Memory of the Latin American Seminars on Public Policies for Digital Inclusion 2023

Organization:

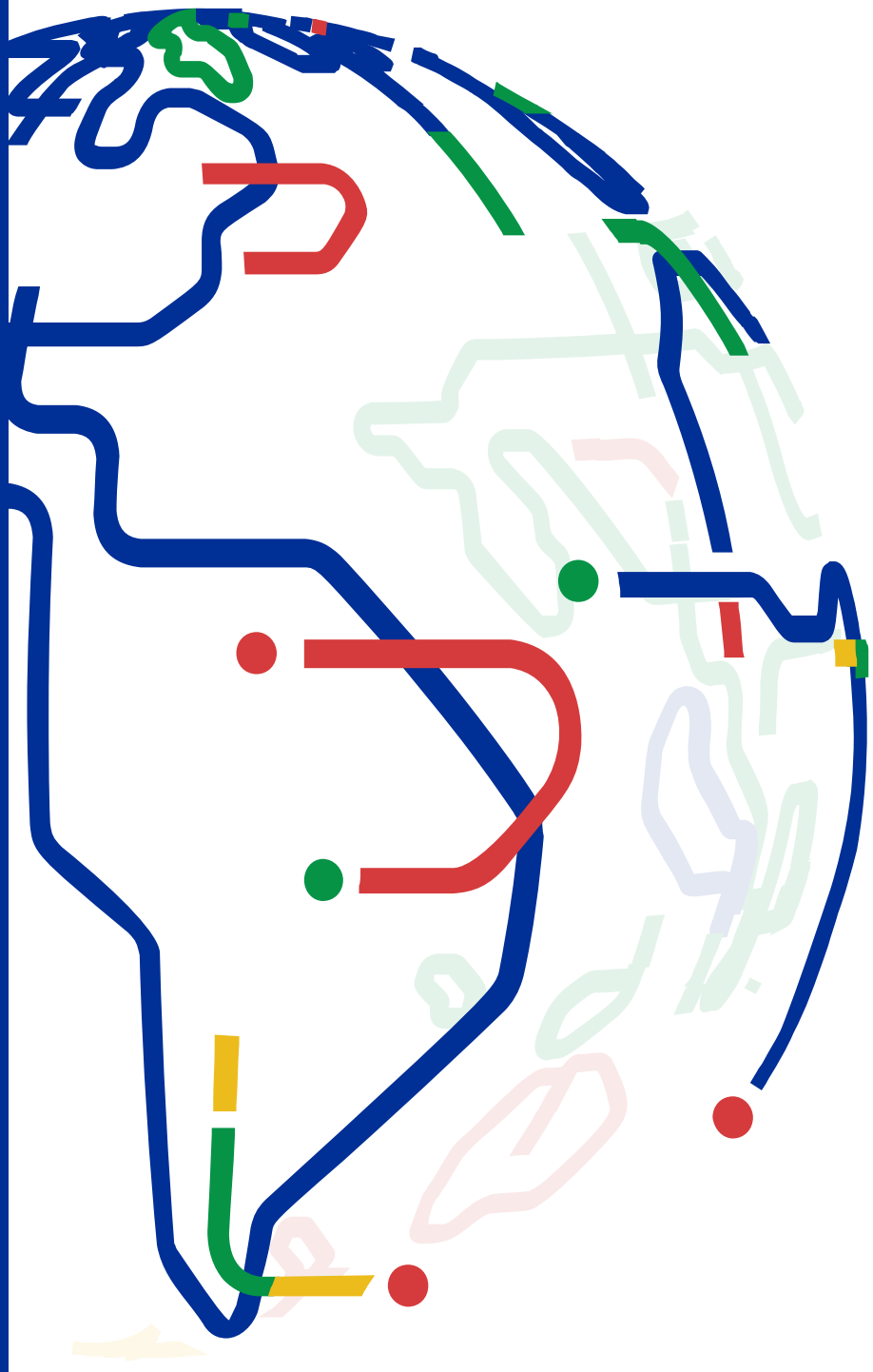
Ibict-MCTI

ABC-MRE

Lula Institute

Participating countries:

Argentina, Brazil, Costa Rica, El Salvador, Ecuador, Mexico, Peru, Panama and Uruguay.



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TECHNICAL SHEET

Brazilian Institute of Information in Science and Technology (IBICT)

Tiago Emmanuel Nunes Braga

Cecilia Leite de Oliveira

Brazilian Cooperation Agency (ABC)

Maria Luiza Lopes da Silva

Lula Institute

Ivone Silva

Marcio Pochmann

COLLABORATORS

Publication Coordinator

Wal Moraes

Editorial Assistant

Polyana Gentil Penna and Matias Palm Ramalho

Text

André Barbosa Filho, Cristiana Vieira de Souza e Silva and Fernando Horta

Graphic design and layout

Dayane Jacob, Isadora Valadão, Juliana Colem and Rodrigo Moreira

Standardization

Pedro Henrique Sousa Ferreira

INTRODUCTION

The Latin American Seminar on Public Policies for Digital Inclusion is an initiative of the Brazilian Institute of Information on Science and Technology (Ibict/MCTI), in partnership with the Lula Institute and the Brazilian Cooperation Agency (ABC/MRE). The first module, held in 2023, consists of four seminars and includes the participation of eight countries in addition to Brazil: Argentina, Costa Rica, El Salvador, Ecuador, Mexico, Peru, Panama and Uruguay.

The great motivation behind the project's conception comes from the fact that Brazil is once again occupying a leading position on the international scene, as pro-tempore president of Mercosur, a decisive participant in the renewal of BRICS and is set to assume the presidency of the G20 in 2024.

The project aims to foster international cooperation through a series of seminars that primarily propose the emancipation of vulnerable groups, both through access to and appropriation of the internet and through the investigation of a critical and quality digital literacy process, as vital elements for achieving full citizenship in the contemporary world. Topics of relevance were selected to guide the exchange of information and facilitate the debate at each seminar.

The first seminar, held on 16 and 17 May 2023, dealt with new technologies, behaviours and new opportunities - from the structure to the citizen - and included topics such as universalization and massification of telecommunications services; 5G, 6G; legal framework; scientific innovation; artificial intelligence; internet of things; virtual reality; augmented reality; audio immersion; broadband; connectivity and citizenship. The second seminar, which took place on June 13 and 14, addressed the following topics: emancipation of the vulnerable; inclusion; digital appropriation; policies for caring services; digital literacy and appropriation programs; programs for connection and access; programs with caring practices and digital inclusion for vulnerable groups, such as people with disabilities, people aged 60 or over, young people, black people, indigenous people, women and the LGBTQIA+ population. The third seminar, held on July 18 and 19, 2023, explored the issues of industrial development; semiconductors; technology parks; free software workshops; investment in research and national development policies, with a view to joint achievements between Latin American countries.

Our seminars took place in a hybrid format: representatives of the embassies of the countries involved participated in person, and experts from each country on the topic of each seminar participated virtually. We were also privileged to have the support and presence of special guests who spoke on behalf of Brazil. David Nemer (Professor at the University of Virginia) participated virtually in the second seminar. João Brant (Secretary of Digital Policies - Secretariat of Social Communication of the Presidency of the Republic), Ana Haddad (National Secretary of Information and Digital Health - Ministry of Health) and Miguel Nicolelis (PhD Professor at Duke University)

participated in the first, second and third seminars, respectively. The fourth seminar will complete the series, addressing the structure of integrated search systems; the methodology for operating integrated projects; universal access to data; and sustainable development in the region. In addition, the fourth seminar will discuss proposals from the participating countries for the continued exchan-

ge of information and new integrated cooperation strategies. This event will also present the Observatory for Integrated Sustainable Development (ODIS), which is being developed by Ibict with the cooperation of the participants from the eight countries.

The exchanges of knowledge and experiences between the representatives of the nine participating countries point to the creation of a significant collaborative network of international cooperation, through the exchange of information, technology transfers and convergence of public policies, which will certainly make a considerable contribution to the joint development of the Latin American region. Our goal is to extend this network, inviting the other countries of South and Central America to a second module in 2024, with the possibility of a third module in 2025 that will include the countries of Lusophone Africa - contributing to Brazil's repositioning in the international sphere, in the context of the ongoing geopolitical reorganization.

SEMINAR 1

Topic: “New technologies, new behaviors”

Subtopics: Universalization and massification of telecommunications services: 5G, 6G, legal framework, scientific innovation, artificial intelligence, internet of things, virtual reality, augmented reality, audio immersion, broadband and citizenship.

Date: May 16 and 17, 2023

What do we want technology and digital inclusion for?

Throughout the twentieth century, Latin America and the Caribbean established a path of international insertion in a large, peaceful geographical area, providing the potential of a large consumer market, especially of technologies and goods produced by countries and their large market economies.

At the same time, our region bears environmental responsibility, along with the challenge of learning to respect the history of indigenous peoples, not just as remnants of a distant past, but in view of their real presence and potential contribution to the contemporary world, as a locus of traditional knowledge that reinforces and enhances national and regional identities.

The massification of access to the digital world causes tension between the diversity of the region and the standardization that technologies bring about in their own accessibility process. Considering that the continent has yet to produce digital technology and its own technology for insertion, it is worth reflecting critically on the models used in the region with a view to operationalizing the digital world and connectivity processes.

Thinking of inclusion as a direct effect of digital insertion means entering the digital world as a consumer of products and by-products, with little or no ability to transform the internal socio-technological scenario, which defines Latin America as a mere recipient of technology.

The representatives of the countries of the region at our seminar agreed on the importance of seeking an inclusion in the digital world that respects the sovereignty and diversity of each country, and the idea that "new technologies create new behaviors" is not enough.

The special guest at the first seminar was João Brant, Secretary of Digital Policies at the **Secretariat of Social Communication of the Presidency of the Republic (SECOM**), who discussed the importance of the digital dimension to Brazilian society in the 21st century and advocated the creation of a joint effort between various ministries.

> *"The rationale for protecting and promoting rights is to understand that we need to cover the most disadvantaged with the same attention we pay to Avenida Paulista, it's absolutely fundamental."*
>
> **João Brant**
> Secretary of Digital Policies at SECOM - Brazil

"We have a project called Informational Competences, which is precisely about working not only on the basic skills needed to use any device, but also on understanding what that information is saying and how, and whether it's useful for you or not".

Cecília Leite
then Director of Ibict - Brazil



Argentina

The representative from Argentina talked about the interventions of government bodies on the population in the digital world. He explained that the initiatives are carried out in the following ways: by providing devices, developing access through telecenters or training the population in the use of Information and Communication Technologies (ICTs).

This capacity-building project is being carried out through **Argentina's National Digital Inclusion Plan,**[1] a policy led by the Ministry of Modernization with support from the **Social Development and Education portfolios**. By the middle of 2018, this plan had already achieved the first 100,000 citizens trained.

Uruguay

In the case of our neighbor Uruguay, it is worth mentioning its reflection on the equitable development of society, which implies considering digital citizenship as a central component for the exercise of citizenship in the 21st century. In addition to assuming the development of skills that allow assuming the information received from the media, understanding the social and economic impact of technology, respect for laws and knowledge, mobilization and defense of one's own rights in the digital environment.

Peru

The Peruvian representative said that his country has had a Digital Government Law since 2016 and a national IT system, run by the Secretariat for Government and Digital Transformation (the subject of Legislative Decree 1412 of 20182).

Ecuador

Ecuador's representatives presented the objectives of the **National Development Plan for the Creation of Opportunities (2021-2025)**[3], stating that they aim to achieve "a modern, transparent, responsible, efficient, safe, and competitive environment".

They noted that ICTs are currently the linchpin of the socio-economic transformation and development of nations and inputs, and play a pivotal role in the digital ecosystem, broadly conceived as a physical and/or virtual ICT space that gives rise to the new digital economy, and encompasses various digital roles, services, applications and content (SAC), as well as technology-based configurations and new platforms. The main objectives of this digital ecosystem are hyperconnectivity, interoperability and convergence of capabilities.

El Salvador

El Salvador's representative began his remarks by referring to the existence of the Innovation Secretariat, which has been in place since 2019, as well as the 2020-2030 Digital Agenda4, with government objectives in education and digital inclusion. He added that the government, in association with the company StarLink, has been implementing a digital platform structured in a triple helix of development, comprising the academia (science), the government (political power) and the private sector. As a result, 99.5% of students in his country will have a digital connection device by 2023.

" We are celebrating 16 years today; we have been working with public education here in Uruguay for 16 years. It was born with CEIBAL (https://ceibal.edu.uy/), it is an educational innovation agency whose objective is the inclusion of digital technologies in the Uruguayan State, the inclusion of technology always with the aim of improving everything that has to do with learning processes, fostering innovation and inclusion processes and, of course, personal growth.".

Eduardo Velazquez

Institutional Relations Coordinator at CEIBAL - Uruguai

Mexico

The statistics from Mexico are worrying, as around 50 million people remain offline - the country's poorest citizens - although 63% of the population are internet users. One example was Baja California Sur, one of Mexico's richest states, where 75% of households had an internet connection in 2016. That same year, in the neighboring state of Oaxaca, which also has a high poverty rate, only 20% of households were connected to the internet. In the southern state of Chiapas, three quarters of the population live in poverty and only 13% of households have access to the internet.

The Mexican government understands that the digital divide between rich and poor is a obstacle for its social and economic development.

In 2013, Mexico became the first country in the world to make internet access a constitutional right, with a government-designated provider.

European Union (guest):

The EU representative reminded us of the existence of a cooperation instrument between the EU and Latin America5, signed in 2023, which addresses digital issues. Following the 2020 Digital Agenda6, the EU has focused its actions on the development of technology geared towards democracy and development. She mentioned the EU's goal of having 80% of its adults considered digitally literate by 2030. In addition, the region aims to have 20% of the world's semiconductor manufacturing based in its territories. He explained sensitive and important parts of the master documents on digital regulation, the **Digital Market Act (DMA)** and the **Digital Service Act (DSA)**, which will come into force in 2024. She also noted that the frameworks for regulating rtificial intelligence7 are still under discussion.

" (..) digital inclusion in Mexico, with the national digital strategy established by the government, which established guidelines and objectives for the development of the information society in the country. This strategy seeks to ensure the equitable access of the technologies to the whole country population.".

Margarita Navarro

Director of the Secretariat of Infrastructure, Communication and Transport - Mexico

PARTICIPANTS

Argentina

- Fernando Mouron (Representative of the Embassy of Argentina in Brazil)

Brazil

- João Brant (Secretary of Digital Policies of the Secretariat of Communication of the Presidency of the Republic)
- Cecília Leite Oliveira (then Director of Ibict)
- Tiago Emmanuel Nunes Braga (then Ibict Coordinator)
- Maria Luíza (Brazilian Cooperation Agency - ABC)
- André Barbosa Filho (Ibict Researcher)
- Luiz Fernando Castelo Branco Rebello Horta (Lula Institute)
- Luís Vitagliano (Lula Institute)
- Ricardo Padilha (Government Manager, MCTI)
- Wal Moraes (Ibict Researcher)
- Antonio Alonso (Journalist)
- Rossana Moura (CEO, Digital Angels)

Costa Rica

- Zailen Barahona Moraes (Telecommunications Professional, Department of Public Policies)

El Salvador

- Armando Herrera Reyes (Minister-Counselor at the Embassy of El Salvador in Brazil)
- Elías Humberto Peraza Castaneda (Manager of Educational Technology Foresight)

Ecuador

- Maria de los Angeles Pacheco (Director of Innovation and Technology Transfer at SENESCYT)
- Luis Alfredo Colcha Pillajo (SENESCYT Specialist)

Mexico

- Margarita Navarro Arriaga (Director of the Secretariat for Infrastructure, Communication and Transport)

Peru

- Yuri Aldoradin (Specialist at the Digital Government Secretariat)

Uruguay

- Eduardo Velázquez (Institutional Relations Coordinator at CEIBAL)

International

- Luis Eliecer Cádenas Marin (Executive Director of RedClara)
- Maria Buzdugan (Advisor for Economy, Industry and Digital Transformation of the Delegation of the

Access the participants' profile here:

SEMINÁRIO 2

Topic: "Digital Appropriation: Emancipation of vulnerable populations"

Subtemas: Digital literacy and ownership programs, connection and access programs geared to the civil society with that include digital care and inclusion practices, especially for vulnerable groups (people with disabilities, people aged 60 years old or more, youth, black people, indigenous people),

Date: June 13 and 14, 2023

The special guests at the second seminar were Ana Estela Haddad, Secretary of Information and Digital Health at the Ministry of Health, and David Nemer, professor and researcher at the University of Virginia.

Haddad offered the seminar's attendants an overview of the Brazilian government's efforts to use the digital environment, starting with the creation of new secretariats in various ministries, with the aim of improving the use of strategic information for the benefit of Brazilian public health. The Secretary mentioned inter-ministerial cooperation programs, notably with the Secretariat for Communication of the Presidency of the Republic and the Ministry of Education, with the aim of making more rational and appropriate use of the information records of the various Brazilian social programs to inform the ministries' public actions.

Nemer shared data from his research, stating that a third of the population in Latin America and the Caribbean has no access to the digital world and that in Brazil this figure reaches 47 million people. He pointed out that, for counting purposes, "having access to the digital world" means at least two accesses of 30 minutes each to the networks per week, and that this makes the data even more worrying, as there is a huge gap between the term "access" and a truly significant ownership of the digital world by people in the region.

The researcher warned about a "digital colonialism" coming from the countries holding the technologies in the global north, which establishes the countries of the south as "always behind and consuming", which would consist of an "algorithmic policy of oppression". Against this movement, he described social forms of resistance. In his book, **Technology of the Oppressed**, Nemer describes them as "mundane technologies" [8] p. [24], referring to the use, appropriation or reappropriation of technologies based on the interests and objectives of populations in the territories – a way of questioning digital paradigms from the north. Even if these social forms of resistance are not fully capable of breaking with colonial rationale they at least offer a real starting point for thinking about the effects of technologies on the social fabric in which they operate.

Nemer stated that just using technology is pointless, when the goal is digital sovereignty and the material, intellectual, cultural and ideological emancipation of populations. The professor emphasized that the world is now having a negative experience in process of pure and simple expansion of digital technologies - without a critical-political perspective

- based on the political instrumentalization that the "extreme right of democratic expression" has made of the ideological conditioning factors contained within the technological frameworks that often go unnoticed. The professor said that it is necessary to listen attentively to what emanates from the territories as a form of hope in the more general process of resistance and decollonization, but that this process needs a more systemic and governmental vision in order to achieve the goal of sovereignty. In short, the researcher recalls the fundamental role that the State has in shaping and implementing public policies on digital issues, but never in an imposing way, based on the wills and interests of governments, imposing on territories issues that they do not master or organize in the same way and relevance. The researcher's hope lies in a bottom-up movement, taking into account projects and territorial singularities as a way of generating significant public policies that can not only insert populations into the digital world, but that are made from territorial references and for the real and lasting emancipation of populations on the continents. Below we highlight some information and reflection topics brought up by the participants who represented their countries.

México

The representative from Mexico described the **Aldeas Inteligentes** (Smart Villages)[9] project, which is working on the digital integration of 72 villages far from the country's urban centers, with the aim of achieving sustainable development in these places. Aldeas Inteligentes aims to achieve digital integration through the concept of "meaningful connection", which encompasses not only pure and simple integration, but also principles of sustainability,emancipation and sovereignty. She mentioned that the digital connection structure is

"Latin America is not just a destination for importing such informatics from the north, but it is rather a path of struggle where various technological processes and artifacts are negotiated and appropriated by different individuals and institutions. Therefore, Latin America neither rejects nor accepts northern informatics, it fights with and for it, thus producing a hybrid and resilient informatics."

David Nemer

PhD Professor at the University of Virginia - Brazil

being made available in this project free of charge and without preconditions, enabling the element of importance for the digital world is consolidated from the territories.

A second speaker, still speaking for Mexico, from the **Federal Telecommunications Institute10** described pioneering survey carried out by the Mexican government to find out, measure and compare prices, networks and conditions of use for digital services in the country. This initiative allowed consumers and the government itself not only to have better information about services, but also to be able to think more clearly, based on their interests, about how to proceed in terms of access to the digital world. This scrutinizing of services and the cost of access allows the government to think about public poli-

cies for correcting, questioning and even providing additional access. Along with these initiatives, the Institute has been offering professional courses in digital skills that are essential or important for the development of the subject in the country. He also told those present that the Institute had started a study to find out whether the problem of digital access in communities far from urban centers was structural (technology and access points) or whether it was a cultural and educational problem. The results of the research surprised everyone, since in many of the communities surveyed, access already existed and digital inclusion was already taking place, based on the conditions possible in each location. He therefore affirms the need for strategic digital coordination as a government body to offer digital public goods based on accessibility principles defined by the state. Finally, he said that an innovative quantitative study showed that for every 1% increase in digital integration in the country, inequality fell by 2%.

Costa Rica

The Costa Rican representative described the **National Plan for the Development of Telecommunications**[11], which will begin in 2022, with public funding from the **National Telecommunications Fund**, with the central objective of "digital literacy". He also mentioned the Brasilda National Network Security Commission whose objectives include developing digital policies to protect citizens in the digital environment, notably children. The basic principle of this policy would be to "address and prevent", providing children with clear information and standards of conduct so that they can prevent violence from the digital world.

> *"The pandemic proved this, although we, in the Ministry of Health, already work with the [digital]. The Unified Health System (SUS) was the one that started working on telehealth in Brazil, it was not the private sector. The private sector joined in much later on, gaining traction fiercely during the pandemic, but since 2006 and 2007 (...) the creation of the [digital health] department comes in an evolution".*
>
> **Ana Estela Haddad**
> Secretária de Informação e Saúde Digital do Ministério da Saúde - Brasil

Argentina

The representatives of Argentina mentioned the **Punto DigitalProgram**[11], which offers free digital access in places with less possibility of access. The offer of services is organized into three basic modules: education, audiovisual and cultural, and entertainment. This program aims to reduce access inequality in Argentina, where 90% of urban areas have access, and only 64% of rural regions. Such actions make up a Federal Training Plan12 aimed at the sovereign digital insertion of regional interests.

Brazil

Ibict's Director described the direction of Ibict's research practice and digital action towards digital sovereignty through the development of internationally award-winning tools to provide information technology solutions to the Brazilian state. The Director emphasized, however, that the purpose of the institute's action is not to be a software company, but rather a digital social technology company, which aims for Brazil's sovereign insertion into the world of digital technologies based on the coordinated action of society's interests and the government's possibilities.

El Salvador

The representative of El Salvador emphasized the need to think about the creation of digital economic value chains in Latin America as the first step towards the emergence of a local, regionally oriented digital ecosystem of production, consumption and reflection. He mentioned that it would be important to think of the region as already having local experiences and potentialities that could be guided in a common movement towards the digital, the idea of integration and emancipation.

"For example, right now, why a Salvadoran, Guatemalan, or Costa Rican kid, who is specializing in artificial intelligence and who often do not have the opportunity to develop that when returning directly to the country, because there is no Latin American Center, for example, located in Argentina, in Montevideo, or Brasilia that could develop that there for the region, (...) my intention is to always have them return to our countries and give back, but it is not always possible to have the conditions to develop that potential".

Elías Humberto Peraza Castaneda
Educational Technological Prospective Manager - El Salvador

"So the interesting thing about this Smart Villages Project is precisely the other way around: it is the community that proposes the production project, it is the community that decides where it wants the connectivity as long as it is a community center, a public center, and it is the community that makes the technology its own in order to empower itself through it for its public project. We do not get there by giving them absolutely nothing.

Ledénika Mackensie Méndez González
Executive Director of Digital Inclusion - Mexico

Uruguai

The representatives from Uruguay outlined a program for the digital inclusion of adults. They pointed out that these social groups are usually forgotten in digital policies, which tend to focus on educating young people. They reported that the country already has 95% of schools with free broadband and 50% of them with access to video conferences (content) in English. They also reported that there are around 600,000 devices in the hands of Uruguayan students for the digital insertion process and since these policies bring together not only education networks, but also technological training in the use and repair of digital devices. This whole process is coordinated by the Innovative Education Agency (CEIBAL), whose aim is digital inclusion for citizenship. The representative also mentioned the Digital Bridges Project13, in partnership with the United Nations Children's Fund (UNICEF), and the innovative Valija Viajera Project, which aims to send quality connection infrastructure to more remote parts of the country. The representatives also mentioned that there are constant teacher training processes in the digital field (the so-called Digital Citizenship Journeys), integrated with digital citizenship promotion centers, making up a network of local and federal government actions for digital inclusion and sovereign education.

They mentioned the **Ibirapitá Project**[14], which seeks the digital inclusion of older people (over 60) by providing equipment and even financing access to disadvantaged populations in order to establish a digital teaching network ("teaching how to teach") based on the idea of "creative ageing". They said that the country realizes that these people are still a source of inspiration, imagination and work, using digital insertion as a form of social and health rescue for older populations.

Ecuador

Ecuador's representatives described some of the principles that govern public policies of digital insertion in their country, such as interculturality. They mentioned the **Organic Telecommunications Law**[15] and reported that 70% of their country's population has access to the internet, although this figure is higher in large cities. They presented the **Escuelas que Inspiran Program**[16]**,** existing since 2018, which seeks to bring together scientific and digital skills, promoting digital ownership and literacy from a specific platform for education, which currently has more than 240 thousand assiduous participants. They also communicated the existence of the RIAMUSI Network, as a form of protection for children within the digital world based on the reference "knowing, identifying and preventing".

Peru

The Peruvian representative said that in their country's programs, each municipality has to appoint a digital security officer, whose job it is to coordinate the prevention and fighting against digital crimes in their territories. He said that, based on this experience, the memory of these territories could be worked on, thereby promoting citizen inclusion alongside digital inclusion. He said that their country had signed the **Budapest Agreement**[18], which means that more actions will have to be considered and organized in the coming years.

Panama

The Panamanian representative said that their country's actions in the digital field are based on the references contained in the **Digital Agenda**[19] document and the **National Digital Science and Technology Policy**[20]**.** He also said that digital transformations, their needs and consequences, are thought of from the point of view of the individual, with the idea of "forming a digital culture", which goes beyond simple digital literacy, in a sense of equity and inclusion. He mentioned the **National Digital Coverage Program**, in operation since 2017, in partnership with the company Starlink. These ideas aim to create a "critical mass" of personnel trained in digital issues. The representative also mentioned the "Info Plazas" as places for community access to the digital world integrated into a national education research network with the aim of achieving a ignificant digital inclusion policy in the country.

PARTICIPANTS

Argentina

- Fernanda López Franz (Team Coordinator of the Punto Digital Program)
- Maria del Pilar Araneta (Director of Digital Country Technology Solutions)

Brazil

- Ana Estela Haddad (Secretary of Information and Digital Health of the Ministry of Health)
- Cecília Leite Oliveira (then Director of Ibict)
- Maria Luíza (Brazilian Cooperation Agency - ABC)
- Tamires Sampaio (Lula Institute)
- David Baião Nemer (Associate Professor, University of Virginia)
- André Barbosa Filho (Ibict Researcher)
- Luiz Fernando Castelo Branco Rebello Horta (Lula Institute)
- Marcel Garcia de Souza (Ibict Coordinator)
- Wal Moraes (Ibict Researcher)
- Kerlla de Souza Luz (Ibict Researcher)
- Rossana Moura (CEO, Digital Angels)

Costa Rica

- Zailen Barahona Moraes (Telecommunications Professional, Department of Public Policies)

El Salvador

- Armando Herrera Reyes (Minister-Counselor at the Embassy of El Salvador in Brazil)
- Elías Humberto Peraza Castaneda (Manager of Educational Technology Foresight)

Ecuador

- Andrea Armijos (National Director of Technologies for Education)
- Maria Belén Gómez (Specialist)

Mexico

- Ledénika Mackensie Méndez González (Executive Director of Digital Inclusion)

Panama

- Robinson Zapata (Head of the Department of Scientific and Technological Information)

Peru

- Yuri Aldoradin (Specialist at the Digital Government Secretariat)

Uruguay

- Eduardo Velázquez (Institutional Relations Coordinator at CEIBAL)
- Agustina López Hugo (Territorial Coordinator of the Ibirapitál Program)
- Diego Cajade Diotti (Ibirapitá Program Coordinator)

International

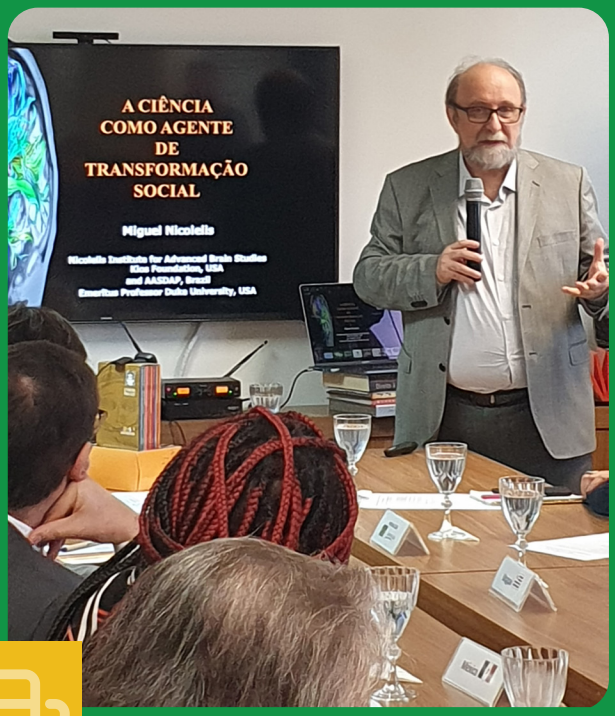
- Telma Teixeira (OEI Project Manager)
- Yuri Aldoradin (Especialista da Secretaria de Gobierno Digital)

Access the participants' profile here:

SEMINAR 3

Topic: "Industrial development and environmental and social sustainability"

Subtopics: Semiconductors, Industry 4.0, Technological Parks, Digital Economy, Sustainable Development Goals, Free Software, Connectivity, National Development Policies aiming at joint achievements between Latin American countries, Investment in research according to the projects of existing governments in each country.



July 18–19, 2023

The transition from political projects to the practical reality of production structures has always been a sensitive issue for Latin America. Historically, regional interests end up overriding national plans and we end up repeating the process of development by "enclaves" in the region. Notably dense urban areas concentrate investment, opportunities and wealth and end up living alongside impoverished neighborhoods with little or no access to public goods. This system of enclaves (very well described by Gabriel Garcia Marquez in One Hundred Years of Solitude) is perhaps the model to be avoided in the digital development process. In this sense, the action of governments and the state itself is absolutely necessary to counteract the economic flows of historical continuity that command the settlement of resources in the territories.

The special guest at the third seminar was neuroscientist Miguel Nicolelis. He opened the third seminar by bringing a unique experience of resource allocation and real transformation of territories through the Santos Dumont Institute (ISD) [21], which has been operating for more than 10 years in northeastern Brazil (more specifically in Marcaíba, on the outskirts of Natal), and whose contribution, both to the training of young Brazilian scientists and to studies on electrophysiology, has already had an impact on Brazilian innovations in the field. Inspired by Dumont, according to Nicolelis, "the greatest Brazilian scientist", the institute is not only a center for advanced neurosciences in Brazil, but also a school for primary and secondary education, which breaks with "enclave" development models and invites us to think of Latin American territories in terms of their human potential. The inspired Brazilian scientist reflected on the historical relationship between innovation chains and the region's technological "gap" from a digital perspective. He articulated that Santos Dumont had resented the fact that the 14Bis[22] had flown in Paris in 1906, but had never been able to fly "under the light of the Southern Cross." [23] This historical and poetic appeal holds a reflection on the colonialities of the global south and how they affect the production of knowledge in our hemisphere. Nicolelis' response was to make his teaching and research project "fly" under the light of the southern constellation.

El Salvador

The representative from El Salvador said that it was necessary to define ICT policies that would help accelerate the country's economic and productivity growth. Through their objectives and strategies, these policies must pay attention to the fight against poverty and inequality, and to environmental restoration – as well as being sustainable and fostering greater social inclusion.

He also stated that policies for innovation[24] and the creation and application of knowledge are one of the clearest areas for public intervention; that accelerating economic growth rates through increases in total factor productivity (TFP) is the basis for increasing real income and economic well-being, as established in the Industrial Policy; and, finally, that therein lies the importance of the existence of these policies, since increasing business productivity allows for sustainable development, which is the government's objective.

Argentina

The representatives from Argentina spoke about the **National Science, Technology and Innovation Plan 2030 (PNCTI)**[25], an instrument that defines, organizes and communicates a set of policies, strategies and mechanisms for all the public and private actors and agents that make up the **National Science, Technology and Innovation System (SNCTI).** They said that the plan assumes a progressive, empirically-based construction modality, supported by viable and feasible interventions, both from a political and institutional point of view and from an economic and technical point of view, through the CTI Agendas. An instrument that is neither static nor closed, but on the contrary, is characterized by being flexible, perfectible and open to new voices and plurality, contributing to the construction of a policy, involving a continuous process of iterative construction, where the agendas determine specific modes of intervention which, in turn, are determined by their evolutionary trajectory, achievements and incremental changes. The representatives went on to say that these processes of co-determination must be accompanied by renewed (revised) capacities for strategic planning, monitoring and evaluation, which allow them to be periodically updated and improved.

> *"One of our main achievements or projects implemented in recent times are the community innovation laboratories in each of the provinces and states of the country. We have initiated the implementation of a laboratory where women entrepreneurs in rural areas, where children or adolescents with a certain entrepreneurial spirit or scientific curiosity can develop their projects, where companies in rural areas can also generate their minimum viable products and their pilots".*
>
> **Zailen Barahona Moraes**
> Telecommunications Professional, Department of Public Telecommunications Policies - Costa Rica

"We are talking about a process of transformation, energy transformation, transformation of economic means, transformation of social relations, but this transformation that we want at the institutional level, at the national level and at the global level, is only possible through the transformation of people".

Tiago Braga
Director of Ibict - Brazil

Mexico

The representative from Mexico described the **Research at the Frontiers of Science Program**[26] , which supports research projects that generate cutting-edge, original and transformative scientific knowledge. It is hoped that the results will contribute to changing the understanding of existing scientific concepts and generate new agents of knowledge in various fields of science under the parameters of international competition. She added that the **Conacyt National Laboratories**[27] are made up of associations of research units, national references in research and training of human resources in various areas of knowledge. In addition, they provide services at differentiated costs in order to be self-financing, supporting the acquisition of equipment, its maintenance, as well as the development of human capital and the interconnection of laboratories.

Costa Rica

The Costa Rican representative brought the example of the **ITC Complex**, which includes the generation of basic knowledge at the level of natural and social sciences, technological development and technology transfer to sectors of society that require this knowledge, as well as innovation and the promotion of a scientific culture that socializes knowledge and contributes to forging an informed society and a critical citizenry. She explained that the STI Complex is a complex mechanism that ranges from the generation of fundamental knowledge, through science, to the application of this knowledge in very diverse ways and for the benefit of broad sectors of society.

She went on to say that from this perspective, innovation, technological development and technology transfer are fundamental28, but only parts of a much more complex machine. This systemic and comprehensive view of ITC requires a delicate balance between the various components of the system, including basic science. Furthermore, the benefits of knowledge should not only permeate the economic sector, but also many other areas of society. Therefore, over-prioritizing some of the components can be detrimental to the holistic nature that should prevail in CTI. Without strong basic science, supported by the state, which generates truly new ideas, innovation and technology transfer will be very limited. This comprehensive conception of CTI is what has prevailed in countries where science and technology have been inserted as essential elements for generating prosperity and equity.

> *"But the accumulated capital that older people have when they reach this stage of their lives should not be left aside, and we believe it is essential to connect the entire generation in society to take better advantage of what the different age ranges can contribute in relation to this [digital inclusion]."*
>
> **Diego Cajade Diotti**
> Ibirapitá Program Coordinator - Uruguay

Ecuador

The representative from Ecuador said that her government's efforts are focused on the process of training for digital inclusion as the first step towards industrial and sustainable development. In this sense, she said that one of the axes of the country's Ministry of Education is "excellence", whose main objective is the integration of the Internet and digital tools in educational institutions, accompanied by media literacy processes and the promotion of digital citizenship. He ended by saying that the main document for this objective is the 2021-2025 **Digital Education Agenda[9].**

Peru

The representation of Peru brought to the group the discussion of the planning of a **National Digital Transformation System**, whose meaning comprises both the public and private sectors, in a process of joint development. He also said that the country seeks to organize a **Technical Standards Center** (NPT), which includes standardization proposals on information technologies and, in particular, software and systems engineering and information on the life cycle of suchproducts[30]. In addition, the country approved Law n. 31,809 in June this year, which is Peru's digital regulatory framework[31].

Uruguay

The representative of Uruguay, who attended the seminar in person in Brasilia, described the Ibirapitá Program, which has been reaping the fruits of the process of diversifying digital inclusion, notably for the so-called "silver economy"(aimed at people over 60 years old) and for the "orange economy" (which are the sectors that benefit from the development of the digital area such as data and entertainment32). He mentioned the importance of "intergenerationality", which implies thinking about Uruguayan society in an integrated way and realizing that digital inclusion does not have an end in itself, requiring one to think about inclusion as a means for final economic activities.

Panama

Panama's representative also attended the seminar in person. He gave examples of various ongoing projects and some of the challenges faced by the country in terms of digital transformation, especially in terms of the digitalization of industry. He said that although the country is world-renowned for its maritime and logistics sectors, many of the processes in both still take place in an analogue way and that digital transformation has been a challenge. He pointed out that the **National Secretariat for Science, Technology and Innovation** has some projects to boost and finance the digital development of these sectors, including support from the European Union through the Copernicus Program33. He commented on the incentive given to the agricultural sector to monitor crops, but that in this area too, the country faces the challenge regarding adherence to new technologies in the digital environment. He also mentioned that semiconductor production hubs are being developed in partnership with the United States and that the main challenge is training the workforce to work in the sector. He also mentioned that there are agencies and institutions working on aspects of digital transformation for the development of a health hub and the distribution of medicines and vaccines at national and regional level to facilitate access for the population.

> *"I was talking with some colleagues, it is precisely that yes, those of us who want to make the digital transformation have to talk in the same language not only as people, but also as machines, and technologies."*
>
> **Robinson Zapata**
>
> Head of the Department of Scientific and Technological Information

"When we connected the brain of a monkey who was in the east coast of the United States, in Durham, North Carolina, with a humanoid robot in Kyoto, Japan, the robot, which is controlled by the brain of a little monkey at my university, in my laboratory, walked 100 milliseconds faster than the little monkey, because we scaled time and space, in the same way that Santos Dumont scaled the world, we scaled the connection between the brain and the actuator of the brain's wills."

Miguel Nicolelis

Professor Doutor da Duke University - Brasil

PARTICIPANTS

Argentina

- Gonzalo Valenci (Undersecretary of Technological Binding)
- Maria del Pilar Araneta (Director of Digital Country Technology Solutions)

Brazil

- Miguel Angelo Laporta Nicolelis (Professor Emeritus at Duke University)
- Tiago Emmanuel Nunes Braga (Director of IBICT)
- Cecília Leite Oliveira (General Coordinator of Ibict)
- Maria Luiza Lopes da Silva (Brazilian Cooperation Agency - ABC)
- Tamires Sampaio (Lula Institute)
- Cristina Shimoda Uechi (S&T Analyst - MCTI)
- André Barbosa Filho (Ibict Researcher)
- Luiz Fernando Castelo Branco Rebello Horta (Lula Institute)
- Wal Moraes (Ibict Researcher)
- Rossana Moura (CEO, Digital Angels)

Costa Rica

- Zailen Barahona Moraes (Telecommunications Professional, Department of Public Policies)
- Marcela Monge Campos (Innovation Manager at MICITT)

El Salvador

- Armando Herrera Reyes (Minister-Counselor at the Embassy of El Salvador in Brazil)
- Elías Humberto Peraza Castaneda (Manager of Educational Technology Foresight)

Ecuador

- Andrea Armijos (National Director of Technologies for Education)
- Maria Belén Gómez (Specialist)

Mexico

- Ledénika Mackensie Méndez González (Executive Director of Digital Inclusion)

Panama

- Robinson Zapata (Head of the Department of Scientific and Technological Information)

Peru

- Yuri Aldoradin (Specialist at the Digital Government Secretariat)

Uruguay

- Eduardo Velázquez (Institutional Relations Coordinator at CEIBAL)
- Diego Cajade Diotti (Ibirapitá Program Coordinator)

International

- Raphael Callou (Director and Head of OEI Representation)
- Telma Teixeira (OEI Project Manager)

Access the participants' profile here:

CONCLUSÃO

The importance of the Latin American region has been widely discussed. The consensus reached among the participants of our Seminars reflects this reality and consolidates the desire for cooperation strategies and actions that strengthen and promote the integrated and sustainable development of the region. The data, reports and testimonies of the representatives of the nine countries that participated in the three initial seminars point to an unequivocal reality: digital issues have become central to the political agendas for development and inclusion throughout the region. At the same time, it is necessary to face the reality that Latin America is not a traditional hub of technology production and that its digital insertion – if left as a consequence of the natural historical process – will place the region, increasingly, in a position of dependence on the interests and conditions of countries holding digital technologies. All countries in the region are seeking, within their possibilities, to develop digital literacy and inclusion capacities. Some seek through international partnerships the structuring of informational and digital ecosystems that favor their development. Most of the individual efforts of our partners have responded to the demand of their territories and have sought to respect cultural and generational diversity in their planning. The costs of these transformations are being borne, almost all, by the public sector and the responsibility for articulation and planning has also fallen on the State. The data point to the importance of government actions in the process of development and digital inclusion, since, if such a process is left to the market, the result will fall short of what the sovereignty and history of the countries involved requires and deserves.

Latin America today offers the digital world a market in which no company can abdicate its presence and participation. It is imperative that the monetary and symbolic value of this activity be recognized by governments and treated as an important element of the strategic and economic planning of each country. In addition, the resources originated from these assets can play a key role in the development of the region and, precisely for this reason, need to be addressed, built and negotiated collaboratively. These Seminars exercise the interactivity and alignment between the countries of the region, respecting their peculiarities and sovereignty. A more robust international cooperation initiative on digital issues, involving the standardization of scientific, informational and legal parameters, will support countries to become less and less dependent on the holders of digital technologies and the interests of the international market. The strengthening of regional cooperation will reduce costs and favor the necessary development for the process of technological autonomy, which is essential for the sovereignty of the region as a whole.

It is indisputable that we live in a historical moment of strong instability and quite complex changes. This tremendously challenging scenario presents a number of opportunities for Latin America. If we work together, we have the unique possibility, in this first half of the 21st century, to build and implement a more equitable, diversified and faster development model, especially with regard to digital technologies. Exchanges of information and experiences help us save resources, especially time, as this window of opportunity will close quickly. The consensus among the representatives of the nine participating countries is that mutual cooperation is undoubtedly our best strategy.

PARTICIPATING ORGANIZATIONS

sl = Participation in Seminar 1s2

s2 = Participation in Seminar 2

s3 = Participation in Seminar 3

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