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From Simulation to Solution: Pioneering Supercomputing Platform

BELLA II and Costa Rica: A Key Connection for Latin America's Digital Future

TICAL2025: Innovation that Transforms

RedCLARA
Cooperación Latino Americana de Redes Avanzadas

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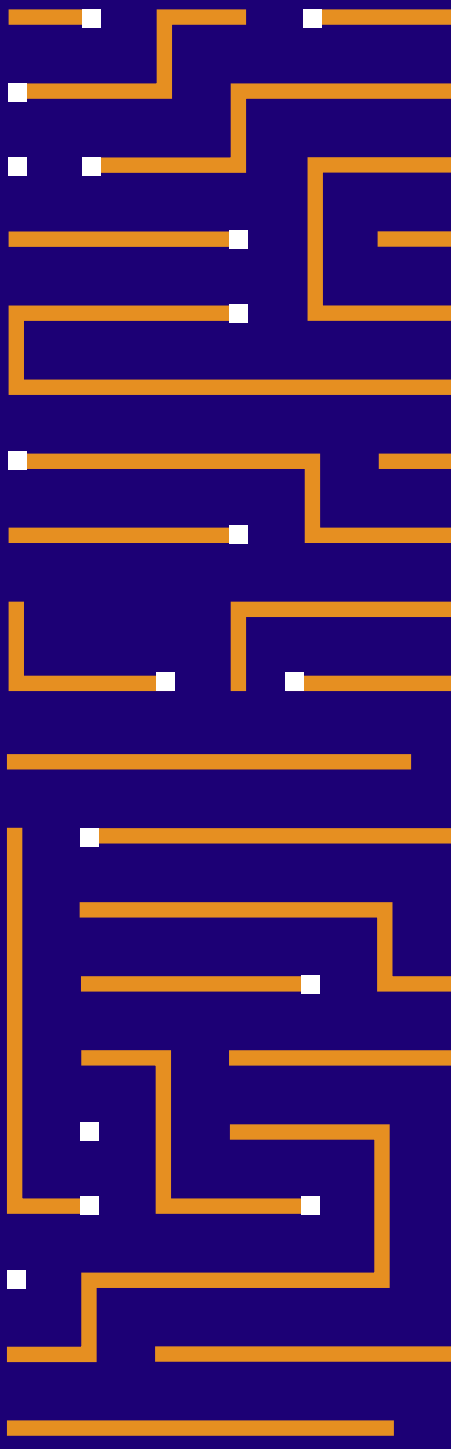


Editorial

Luis Eliécer Cadenas Marín
Executive Director RedCLARA

RedCLARA was established in 2003 through the collective vision of thirteen national research and education networks, which recognized that only by cooperating regionally could they attain connectivity goals that would otherwise be unattainable. That founding spirit remains at the core of our identity and continues to guide how we operate as an organization.

Today, the reasons behind its creation are not only still relevant—they are more urgent than ever. The current landscape is far more complex: it's no longer just about connectivity but about the challenge of effectively integrating digital transformation technologies. In this context, regional cooperation takes on unprecedented strategic importance. It requires us, as members of RedCLARA, to have a long-term vision and a deep understanding of the role an international organization like ours can and must play.

This issue of DeCLARA showcases numerous projects and initiatives that cooperation has specifically enabled. and artificial intelligence driven by the Digital Alliance and Brazil's National AI Strategy, to the first use cases being deployed in the BELLA II project testbeds—already showing tangible results.

A notable example is the SPIDER project, which promotes collaboration between Latin America and Europe by leveraging the transatlantic link established under the BELLA program. This initiative has generated innovative proposals that capitalize on RedCLARA's infrastructure to boost digital development, artificial intelligence, and cybersecurity across both continents.

Likewise, the collaboration with the Vera C. Rubin Observatory—one of the world's most advanced astronomical centers—demonstrates the strategic role of academic networks in enabling the transfer of huge volumes of scientific data with low latency. Although it uses routes different from those enabled by BELLA, this cooperation reflects the value of a regional and intercontinental interconnected architecture, in which RedCLARA helps coordinate key synergies with networks such as REUNA, AmLight, Internet2, and others.

I would like to close this editorial by sharing the progress we have made in the Competitive Dialogues we've initiated with major telecommunications providers across the region. These conversations are essential to achieving the planned connectivity for BELLA II, particularly in the priority countries: Peru, Costa Rica, Guatemala, Honduras, and El Salvador. We are moving forward at a steady pace, and we expect that by the end of this year or early next year, these connections will be fully operational. Our goal is to make full use of 2026 to secure new contributions that strengthen and expand this connectivity—and even bring more countries into the regional ecosystem we are building together.

A Pioneering Supercomputing Platform Aims to Create Opportunities for the Region

During the High-Level Dialogue on Artificial Intelligence and Platform Governance held in São Paulo as part of the EU–Latin America and Caribbean Digital Alliance, RedCLARA presented progress on the BELLA II project, highlighting the implementation of its high-performance computing (HPC) testbed.

By Ixchel Pérez

In this ecosystem approach, the BELLA II project will not only expand RedCLARA's backbone infrastructure to five new countries (Peru, Costa Rica, Guatemala, Honduras, and El Salvador) but will also deploy technological experimentation spaces, or testbeds, including HPC, blockchain, and cybersecurity.

These environments are designed to accelerate applied research, innovation, and technology validation in both academia and productive sectors. "AI-based applications not only require large volumes of data: they need stable, low-latency connectivity and access to high-performance computing. That is why BELLA II's approach is ecosystemic," said Luis Eliécer Cadenas, Executive Director of RedCLARA.

One of the first use cases for the testbeds was a project led by the Universidad del Valle de Guatemala (UVG), which conducted molecular modeling simulations focused on the bioremediation of contaminated water, using resources from BELLA II's HPC testbed. Thanks to HPC tools, they were able to accurately simulate how nanoparticles from shrimp processing behave, showing that these particles can help remove contaminants. Such studies, which would normally take months, were completed in weeks.

The results demonstrated how advanced computing accelerates scientific development and its practical application to the region's challenges. According to Cadenas, this approach paves the way for other strategic applications such as precision medicine, climate modeling, and optimizing value chains through AI.

The presentation was aligned with the AI and Supercomputing Infrastructure panel held during the Political Dialogue, which brought together Costa Rica's CeNAT, the Barcelona Supercomputing Centre, SCALAC, and other key institutions.

The session also highlighted the role of SCALAC, the Advanced Computing System for Latin America and the Caribbean, as a key partner of RedCLARA and BELLA II. By providing the HPC testbed service through SCALAC's computing centers in nine countries, a strong and spread-out regional system is created, which helps improve teamwork and makes it easier for people to access advanced computing resources and build skills in areas like bioinformatics, simulation, and data analysis.

RedCLARA's Service Manager, Carlos González, highlights the positioning of BELLA II's HPC testbed as a scalable and sustainable service. Its 2025 roadmap includes the formal inclusion of regional centers, optimization of access and support processes, and a sustainability strategy based on diversifying users and aligning with priority scientific challenges such as public health, agriculture, energy, and biotechnology.

This deployment expands access to supercomputing and actively helps reduce the technological gap. As emphasized by Cadenas, BELLA II's testbeds will become a fundamental pillar for the scientific and economic future of the region within the framework of a robust, human-centered bi-regional cooperation.

The High-Level Dialogue on Artificial Intelligence and Platform Governance took place online from July 1 to 3, 2025, in São Paulo, Brazil. It was organized by the European Union and Brazil's Ministry of Science, Technology, and Innovation, in collaboration with IRCAI (International Research Centre for Artificial Intelligence under UNESCO's auspices), GIZ, CEPAL, and Brazil's Network Information Center (Nic.br).

The event brought together representatives from governments, multilateral organizations, research centers, and academic networks from both regions. Discussions focused on strategies for people-centered artificial intelligence, the role of supercomputing infrastructure in scientific innovation, and the importance of bi-regional collaboration to reduce technological gaps and build a more equitable and sustainable digital ecosystem.

TICAL2025: Innovation that Transforms, Knowledge that Connects

In a context where digital transformation is reshaping not only tools but also the ways we think, learn, conduct research, and connect, the TICAL Conference once again brings together those who believe that technology is, above all, a bridge for collaboration, science, and innovation.

By Ixchel Pérez

Under the theme "Innovation that Transforms," the fourteenth edition of this event will take place from October 13 to 17 in San José, Costa Rica, promising to be much more than a technical gathering—it will be a collective experience of reflection, strategy, and future-building.

Organized by RedCLARA and the BELLA II project—co-financed by the European Union (EU)—and the Costa Rican advanced network RedCONARE, the event will open the doors of the DoubleTree by Hilton Cariari Hotel for five days to a diverse and multidisciplinary

community. Participants will include universities, research centers, advanced networks, governments, multilateral organizations, startups, and experts from Latin America, the Caribbean, and beyond.

TICAL2025 will foster active exchange, strengthening both projects and ideas. The preliminary program highlights six key thematic areas shaping the region's digital agenda: e-Science, Sustainability, e-Health, Security, Infrastructure, and Services. Each topic will be addressed not only from a technical perspective but also in terms of its potential to meet regional challenges.

In addition to keynote talks and technical sessions, TICAL2025 will offer hands-on workshops, specialized meetings for academic and technical communities, and networking spaces designed to showcase progress, enable synergies, and project impactful technological solutions.

With its strong commitment to technology, sustainability, and education as pillars of development, Costa Rica serves as both a symbolic and strategic host for this edition. It also provides a unique opportunity to highlight the contributions of National Research and Education Networks (NRENs) as key players in Latin America's and the Caribbean's digital transformation.

Ultimately, TICAL2025 will be a valuable platform for collaboration and a call to imagine the kind of innovation we want—and the socioeconomic impact we aim to achieve. Transformation involves not only embracing the new, but also fostering constructive changes in our societies.

Early registration is now open for TICAL2025

Early registration is now open for TICAL2025, the conference that brings together leaders in digital transformation in higher education and research across Latin America and the Caribbean. Discounted registration at a preferential rate of USD 100 is available until October 13, 2025. From October 14 to November 11, the cost will be USD 150.

Held under the theme "Innovation that Transforms," TICAL2025 will take place at the DoubleTree Cariari Hotel in San José, Costa Rica. It will serve as a key space for sharing experiences, best practices, and reflections on topics such as artificial intelligence, academic networks, cybersecurity, and open science.

The event is organized by RedCLARA with the support of Costa Rica's National Council of University Rectors (CONARE), reaffirming the country's commitment to digital transformation and regional cooperation.

Register now at:

https://eventos.redclara.net/event/1178/registrations/290

For all the latest information, visit:

https://tical2025.redclara.net/en/

More information and full program:
https://tical2025.redclara.net

From the Sky to the Data Center: Advanced Connectivity Serving Science

The BELLA II project took center stage during the recent meeting of the South American–African Astronomy Coordination Committee (SA3CC), held in La Serena, Chile.

By Ixchel Pérez

Recognized as a key enabler of digital infrastructure in Latin America and the Caribbean, BELLA II was presented as a fundamental project for ensuring large-scale, high-speed scientific data transfer between the region and research centers worldwide.

BELLA II is implemented by RedCLARA and co-funded by the European Union (EU) under the Global Gateway strategy. At the meeting, Marco Teixeira, RedCLARA's Director of Technical Infrastructure, Services, and Business, emphasized that the project is strengthening a high-capacity, resilient, and secure connectivity architecture. This work not only improves data transfer from large astronomical projects but also opens new opportunities and strengthens scientific cooperation between Latin America, Europe, and other continents.

The event, organized by AmLight with Chile's national research and education network REUNA as host, brought together representatives from various organizations that operate or support astronomical projects in Chile—such as the Vera Rubin Observatory, NOIRLab-AURA, GMTO, CTAO, CCAT, Simons Observatory, and NRAO-ALMA—along with members of the research and education networks that provide the high-speed connectivity required for their operation. These included RNP (Brazil), REUNA, AmLight, Internet2 and ESnet (United States), and RedCLARA.

The SA3CC offers a space where astronomical projects (both optical and radio) and research and education networks can exchange information and coordinate networking needs for astronomy institutions. During the meeting, the networks presented updates on their technical evolution, while the astronomical projects shared their current and future data transfer requirements for processing at globally distributed data centers.

"In the case of research and education networks, the discussions focused on updates and changes made since the last SA3CC meeting," explained Julio Ibarra, research professor at Florida International University (FIU) and principal investigator of AmLight. "They also shared information about instrumentation used to monitor the movement of scientific data and tools to detect events that could affect this process."

RedCLARA reaffirmed its role as a regional connector between national networks in Latin America and global networks like Internet2, ESnet, and AmLight, ensuring seamless data flow from remote observatories to data centers in the U.S., Europe, and other regions.

“Collaboration between research networks and large astronomical observatories is essential to ensure fast and secure data transfer to processing centers around the world. RedCLARA plays a central role in this digital architecture by connecting the region with global networks like Internet2, ESnet, and AmLight,” emphasized Julio Ibarra.

Albert Astudillo, REUNA’s Technology Manager (a RedCLARA member), also highlighted that hosting the event was recognition of REUNA’s key role in Chile’s scientific ecosystem. “Chile is a natural platform for global astronomy, and our job is to ensure that the data generated by these large telescopes can travel efficiently, securely, and without interruption to processing and analysis centers around the world,” he said. He added that advanced connectivity boosts the development of astronomy and opens the door to new international collaborations in science and technology.

The meeting also included a technical session (May 8–9) of the Vera Rubin Observatory’snetworkengineeringteam, focused on the specific connectivity challenges posed by the operation of this next-generation telescope, which will generate 20 terabytes of images per night. A complex Long Haul Network (LHN) has been deployed to ensure that the images reach the data center in California just 7 seconds after being captured at Cerro Pachón in Chile. The system relies on collaboration among multiple advanced networks: Vera Rubin, REUNA, AmLight, ESnet, rednesp, Florida LambdaRail, Internet2, and RedCLARA.

This article was developed using information provided by REUNA.

The winning teams of the "Tracing the Source" Hackathon pose at the Copernicus Academy Guatemala booth during the Motagua Forum, organized by the Delegation of the European Union in Guatemala. The photo features Vice President Karin Herrera alongside representatives from the EU, Universidad del Valle, and Copernicus.

Satellite Innovation for Guatemala's Motagua River

By Jenny Flores

Three Guatemalan teams—comprising professionals, specialists, and students—stood out with high-impact environmental tech solutions in the first hackathon, "Tracing the Source: Satellite Innovation for Identifying Pollution Sources in the Motagua River Basin," organized by the Copernicus Academy Guatemala.

This initiative, which began on May 5 and spanned three weeks, was supported by the European Union Delegation in Guatemala, the National Secretariat of Science, Technology, and Innovation (SENACYT), Universidad del Valle de Guatemala, RedCLARA, the BELLA II project, and the EU's Earth observation program, Copernicus.

With the participation of 25 multidisciplinary teams, the hackathon leveraged satellite technology to tackle critical environmental issues such as plastic waste, industrial discharge, and agricultural runoff. Using Copernicus data, participants developed solutions to detect pollutants, locate waste hotspots, and support mitigation strategies.

Winning teams and their solutions

- **First place:** WaterWay+ (Team 14) developed an application already being implemented by municipalities in Guatemala to monitor real-time water quality through interactive maps based on Copernicus satellite data. This tool empowers citizens to take collective action against pollution.
- **Second place:** Ribereño Environmental Thermometer (Team 8) created a web platform that uses artificial intelligence and satellite imagery to detect human constructions along riverbanks, calculate urban density, and issue preventive alerts to help anticipate environmental impacts.
- **Third place:** Ixim_Tech (Team 9) integrated satellite monitoring of water turbidity and the Normalized Difference Vegetation Index (NDVI) for a comprehensive environmental assessment of the Motagua River Basin.

These winning teams had the opportunity to present their projects to investors from Europe and Latin America during the Motagua Forum, organized by the European Union in Guatemala at the end of May, which aimed to identify opportunities to scale and implement their solutions.

Over the three weeks, participants attended workshops on satellite sensors, image processing, innovation methodologies like design thinking and lean startup, as well as sessions on business model development and effective pitching. Specialized mentoring throughout the process helped strengthen their proposals.

Gabriela Montenegro, the head of SENACYT Guatemala, described this hackathon as a promising platform for developing evidence-based solutions that will benefit future generations.

Mark Urban, Director of International Cooperation at RedCLARA, emphasized that the event was part of the regional BELLA II initiative, which promotes the use of satellite data and technology tools for sustainable development under the EU-LAC Digital Alliance.

Claudia Barillas, representative of the European Union in Guatemala, highlighted, “Earth observation drives science and becomes sustainable development when placed in the hands of young talents committed to their environment.”

Participants agreed that the hackathon was not only a space for innovation but also a catalyst for building a multidisciplinary community dedicated to applying satellite technology to environmental causes. “We seek sustainability and practical solutions that emerge from this experience,” said Estuardo Valle, a team member. Sophie Cleaves added, “We want to contribute through science and education to create real impact in Guatemala.”

About Copernicus Academy Guatemala

The Copernicus Academy Guatemala is an initiative launched with the support of RedCLARA as part of the BELLA II project co-financed by the European Union, together with SENACYT and Universidad del Valle. Its mission is to bring technology closer to the people and promote the use of satellite data to solve real-world problems. It also aims to train young people and professionals in the use of these tools, joining efforts across universities, public institutions, and the private sector.

Ten Proposals Selected in the SPIDER and RedCLARA Call for Ideas

By Jenny Flores

The SPIDER project and RedCLARA launched a Call for Ideas, selecting ten proposals to foster the strategic use of BELLA II. This initiative sought to promote a people-centered digital transformation through cooperation between the European Union and Latin America and the Caribbean (EU-LAC). The chosen ideas, coming from various countries across both regions, stood out for their innovation, technical feasibility, and alignment with BELLA's strategic objectives.

The call received a total of 28 expressions of interest from ten countries, and 21 concept notes were formally submitted for evaluation. Of these, 76% focused on artificial intelligence, 19% on digital resource sharing, and 5% on cybersecurity.

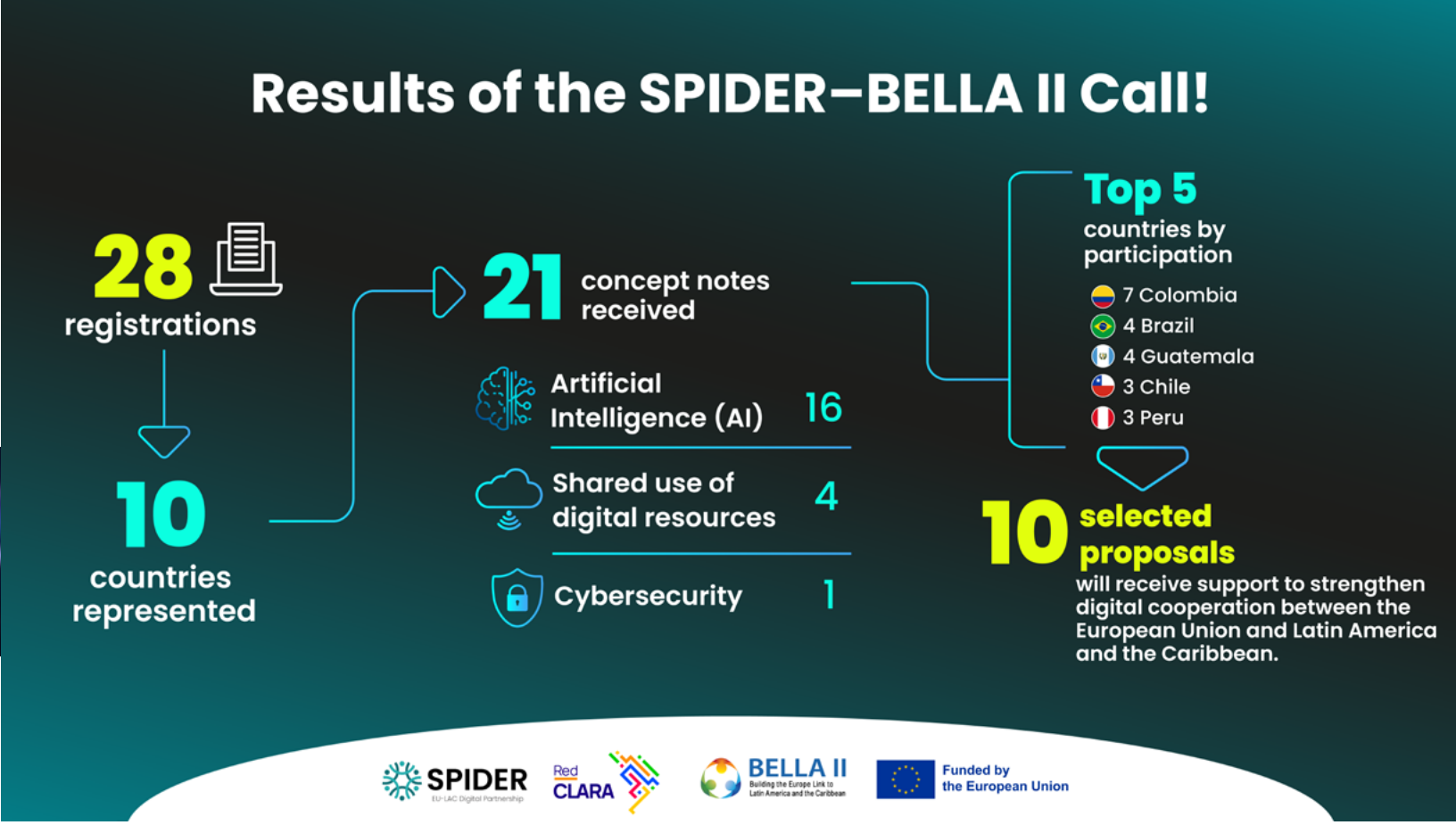
Selected proposals originated from Colombia, Brazil, Guatemala, Chile, Peru, Ecuador, Mexico, Spain, Denmark, and Jamaica, demonstrating the broad geographic reach and collaborative potential between innovation ecosystems in Europe and Latin America and the Caribbean.

The evaluation process was led by an expert committee of eleven members, consisting of professionals from both regions with experience in artificial intelligence, cybersecurity, digital infrastructure management, innovation, entrepreneurship, and scientific collaboration. This committee

applied a rigorous evaluation framework that considered creativity, practical applicability, alignment with BELLA II infrastructure, implementation feasibility, and the technical quality of the concept notes.

The Call for Ideas was launched to address the question: How can we strengthen the digital ecosystem and entrepreneurship by using BELLA II through solutions in artificial intelligence, cybersecurity, and digital resource sharing across Latin America, the Caribbean, and Europe? This initiative is part of the broader commitment of the SPIDER program to create equitable, sustainable, and people-centered digital cooperation.

At the close of the call, organizers noted that the results reflect not only the high technical quality of the proposals but also the enthusiasm and willingness to collaborate among academic, technical, and innovation communities in Europe, Latin America, and the Caribbean. The success of this edition confirms the potential of the SPIDER program and BELLA as strategic platforms to drive joint digital development in both regions.



Since 2021, the BELLA Program (Building the Europe Link with Latin America), implemented by RedCLARA and co-funded by the European Union, has strengthened digital connectivity between the two continents. Through the BELLA-S project, a 6,000-kilometer submarine fiber optic cable was deployed to connect Latin America and Europe directly, complemented by the expansion of terrestrial infrastructure thanks to the BELLA-T project.

Currently, the BELLA II project, launched in 2023, seeks to consolidate the digital ecosystem of Latin America and the Caribbean, expanding connectivity to more countries, with priority given to Peru, Costa Rica, Guatemala, El Salvador, and Honduras. It also aims to increase the adoption and use of digital transformation technologies to develop solutions addressing the region's main challenges.

SPIDER is a project designed to maximize BELLA's impact on digital transformation in Latin America and the Caribbean by promoting international collaboration and the development of emerging technologies in strategic sectors. Through this call, it seeks to stimulate the creation of innovative solutions that enhance connectivity and knowledge exchange in the region.

Learn more:
https://spidernetwork.org/spider-call-for-ideas-21-digital-innovations-bridging-eu-lac-regions/

RedCLARA 2024 Annual Report: Innovation, Collaboration, and Strategic Expansion

By Jenny Flores

In 2024, RedCLARA reached a new milestone. Beyond celebrating 21 years of continuous work, the organization strengthened its role as the connector of Latin America and the Caribbean's digital ecosystem, laying the groundwork for a new strategic phase aimed at fostering a more connected, innovative, and sustainable region.

The 2024 Annual Report not only highlights key institutional achievements but also presents a transformative vision of connectivity as a driving force behind scientific, educational, technological, and social development.

A central pillar was the BELLA II project, co-funded by the European Union. In its second year, the project took a decisive strategic turn, adopting a more agile, flexible expansion approach aligned with national realities. The strategy focuses on expanding connectivity with purpose, prioritizing countries such as Peru, Costa Rica, Guatemala, El Salvador, and Honduras, while promoting co-investment models in digital infrastructure according to each country's priorities and capacities.

In October, the cycle of BELLA II Open Strategic Dialogues concluded in Mérida, Yucatán, Mexico. This pivotal

meeting helped define a regional roadmap built through active listening and multi-stakeholder collaboration. Throughout the year, BELLA II reinforced its positioning in high-level international forums such as the EU-LAC Global Gateway and the D4D Hub, consolidating its political and technical influence in the EU-Latin America and Caribbean digital agenda.

On the innovation front, RedCLARA hosted the second BELLA II Ideathon focused on transforming agri-food systems in Central America and the Caribbean. It also launched the Innovation Hub and its Initiative Catalog, featuring concrete proposals led by key regional actors. In Panama, the Copernicus edition of InnovaInvest brought together entrepreneurs, mentors, and investors to scale satellite data-based solutions within the Copernicus Academy LAC framework.

RedCLARA also strengthened strategic networks such as the Latin American University Telemedicine Network (RUTE-AL), which held 14 virtual seminars with over 1,200 participants and experts from allied networks in Brazil, Ecuador, Colombia, Mexico, and Chile. Starting in 2025, RUTE-AL will expand to include the Caribbean and become RUTE-ALC.

During the year, the first BELLA II testbeds were activated to experiment with high-value solutions such as HPC infrastructure and blockchain developments. In the blockchain field, RedCLARA celebrated the second anniversary of LACNet, highlighting joint initiatives like the Diploma Project for digital diploma issuance and validation.

In cybersecurity, regional cooperation was strengthened through EduLACSeg, which participated in the EU-LAC Digital Alliance High-Level Political Dialogue and organized training activities like the Security Baseline Bootcamp held during TICAL 2024 week.

The TICAL2024 conference took place in Rio de Janeiro, Brazil, gathering over 200 attendees from 19 countries under the theme, "Connecting Knowledge: AI and Data as Catalysts for Academic and Social Transformation." This edition reaffirmed TICAL as the leading regional forum for knowledge exchange on technology and innovation.

"The 2024 Annual Report reflects a year of tangible achievements and strategic cooperation. RedCLARA thus renews its commitment to a more interconnected, innovative region prepared to face the challenges of the digital future," said Eduardo Grizendi, Chair of RedCLARA's Board of Directors (RNP, Brazil).

The full report is available at: https://redclara.net/images/docs/RedCLARA-memoria-2024%202.pdf

Rubin Observatory Opens Its Eyes to the Universe

From the heights of Cerro Pachón, in the Coquimbo Region of Chile, the Vera C. Rubin Observatory has ushered in a new era of cosmic exploration from South America.

by Jenny Flores

In its first ten hours of testing, its powerful telescope detected 2,104 previously unseen asteroids—including seven near-Earth objects—along with millions of galaxies and stars that had remained hidden.

Its revolutionary 3.2-gigapixel digital camera, the largest ever built, enabled this achievement by capturing unprecedented ultra-high-definition images of the sky. This milestone marks a turning point for global astronomy and firmly establishes Chile and Latin America as key players in generating scientific knowledge.

The observatory is named after American astronomer Vera C. Rubin, a pioneer in the search for conclusive evidence of large amounts of invisible matter known as dark matter. The initiative is funded by the United States National Science Foundation (NSF) and the Department of Energy (DOE) and is driven in collaboration with institutions such as the National Optical-Infrared Astronomy Research Laboratory (NOIRLab), SLAC National Accelerator Laboratory (SLAC), and the Association of Universities for Research in Astronomy (AURA), among others.

Thanks to its 8.4-meter primary mirror and advanced three-mirror optical system, the observatory will scan the entire southern sky every three to four nights, capturing a field of view in each image equivalent to 45 full moons. By late 2025, it is expected to begin its Legacy Survey of Space and Time (LSST), scanning the southern sky regularly for ten years and generating real-time alerts of astronomical phenomena to be followed by observatories and research teams worldwide.

Once fully operational, the Rubin Observatory will generate approximately 500 petabytes of data over a decade, allowing it to map over 20 billion galaxies, discover up to 1.4 million new objects in the solar system, and detect transient phenomena such as supernovae or potentially hazardous asteroids.

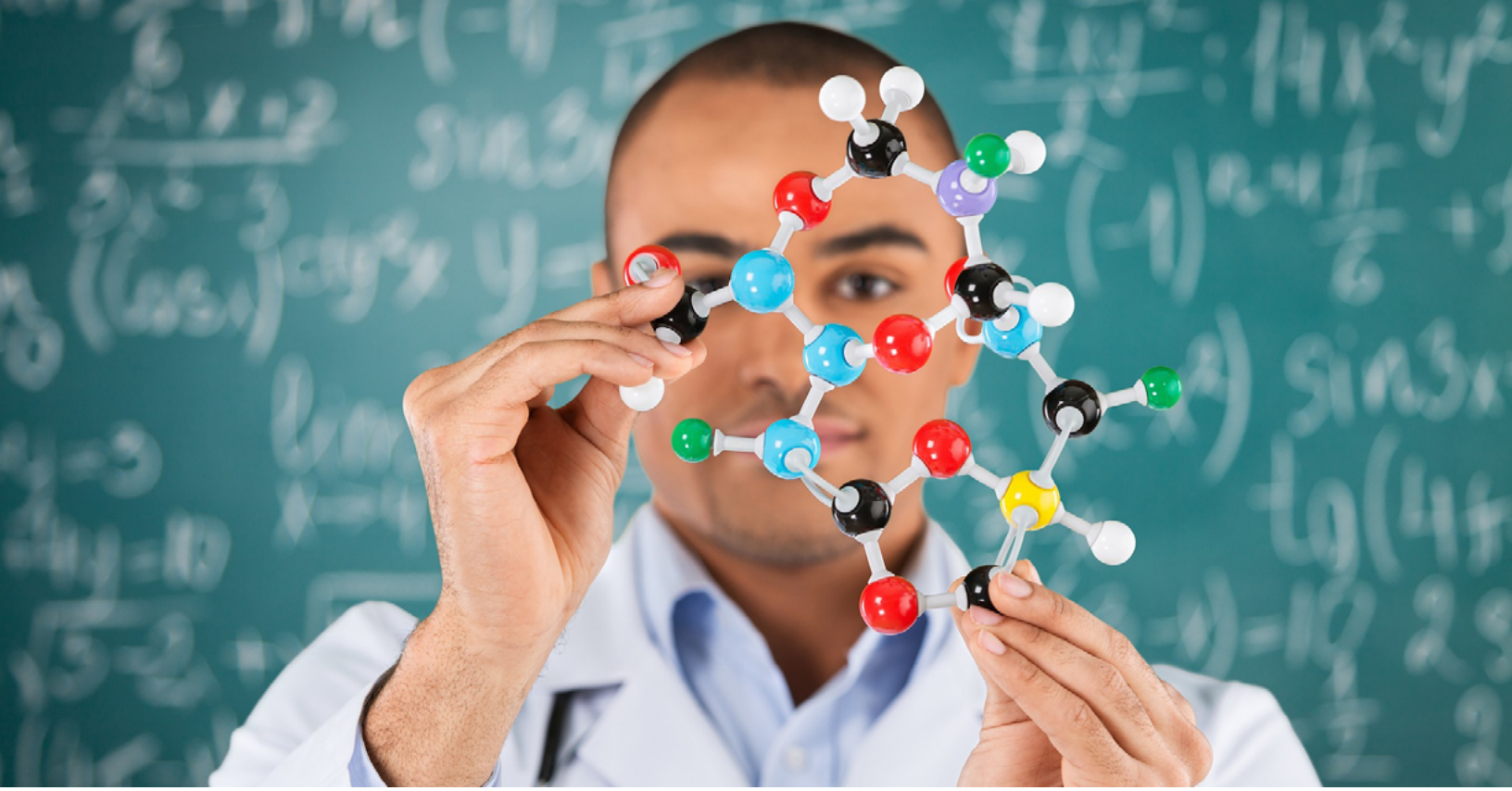
The Rubin Observatory will become the most efficient discovery machine of the solar system in human history. Every night, it will capture thousands of images of the southern sky, covering it completely and revealing millions of asteroids, comets, and interstellar objects never before observed.

This will fundamentally alter planetary defense strategies and pave the way for discoveries that will shape science for decades to come. The quality and quantity of images will strengthen planetary defense by doubling the number of near-Earth asteroids that can be detected, enabling early identification and impact prediction years or even decades in advance. For this reason, experts consider the observatory a fundamental tool to better understand our cosmic environment and prepare for potential cosmic threats.

This facility is also key for Latin America, as northern Chile will host nearly 70% of the world's ground-based astronomical observation capacity. Its launch includes an educational and outreach program aimed at schools and the public throughout the region, offering resources in Spanish and English, as well as an interactive platform to facilitate access to discoveries.

In its first year, the Rubin Observatory will collect more data than all other optical observatories combined, providing scientists with an unparalleled resource to investigate the universe. To learn more about this project and to download educational materials, please visit the observatory's website:https://rubinobservatory.org/

Note based on information from:
https://rubinobservatory.org/es/news/first-imagery-rubin



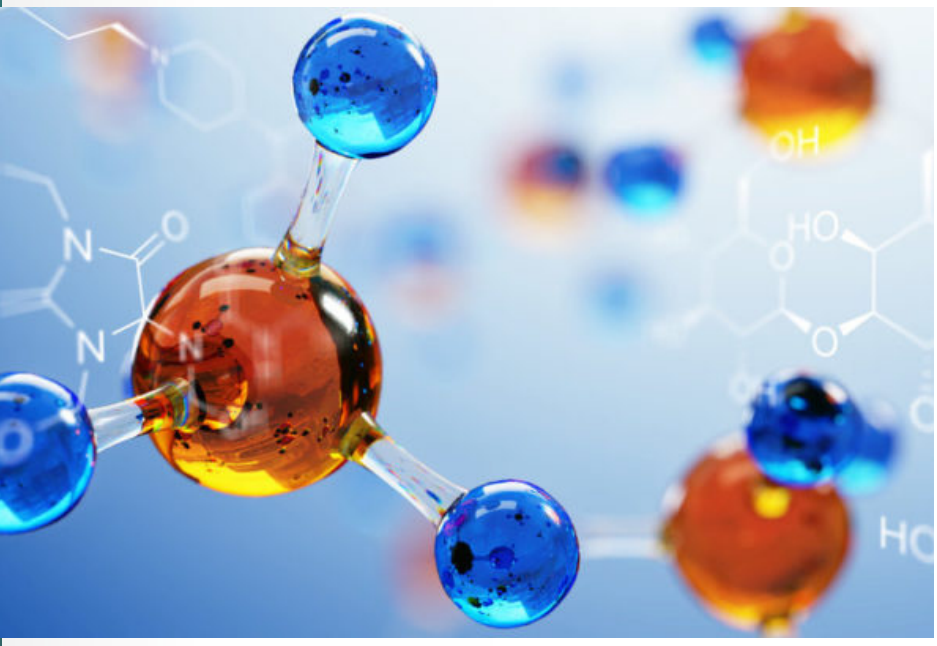
The Region Supports Open Science as a Driver of Inclusive and Sustainable Development

Open science proposes a new way of producing and sharing knowledge, based on open access, collaboration, and citizen participation. In Ibero-America, it represents an opportunity to reduce gaps, democratize knowledge, and strengthen research systems for the benefit of society as a whole.

By Jenny Flores

Countries such as Spain, Mexico, Brazil, Argentina, and Chile have made progress with this model by promoting open access to scientific publications, creating digital repositories, and adopting policies that encourage more collaborative research. However, challenges remain, including the need to improve technological infrastructure, expand training, and ensure equitable participation—especially in rural areas or regions with limited investment in science and technology.

To ensure open science benefits everyone, it is essential to accompany it with policies that foster ongoing training, value traditional knowledge, and improve digital access. Only then can it contribute effectively to addressing major challenges such as climate change, health, and education.



With the goal of discussing these topics, the forum "Opportunities and Challenges of Open Science between Europe and Latin America: Data and Infrastructure at the Heart of the Ecosystem" was held from May 6 to 9 at the Training Center of the Spanish Agency for International Development Cooperation (AECID) in Montevideo, Uruguay. The event was organized by the Center for Energy, Environmental, and Technological Research (CIEMAT) and AECID, with support from RedCLARA, the Ibero-American Program for Science and Technology for Development (CYTED), and ResINFRA Plus.

The event brought together public institutions, research centers, universities, and researchers from various disciplines, as well as ICT, engineering, and telecommunications professionals from over 20 countries in the region.

Over the course of four days, the forum featured specialized sessions, virtual debates, roundtables on public policy, and a participatory foresight exercise. These activities made it possible to identify capacities, techniques, and good practices for advancing the implementation of open science in Latin America and the Caribbean.

RedCLARA was represented by Mark Urban, Director of International Cooperation; Laura Castellana, Manager of Planning and Strategic Management; Tania Altamirano, Manager of Academic Relations; and Martha Galvis, Information Management Analyst. They participated in working sessions with key actors from Europe and Latin America and the Caribbean, held strategic meetings to strengthen partnerships, and presented initiatives with regional impact.

Urban joined the roundtable "Foresight of Open Science." Meanwhile, RedCLARA's Manager of Academic Relations and the Information Management Analyst participated in the session "Open Science Activities in Latin America Through National Research and Education Networks," where they shared experiences and regional contributions to foster more collaborative and accessible science. Castellana presented the Copernicus Programme, highlighting its contribution to scientific cooperation and open and free access to satellite data.

At the forum, RedCLARA emphasized its strategic role in promoting open science in the region. Through its high-speed network, it facilitates the exchange of scientific data, the creation of repositories, and collaboration between educational institutions and research centers across Latin America. In addition, it strengthens academic communities, fosters regional cooperation, and promotes international initiatives such as the BELLA II project

within the framework of the EU–LAC Digital Alliance, thereby enhancing open access and scientific collaboration.

Bi-regional Cooperation

Europe, Latin America, and the Caribbean share the same vision of open science: that knowledge should be accessible to everyone. While both regions have developed policies and use technology to support open access, they still face challenges, such as how to value scientific work properly and ensure broader inclusion. Latin America stands out for its community-based and decentralized models, which—together with the EU–LAC Digital Alliance—create favorable conditions for deeper cooperation that benefits all.

Among the forum's main conclusions were the need to integrate open science into academic programs, foster international collaboration, and promote purposeful innovation. On the technology side, it was recommended to adopt open digital tools, leverage emerging technologies such as artificial intelligence and blockchain, and strengthen research infrastructure. In terms of public policy, raising awareness and motivating stakeholders was seen as more effective than imposing strict regulations. Ensuring sustainable funding, involving the private sector, and reducing the digital divide through training programs were also highlighted. Lastly, the forum recommended updating legal frameworks to reflect technological change and establishing inter-ministerial teams to design evidence-based regulations.

The full event report is available here: La ciencia abierta en Iberoamérica. Un camino de buenas prácticas hacia la democratización del conocimiento.pdf

BELLA II and Costa Rica: A Key Connection for Latin America's Digital Future

As part of the strategic actions of the BELLA II project, representatives from RedCLARA conducted a mission to Costa Rica aimed at strengthening partnerships that will support the country's integration into the regional digital ecosystem and enhance its contribution to digital transformation processes in Latin America and the Caribbean.

By Jenny Flores

The mission included José Palacios, Member of RedCLARA's Board of Directors and President of the Chilean NREN, REUNA; Carlos Gamboa, Executive Director of Costa Rica's National Research and Education Network (RedCONARE) and also a Member of RedCLARA's Board; and Leonel Tapia, Advisor for International Cooperation at RedCLARA.

Costa Rica, recognized as one of the most technologically advanced countries in Central America in terms of digital infrastructure, is among the priority countries for the BELLA II project, along with Peru, El Salvador, Guatemala, and Honduras. BELLA II, implemented by RedCLARA and co-funded by the European Union (EU), seeks to contribute to the development of the infrastructure needed to build and expand a digital ecosystem for science, technology, education, and innovation—helping address major regional challenges and advance socioeconomic development.

For Costa Rica, joining BELLA II represents a strategic opportunity to expand its capabilities, strengthen its national research and education infrastructure, boost international partnerships, and position itself as a regional leader in science, technology, and innovation. The country would gain an operational capacity of 20 Gbps—an impactful level of connectivity, especially when dedicated to research, education, and technological development. Given Costa Rica's strong existing digital foundation, it is well-positioned to rapidly capitalize on the project's benefits and reinforce its reach and impact throughout Central America.

One of the achievements of the RedCLARA mission was the progress made with the Ministry of Science, Innovation, Technology, and Telecommunications (MICITT) toward signing an agreement in the short term to integrate Costa Rica into BELLA II and operationalize the new connectivity capacities. The delegation also held meetings to present the BELLA II project, its roadmap, and its priorities aligned with national objectives. These encounters allowed the identification of specific collaboration opportunities with the academic sector, national operators, technical agencies, and multilateral organizations. The partnerships aim to strengthen research and education infrastructure, promote the use of RedCLARA's advanced digital services,

and activate training and innovation spaces with territorial impact.

Specifically, the RedCLARA team met with the EU Delegation in Costa Rica, the Chamber of Infocommunication and Technology (INFOCOM), the Bank of Costa Rica (BCR), the National Academy of Sciences, the Network Information Center of Costa Rica (NIC), the National Technical University (UTN), the University of Costa Rica (UCR), the Distance State University (UNED), the Ministry of Public Education (MEP), and wholesale telecommunications providers UFINET and FONATEL.

During the meeting with the EU Delegation, which included the participation of Willy Carvajal, officer in charge of regional digital projects, discussions focused on the progress of BELLA II and its contributions to the Copernicus program. INFOCOM identified opportunities for collaboration in areas such as rural connectivity, talent development, cybersecurity, and artificial intelligence. The organization expressed interest in engaging with the academic sector and participating in TICAL2025, RedCLARA's flagship conference, which will take place in November in San José.

The National Academy of Sciences and NIC Costa Rica—the entity responsible for managing internet domain names in the country—expressed strong support for the BELLA II project, calling it highly strategic, and signaled their intention to promote affiliation with the national Internet Exchange Point (IXP), a crucial element for improving national connectivity and strengthening research, education, and technology development capacities.

During meetings with university authorities, discussions focused on the training, research, and collaboration opportunities that BELLA II will bring. They addressed the use of RedCLARA's tools and services and the development of joint projects in fields such as artificial intelligence, real-time data analysis, mental health, the environment, and applied research. The parties also agreed to organize workshops to promote the benefits of advanced connectivity and explore new avenues for institutional collaboration.

Operators UFINET and FONATEL expressed interest in supporting the enhancement of the national research and education infrastructure. The mission concluded with a visit to the Ministry of Public Education, where potential synergies were explored to expand access for primary and secondary education to RedCLARA's regional knowledge platforms.

Video BELLA II: The Digital Future Starts Now

By Jenny Flores

Since its launch in 2023, the BELLA II project has promoted advanced connectivity, regional integration, and innovation as key tools for the development of Latin America and the Caribbean.

A new video highlights the continued progress of BELLA II, an initiative focused on expanding connectivity to the countries that need it most, building strategic partnerships, and adopting flexible investment strategies to accelerate impact.

RedCLARA implements BELLA II with co-funding from the European Union. In its first two years, the project has strengthened collaboration among governments, the private sector, academia, and international cooperation, paving the way for deeper digital integration and regional development.

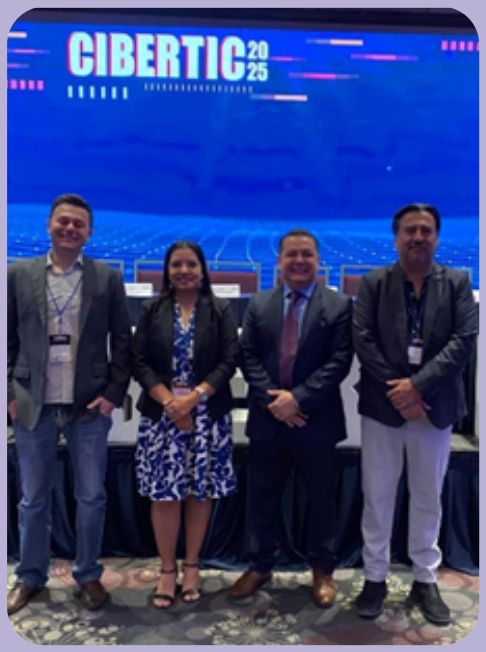
With a defined roadmap, priority projects, and a shared vision, BELLA II is advancing toward more efficient and inclusive expansion. This includes tailored agreements that meet the specific needs of each country, broader stakeholder participation, and coordinated efforts across various sectors, such as education, health, agriculture, the environment, and production.

BELLA II is not just a connectivity project. It is a gateway to a people-centered digital transformation that empowers communities and institutions throughout Latin America, the Caribbean, and Europe.

Watch the video about the new stage of BELLA II here: https://youtu.be/JWfE0HXQplY?si=ddoH-x28ISNPdRTI

More information about the project: https://www.bella-programme.eu

RedCLARA: Action and Cooperation Across the Region



CIBERTIC 2025, Guadalajara, México

Tania Altamirano, RedCLARA's Manager of Academic Relations, represented the organization at CIBERTIC 2025, the Ibero-American Congress on Information and Communication Technologies held in Guadalajara, Mexico. As a member of the Program Committee for the Society–Health Applications track, she contributed her expertise in international collaboration, eHealth, and climate change.

She also participated in the panel "Global Health in the Digital Era: Ethics, Cybersecurity, and Collaboration in the Face of Climate Change", where she presented RedCLARA's vision and the BELLA II project, aimed at strengthening academic networks and advancing digital initiatives in Latin America.

CLACSO 2025: Open Science, Data, and Artificial Intelligence from a Regional Perspective

RedCLARA took part in the 10th Latin American and Caribbean Conference on Social Sciences (CLACSO 2025), held from June 8 to 12 in Bogotá, Colombia. The organization contributed to spaces focused on data production in social sciences, the contextualized use of artificial intelligence, training in open science, and international cooperation models from the Global South.

During workshops and panels, participants shared experiences on data generation methodologies, technological adaptation, citizen science, and strategies for cross-country collaboration. These contributions reinforced RedCLARA's commitment to building regional capacities for research, academic exchange, and open digital infrastructures.

Roundtable Highlights the Role of Scientific Cooperation in Public Policy

As part of the course “Science for Public Policy: Strategies for Science Diplomacy and Scientific Advice”, held in Montevideo, Uruguay, a roundtable was held to explore cooperation tools in Latin America and the Caribbean for scientific advising.

The event brought together experts from key regional institutions, including Mary Fernández, Officer of Cooperation and International Relations at RedCLARA, who emphasized the role of advanced networks in promoting evidence-based public policies through connectivity, collaborative work, and platforms that support informed decision-making.

Panelists discussed experiences and strategies to integrate scientific knowledge into government processes, underscoring its importance in facing challenges such as climate change, pandemics, and digital transformation.

RUTE-ALC Sessions Continue

Between March and June, six key sessions were held as part of RUTE-ALC, addressing essential topics for advancing digital health in Latin America and the Caribbean. Topics included crucial issues for health systems such as clinical data protection, the use of artificial intelligence in diagnosis and management, mental health in digital environments, gender equity in access and care, and the strengthening of technical profiles vital for service quality.

The webinars will continue through the end of the year, aiming to foster the exchange of experiences and best practices toward a more inclusive and collaborative digital health ecosystem in the region.

RUTE-ALC (Latin American and Caribbean University Telemedicine Network) is a regional initiative that connects professionals, institutions, and academic networks to promote innovation, research, and cooperation in digital health. Its open sessions are a valuable opportunity to build shared knowledge and move toward more integrated and resilient health systems.

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