areas continue to be excluded or receive equipment in poor condition.

"Connectivity conditions and the necessary technical support are not taken into account."
CSO representative, Paraguay.

Lack of comprehensive planning. The provision of devices is not coordinated with other aspects such as connectivity or infrastructure.

"The devices arrive, but they are useless without internet, training, or support."
CSO representative, Honduras.

Connectivity Pillar

It examines the availability of connectivity, as well as its suitability for the intended pedagogical uses, its stability, coverage, and management model.

Overall average for this pillar: **2,48**. This represents a **medium-low** level of maturity in the capacity of education systems to guarantee adequate connectivity for educational purposes, with greater progress in diagnosing requirements and understanding the supplier market than in effective coverage, stability, and monitoring of connectivity in educational centers.

Table 7. Average by dimension included in the "Connectivity" pillar

Dimension	Definition	Average	Maturity level
Market	It refers to awareness of the provider market for expanding or improving connectivity in schools, assessing whether the market has been characterized in terms of available providers, costs, and geographic constraints.	2,59	Medium
Objective	It refers to the degree to which the digital services to be offered in educational centers are clearly defined and their connectivity requirements identified.	2,58	Medium
Assessment	It refers to the extent to which the current level of connectivity supports the expected digital services and is monitored with up-to-date information.	2,26	Low

"Assessment" is the weakest dimension. The most significant progress has been made in understanding the provider market and identifying connectivity requirements, rather than in current school coverage and monitoring mechanisms.

Government Stakeholders (2,71)
Non-Governmental Stakeholders (2,23)

Brazil is among the countries with the highest rating in this pillar (3,52), which is noteworthy considering its territorial extension and population size.

Qualitative analysis / Key issues commonly referenced within this pillar:

Territorial gaps and quality of access. Rural areas with unstable, insufficient, or no connection.

"The quality of the internet is poor. In some schools, access is limited to the computer room, and in most, there is nothing."
School stakeholder in a rural area, Panama.

Asymmetry between planning and execution —well-defined policies in their design, but poorly executed or lacking continuity. Lack of updated diagnostics to make evidence-based decisions.

"Programs are implemented without a clear assessment, due to political pressure or circumstances, without coordination with real needs."
CSO representative, Ecuador.

There is a perception that the telecommunications market is insufficiently regulated to guarantee connectivity for vulnerable sectors.

"The main challenge for connectivity policies in the country lies in expanding access to schools located in the North and Northeast regions. In these areas, it is still necessary to expand access infrastructure, either through cable or fiber optic coverage —which must cross preserved forest areas— or through satellite solutions, which implies the additional challenge of depending on large international companies."
CSO representative, Brazil.

Platforms Pillar

This pillar seeks to understand how platforms are defined, implemented, and used within the education system.

Overall average for this pillar: A score of **2,44** indicates a **low** level of perception, with institutional platforms in place, but with questions regarding their reach, functionality, and pedagogical integration.

Table 8. Average by dimension included in the Platforms pillar

Dimension	Definition	Average	Maturity level
Objective	It refers to the degree to which digital platforms are aligned with the teaching and digital transformation objectives of the education system.	2,64	Medium
Lifelong learning	It refers to the extent to which platforms promote active, self-directed learning, autonomy, and "learning to learn".	2,51	Medium
Development model	It refers to the clarity and feasibility of the platform development or acquisition model (e.g. SaaS, open-source solutions or in-house development), in light of existing capacities.	2,33	Low
Equity	It shows the existence of strategies to ensure equitable access to and use of platforms by students in vulnerable communities.	2,30	Low

The most critical dimension of the pillar —at the regional level— is that related to the development of strategies to ensure equitable access to and use of platforms by students in vulnerable communities.

Government stakeholders (2,68): they recognize the strategic role played by platforms.

Non-governmental stakeholders (2,21): School stakeholders value the tool but point out difficulties in its effective use. The **third sector organizations** highlights **limitations in design, usability, and coordination with other components** of the ecosystem.

The results by country, which vary between 1,82 and 3,30— indicate **strong regional inequality in the development and implementation of educational platforms**, with some experiences well established and others still emerging or fragmented.

Qualitative analysis / Key issues commonly referenced within this pillar:

Most countries have at least one national or widely used educational platform. Frequent references were made to:

- **Content repositories.**
- **Virtual classroom platforms (own or adapted).**
- **Academic monitoring tools.**

Existing but underutilized platforms.

"The platform exists, but most teachers don't use it. It's not part of everyday life."
School stakeholder (Educator), Argentina.

Difficulties with access, usability, and coverage. The third sector points out that many platforms are not intuitive, are not designed inclusively, and lack adaptations for educational diversity.

"The platforms are designed for expert users, not for educators or students with low digital literacy."
CSO representative, Bolivia.

Problems of sustainability and innovation.

"After the pandemic, the momentum of the platforms slowed down."
University representative, Peru.

Programs Pillar

This pillar analyzes how programs related to digital transformation of education are designed, implemented, and coordinated.

Regional average for this pillar: **2,40**. This represents a medium-low level of maturity in the design and management of educational digital transformation programs, with persistent difficulties in articulating them in a coherent, sustained manner that is aligned with the pedagogical objectives of education systems.

Table 9. Average by dimension included in the Programs pillar

Dimension	Definition	Average	Maturity level
Objective	It relates to the degree to which the objectives of educational programs are defined and aligned with the priorities of digital transformation.	2,54	Medium
Policy coordination	It refers to the degree of coordination between key stakeholders for the development and sustainability of educational programs within the framework of digital transformation. The aim is to identify whether there are formal spaces for intersectoral coordination or strategic alliances to implement or sustain the programs. For example, agreements with universities, NGOs, the private sector, or local governments.	2,49	Low
Design	It refers to whether the teaching methodologies of the programs are evidence-based and use digital resources that take into account the connectivity conditions of schools.	2,43	Low
Artificial Intelligence	It refers to the extent to which the education system promotes AI literacy (basic use and critical understanding of AI tools), not only in the use of tools but also in the critical understanding of their logic.	2,15	Low

The greatest advance of DTE programs in this pillar lies in the definition of objectives capable of guiding pedagogical work and aligning it with the priorities of the education system. The incorporation of AI into educational programs is still very limited.

Differences by type of stakeholder **(Government: 2,58** and **non-governmental: 2,22)** remains but is smaller than in the previous pillars.

Cross-country variation remains evident, yet no country reaches a score higher than 3,00.

Qualitative analysis / Key issues commonly referenced within this pillar:

Uneven coverage, focused on urban areas. Weak inter-institutional coordination and poor sustainability in the face of changes in government.

"In Mexico, school programs that integrate digital resources still lack clear objectives [...] There are isolated experiences, but they are not viable in rural communities."
CSO representative, Mexico.

"In Peru, school programs linked to digital transformation have a maturity level of 2 (low-medium): there are valuable efforts, but they are fragmented and lack continuity."
CSO representative, Peru.

Lack of curricular alignment, despite the existence of scattered efforts. References to digital citizenship and computational thinking as content that is gaining relevance.

Programs still have an instrumental focus, centered more on the provision of resources than on pedagogical transformation.

Government stakeholders describe official plans and coverage. Non-governmental stakeholders point to a lack of coordination and comment on uneven implementation that accentuates gaps.

"Policies and technology programs are not yet aligned with national education goals or with a comprehensive curricular approach, which limits their pedagogical reach and sustainability."
School stakeholder (Educator), Ecuador.

Teacher Training Pillar

This pillar aims to understand how education systems conceive and organize teacher training in relation to digital transformation.

Regional average for this pillar: **2,39**. This represents a medium-low level of maturity in the way education systems conceive and organize teacher training for digital transformation, with specific advances in training provision

but persistent weaknesses in its continuity, pedagogical relevance, and alignment with actual teaching practices.

Table 10. Average by dimension included in the Teacher Training pillar

Dimension	Definition	Average	Maturity level
Training objective	It refers to the existence of teacher training strategies aimed at supporting digital transformation.	2,74	Medium
Capacity	It refers to the degree to which the teaching staff has training and experience in the use of technological resources in teaching.	2,29	Low
Policy coordination	It refers to the existence of an institutional strategy to involve key stakeholders in the design and implementation of teacher training programs (e.g., committees, technical roundtables, training networks, etc.).	2,49	Low
Equity	It refers to the extent to which teachers and education professionals in vulnerable contexts are prepared to use technology to improve learning.	2,13	Low
Lifelong learning	It refers to the extent to which teachers apply active teaching methodologies that promote autonomous learning through the use of technology.	2,27	Low

As shown in Table 10, greater progress has been made in defining teacher training objectives aimed at supporting DTE, based on the diagnosis of profiles and needs. The dimensions related to current capacities in the use of technological resources in teaching (Capacity), the use of methodologies that promote autonomous lifelong learning (Lifelong Learning), and teacher training in schools in socioeconomically disadvantaged contexts, with incentives to use technology to reduce gaps (Equity), are identified as the most critical.

Government stakeholders' perceptions (2,60) are positive; however, **non-governmental stakeholders (2,17),** particularly those at the school level, point to obstacles related to access and relevance. To consolidate this pillar, it is essential to move towards coordinated, contextualized training with solid evaluation mechanisms that ensure its real impact on educational practice.

Qualitative analysis / Key issues commonly referenced within this pillar:

Territorial inequality: teachers in rural areas indicate that training opportunities do not always reach their regions.

"Only virtual training is offered, but without connectivity or adequate equipment, it is impossible to participate."
School stakeholder (rural Teacher), Paraguay.

Gap between training and practice. Training is often theoretical or generic, with limited connection to classroom realities.

"The courses offered to us do not take into account our actual conditions or pedagogical needs."
School stakeholder (School management staff), Honduras.

Lack of evaluation and continuity. Representatives of civil society organizations and academia emphasize the absence of systematic impact evaluations and sustained planning.

"There is no evaluation of whether training improves practice. Courses are repeated without measuring results."
University representative, Colombia.

Data Pillar

This pillar aims to explore not only the availability of data, but also its quality, interoperability, and effective use across different levels of the education system.

Overall average for this pillar: **2,39.** This represents a medium-low level of maturity in the management and use of educational data for digital transformation, with greater progress in the availability of information than in its quality, interoperability, and systematic use for decision-making at the different levels of the education system.

Table 11. Average by dimension included in the Data pillar

Dimension	Definition	Average	Maturity level
Information systems	It refers to the extent to which the education system has reliable information systems for collecting, integrating, and consulting educational data.	2,68	Medium
Institutional capacity	It refers to the existence of technical and institutional capacities to manage, analyze, and protect data, including ethical and cybersecurity aspects.	2,49	Low
Data usage culture	It refers to whether decision-making, and monitoring and enhancement of education policies and programs, are informed by the systematic use of data.	2,48	Low
Equity in data use	It refers to the extent to which available data allows for characterizing, addressing the needs, and monitoring the impact of digital transformation in vulnerable communities.	2,31	Low
Artificial intelligence	It refers to the existence of measures to ensure transparency, ethics, and bias mitigation in the use of AI in education.	1,99	Low

The Artificial Intelligence dimension receives the lowest rating. The most significant progress in data generation and use has been made in the development of education information systems.

Government Stakeholders (2,60)
Non-Governmental Stakeholders (2,17)

Differences by type of actor are recorded in all dimensions. The greatest gap is in reference to the availability and use of data to characterize, address needs, and monitor the impact of digital transformation in vulnerable communities.

Qualitative analysis / Key issues commonly referenced within this pillar:

Currently existing systems most frequently mentioned:

- **Digital enrollment systems.**
- **National observatories of educational quality.**
- **Visualization dashboards.**

Limited institutional culture of data use. Several stakeholders identify that, although information systems exist, they are not used effectively in planning or continuous improvement. In addition, some non-governmental stakeholders

note that the culture of data analysis is limited to statistical reports, without translating into concrete measures.

"Data is collected, but it is not analyzed. Reports are presented that no one uses to make decisions."
School stakeholder (Educator), El Salvador.

Fragmented information systems that lack interoperability. Limited integration between data on enrollment, performance, infrastructure, and social context.

"We have one system for enrollment, another for scholarships, and another for infrastructure. There is no coordination."
Academia Representative, Peru.

Weak institutional framework for data management. Limited availability of technical teams dedicated to data analysis in national education authorities, combined with insufficient training for school management teams.

"The dissemination of training and upskilling initiatives for education network management teams and school communities continues to be a critical factor in fostering more effective and secure data analysis."
CSO representative, Brazil.

Inequality in data production and access. Non-governmental actors indicate that they do not have access to data collected by the states. In many cases, data production remains centralized and oriented toward administrative rather than pedagogical purposes.

"The system data cannot be accessed. There is no transparency, and it is not shared for research or improvement.
Academia Representative, Mexico.

Artificial intelligence as an emerging dimension. There is certain lack of knowledge about the role it could play in educational data management, as well as a lack of inclusion strategies and governance mechanisms for its use.

"It would be useful to use AI to anticipate school dropouts or identify students at risk, but there is no installed capacity."
School stakeholder (School management staff), Chile.

Clustering based on the Regional Assessment of Digital Transformation of Education

Clustering is a technique that allows similar elements to be grouped together. In this case, thematic clustering was carried out[13] based on the Context of the education system pillar, given its descriptive depth and its ability to capture the structural configurations of each country's digital education ecosystem. This grouping methodology enabled the classification of countries into four empirical clusters.[14]

Consolidated ecosystems cluster

Countries: Costa Rica, Uruguay
Characteristics:

- **Presence of mature digital governance**
- **Solid institutional frameworks**
- **Political continuity and intersectorality**
- **Sustained strategic vision**

These countries describe stable ecosystems, with policies that transcend governments, high state capacity, and consolidated systemic coordination.

13 Thematic clustering: qualitative grouping process based on narrative or semantic patterns detected in open-ended responses.

14 Methodological note: the criterion for including a country in the clustering has been to have at least two responses from government stakeholders and two responses from non-governmental stakeholders. This criterion was adopted with the aim of ensuring a sufficiently robust analytical basis for clustering. During 2026, data collection through the assessment tool will continue. An updated version of this report is therefore expected, incorporating a larger number of countries into the clustering analysis.

Strong institutions with internal gaps cluster

Countries: Argentina, Brazil, Colombia, Mexico
Characteristics:

- **Outstanding technical and regulatory capacity**
- **Significant advances in digital governance**
- **Public-private partnerships and active regulatory frameworks**
- **Persistent territorial inequalities**

This group combines consolidated institutions with implementation and cohesion challenges in federal or diverse environments.

Structural fragmentation and persistent challenges cluster

Countries: Ecuador, Guatemala, Honduras, Peru
Characteristics:

- **Poor institutional coordination**
- **High political turnover or policy discontinuity**
- **Territorial or sectoral fragmentation**
- **Structural equity gaps**

The countries in this group show that systemic capacity building is still in its early stages, marked by political instability or deep inequalities.

Emerging initiatives with high potential cluster

Countries: El Salvador, Dominican Republic
Characteristics:

- **Developing institutional frameworks**
- **Reform and innovation initiatives**
- **Planning processes still incomplete**
- **Emerging digital governance strategies**

This group represents initiatives under construction, with strategic potential, and structures in the process of consolidation.

The clustering reveals profound **heterogeneity in the countries' capacities, institutional configurations, and strategic visions**. It does not seek to establish a hierarchy, but rather to identify challenges, opportunities, and synergies to guide differentiated interventions, regional dialogues, and more accurate monitoring of DTE. Given the dynamism of digital education policies, this typology should be understood as a living, updatable input that complements case studies and serves as a basis for **adjusting technical support and promoting horizontal learning** between countries and clusters.

Key Findings and Way Forward

Regional overview

Predominant instrumental focus: the strategies of the countries in the region are mainly focused on the provision of connectivity, devices and platforms, positioning pedagogical coordination as a task that requires greater effort and attention.

Persistent gaps: there are marked differences between urban and rural areas, as well as limitations in access and appropriation in socioeconomically vulnerable sectors.

Limited use of data for decision-making: although evidence-based management is recognized as a legitimate approach that can be significantly strengthened through the integration of technologies, coverage metrics still prevail over indicators of educational impact or equity.

Many of the policies surveyed depend heavily on government cycles, without long-term frameworks or solid intersectoral agreements. Regulatory instruments can be strategic in ensuring the sustainability of DTE policies.

Synergies between Government and non-governmental stakeholders: the perspectives of Government and non-governmental actors are complementary: while Government authorities and technical teams highlight progress in planning and action for digital transformation of education, academia, civil society, and school-level actors bring to light critical implementation bottlenecks. Multi-stakeholder partnerships and participatory spaces strengthen public policies by incorporating knowledge and experiences with greater territorial anchoring.

Digital Transformation of Education on the Public Agenda in Latin America and the Caribbean: the region faces shortcomings in integrating technologies to improve learning outcomes, ensuring data interoperability, maintaining devices, expanding rural connectivity, and strengthening teacher training. Even so, DTE is firmly established in educational agendas, with specific

institutional frameworks, which reinforces the importance of regional exchange of good practices in the face of common challenges.

Regional findings by pillar

STRATEGIC PILLARS:

Context of the education system: most countries have national plans or strategic frameworks related to DTE. However, their implementation is highly fragmented and poorly coordinated with the realities of schools. Gaps are identified in intersectoral coordination and continuity across changes in Government.

Problem identification: this is the pillar with the highest average regional rating. Stakeholders report a growing ability to recognize priority challenges —such as unequal access, technological obsolescence, or lack of teacher training— and to identify affected populations, especially in rural or vulnerable contexts. This more nuanced diagnosis provides an opportunity to inform more targeted policy design.

Definition of success: in most countries, the criteria for defining the success of digital strategies continue to focus on access and coverage indicators (number of devices delivered, schools connected). There is a lack of pedagogical indicators or indicators of impact on learning.

TACTICAL PILLARS:

Devices: massive equipment provision programs have been implemented in almost all countries in the region. However, these efforts face problems such as lack of maintenance and low pedagogical integration. In many countries, initiatives tend to depend on political circumstances or external funding.

Connectivity: urban-rural gaps persist in most countries, and the cost of connectivity remains a critical barrier for both schools and households. This is further exacerbated by the absence of minimum standards for service quality and stability.

Platforms: educational platforms are widespread, but their use remains limited. The barriers reported include limited curricular alignment, insufficient training, and low levels of uptake among teachers and students. In many cases, platforms are used more as repositories than as active pedagogical environments.

Programs: there is a wide variety of initiatives (STEAM, digital citizenship, robotics, computational thinking). Discontinuity between governments and

the absence of national digital transformation of education strategies limit its sustainability.

Teacher training: along with Data, this is the pillar with the lowest rating. Many training strategies are general, poorly contextualized, and lack continuity. Reports point to insufficient on-the-ground support, limited alignment with classroom practices, and a lack of incentives for professional development.

Data: information systems are not very interoperable. Data systems are primarily focused on infrastructure and resource distribution, while the capacity to use data for pedagogical and education management decision-making remains low. There is an urgent need to move toward open data ecosystems, with disaggregation criteria and solid governance.

Opportunities and strengths of the region

Institutional willingness to move toward common frameworks and sustainable strategies for digital transformation.

Widespread presence of platforms, devices, and policies linked to Digital Transformation of Education (DTE), an installed base on which to continue deepening the transformation processes.

Valuable experiences in the implementation of innovative approaches, which provide relevant lessons learned and good practices that can be systematized, scaled up, and shared among countries.

Regulatory frameworks and technical capacities developed, providing a basis for consolidating regional cooperation schemes.

Summary of results and strategic recommendations

STRATEGIC PRIORITIZATION FOR EQUITABLE DTE:

Although countries have made progress in identifying the problems that they intend to address with DTE, the findings show fragmented and uneven implementation. There is a clear need to move toward more systematic processes for designing policies and strategies that integrate diagnosis, prioritization, and implementation capacity, acknowledging that most countries face significant resource and capacity constraints. To this end, it is key to have sustained financing mechanisms in place.

In this context, it is essential to strengthen the institutional framework of DTE, ensuring that technical decisions —related to infrastructure, connectivity, platforms or devices— are aligned with the pedagogical definitions and educational objectives that guide the policy. Strategic prioritization and the adoption of equity as a cross-cutting principle thus emerge as key conditions for guiding realistic, focused DTE processes with a greater impact on learning.

CONNECTIVITY AS AN EDUCATIONAL RIGHT:

The regional diagnosis shows that connectivity remains one of the most persistent structural gap, particularly in rural areas and highly vulnerable contexts, which are often shaped by significant geographic and territorial challenges, thereby limiting effective access to digital educational opportunities. In this context, it is essential to guarantee stable and universal access, prioritizing rural and vulnerable areas, as well as to accompany the recognition of this right with regulatory frameworks that ensure sustainability. Effective implementation requires coordination with telecommunications sector stakeholders and subnational governments, as well as the definition of quality standards, sustainable financing schemes, and clear responsibilities for provision and maintenance.

COMPREHENSIVE DEVICE PROVISION MODEL:

The provision of devices, even when it achieves high levels of coverage, does not in itself guarantee pedagogical appropriation or impact on learning. In many cases, weaknesses are not explained solely by operational management problems (lack of clear criteria for maintenance, replacement, and technical support; weak planning of equipment life cycles; and lack of precision in the definition of institutional roles) but by the absence of a comprehensive approach that coordinates pedagogical, technological, and economic decisions from the policy design stage. In this sense, it is essential to look beyond the hardware and explicitly incorporate the management of the technological ecosystem, including decisions about software, compatibility, licenses, and usage environments. These definitions have a direct impact on the appropriation of technology by teachers and students and, therefore, on its pedagogical value.

The pedagogical proposal associated with the devices presents at least two critical moments. On the one hand, there is the procurement stage, where economic sustainability is central: an appropriate device is not necessarily the most expensive one, but rather the one that enables efficient management of maintenance, repair, and replacement throughout its life cycle. On the other hand, there is the stage of educational use, in which the device gains meaning to the extent that it is embedded in concrete teaching

proposals, with clear pedagogical objectives and institutional conditions that support its implementation. From this perspective, devices should be understood as means to serve a pedagogical strategy, and not as an end in themselves. Without intentional integration into teaching and learning practices, the mere provision of technology does not produce significant transformations in educational outcomes.

CONTEXTUALIZED AND SUSTAINED TEACHER TRAINING:
Qualitative responses from school-level actors repeatedly highlight that existing teacher training does not consistently translate into changes in classroom practice or support the pedagogical transformations required by digital education transformation. In this sense, it is necessary to strengthen classroom support, communities of practice, and continuous professional development. This requires aligning training with curricular priorities, strengthening regional pedagogical support teams, and ensuring dedicated institutional time for reflection and collaborative work among educators.

STRATEGIC USE OF EDUCATIONAL DATA:
The results reveal a limited and fragmented use of educational data for decision-making, along with limited interoperability across systems, which hinders the monitoring of gaps and trajectories. In light of these findings, it is necessary to move toward interoperable and open data ecosystems, with disaggregation by territory, gender, and other variables. Their implementation requires investments in infrastructure and technical capabilities, as well as the definition of common data governance protocols that guarantee quality, security, and effective use for decision-making.

GOVERNANCE WITH A LONG-TERM VISION:
The findings show that many DTE policies are heavily dependent on government cycles, which limits their sustainability over time and makes long-term planning impossible. In response to this, it is essential to establish multi-year frameworks, intersectoral agreements, and public monitoring mechanisms that promote medium-term planning and agreements on the continuity of public policy. Operationalizing this vision requires institutionalizing responsibilities and coordination mechanisms, establishing clear progress indicators, and ensuring continuity beyond political cycles through formal and transparent commitments.

PARTICIPATION AND LOCAL ENGAGEMENT:
Perceptions gathered through the diagnostic process, particularly from school stakeholders and third-sector organizations, point to limited incorporation of local voices in the design and evaluation of DTE policies.

This dynamic tends to weaken the relevance of policies and create gaps between centrally defined guidelines and the realities of schools and communities. In this context, it is essential to systematically incorporate the voices of school and community stakeholders not only in a consultative capacity but as active contributors to the adjustment, improvement and evaluation of DTE policies. This entails enabling systematic channels of participation, strengthening local capacities for project management, and providing feedback on policies based on evidence from practices in implementation contexts.

Local engagement should be complemented by ongoing support mechanisms during implementation. The adoption of new technologies in schools is neither automatic nor linear and requires pedagogical support that acknowledges teachers' career paths and the cultural shifts these processes entail.

From this perspective, the effectiveness of DTE policies depends not only on their strategic design but also on their capacity to support local actors throughout processes of adoption and change, integrating participation, pedagogical support, and continuous institutional learning.

References

CEPAL (2021). *Datos y hechos sobre la transformación digital: Informe sobre los principales indicadores de adopción de tecnologías digitales en el marco de la Agenda Digital para América Latina y el Caribe*. LC/TS.2021/20. https://www.cepal.org/es/publicaciones/46766-datos-hechos-la-transformacion-digital-informe-principales-indicadores-adopcion (available only in Spanish).

Council of Europe (2022). *Digital Citizenship Education Handbook for schools: Educating citizens for the digital age* (Revised edition). Council of Europe. https://www.coe.int/en/web/education/-/digital-citizenship-education-handbook

Council of Europe (2024). Digital Governance — Overview. Council of Europe. Home - Digital Governance

Council of Europe. (2025). Planner — A Curriculum Framework for Digital Citizenship Education (launch and associated documentation). Council of Europe. https://www.coe.int/en/web/portal/-/council-of-europe-to-launch-a-digital-citizenship-education-curriculum-framework

Fundación Ceibal (2023). *Red ADELA: Informe interno de resultados de encuestas para relevamiento de formación docente e igualdad de género en EdTech en América Latina (available only in Spanish).* Fundación Ceibal: Montevideo.

Mikeladze, M., & Nakashide-Makharadze, T. (2024). Digital Innovation Practices and Supporting Mechanisms in Schools. International Scientific Conference "EDUCATION, RESEARCH, PRACTICE" Proceedings, 5, 60–70. https://doi.org/10.52340/erp.2024.05.05

OECD (2021). *OECD Digital Education Outlook 2021: Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots.* https://doi.org/10.1787/589b283f-en

OECD (2021b). *The E-Leaders Handbook on the Governance of Digital Government*. OECD Digital Government Studies. OECD Publishing. https://doi.org/10.1787/ac7f2531-en

OECD (2021c). *Digital Education Outlook 2021: Pushing the frontiers with remote learning, AI and the internet of things.* OECD Publishing. https://www.oecd.org/en/publications/2021/06/oecd-digital-education-outlook-2021_0f1487d9.html

OECD. (2025). *Governing with Artificial Intelligence: The State of Play and Way Forward in Core Government Functions.* OECD Publishing. https://doi.org/10.1787/795de142-en

UNESCO. (2015). *Qingdao Declaration: Seize Digital Opportunities, Lead Education Transformation* https://unesdoc.unesco.org/ark:/48223/pf0000233352

UNESCO (2016). *Education 2030: Incheon Declaration and Framework for Action for the implementation of Sustainable Development Goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.* https://unesdoc.unesco.org/ark:/48223/pf0000245656.locale=en

UNESCO (2017). *Unpacking Sustainable Development Goal 4: Education 2030; guide.* https://unesdoc.unesco.org/ark:/48223/pf0000246300.locale=en UNESCO. (2018).

UNESCO (2019). ICT Competency Framework for Teachers Version 3. https://unesdoc.unesco.org/ark:/48223/pf0000265721.locale=en

UNESCO (2021). *Reimagining our futures together: A new social contract for education*. https://unesdoc.unesco.org/ark:/48223/pf0000379707.locale=en

UNESCO (2021b). *Recommendation on the Ethics of Artificial Intelligence*.https://unesdoc.unesco.org/ark:/48223/pf0000380455.locale=en

UNESCO (2023). *Global education monitoring report: Technology in education. A tool on whose terms?* https://unesdoc.unesco.org/ark:/48223/pf0000388894

UNESCO (2023b). *Guidelines for the Governance of Digital Platforms: Safeguarding freedom of expression and access to information through a multi-stakeholder approach.* UNESCO. https://www.unesco.org/en/articles/guidelines-governance-digital-platforms

UNESCO (2023c). The 2019 UNESCO Recommendation on Open Educational Resources (OER): supporting universal access to information through quality open learning materials https://unesdoc.unesco.org/ark:/48223/pf0000383205.locale=en

UNESCO (2024). Global citizenship education in a digital age. UNESCO. Global-Citizenship-education-in-a-digital-age_UNESCO_2024.pdf

UNESCO (2025). *Six pillars for the digital transformation of education: a common framework* https://unesdoc.unesco.org/ark:/48223/pf0000391299.locale=en

UNICEF - IIEP UNESCO (2022). *Digital policies in education in Latin America. Emerging trends in the context of the pandemic and future prospects*. https://www.unicef.org/lac/informes/politicas-digitales-educacion-america-latina-tendencias-emergentes (available only in Spanish).

UNICEF (2021). *Policy guidance on AI for children: Recommendations and considerations (or similar UNICEF guidance on children and digital technologies)*. https://www.unicef.org/innocenti/media/1341/file/UNICEF-Global-Insight-policy-guidance-AI-children-2.0-2021.pdf

Vera, A. and Rivas, A. (2023) *Monitoring digital education policies in Latin America and the Caribbean*. IIEP-UNESCO Office for Latin America and the Caribbean. https://unesdoc.unesco.org/ark:/48223/pf0000386982

World Bank (2022). An overview of World Bank Group digital governance and GovTech projects. World Bank. openknowledge.worldbank.org

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