



BELLA II

Building the Europe Link to
Latin America and the Caribbean

OUTCOMES REPORT:

BELLA II STRATEGIC DIALOGUES WORKSHOP PANAMA, 15 NOVEMBER 2023

CONDUCTED WITHIN THE FRAMEWORK OF THE TICAL2023 CONFERENCE



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Outcomes Report:
BELLA II Strategic Dialogues Workshop
Panama, 15 November 2023
Conducted within the framework of the TICAL2023 Conference

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1. Introduction

The evolution of modern society mirrors humanity's incessant pursuit of the production of knowledge and the development of the technologies necessary to support the survival and sustainability of our species. Throughout this evolutionary journey, universities have played a leading role, both in research and development dedicated to the exploration of ideas and the creation of solutions to the changing needs of society, as well as in educating individuals to undertake the desired transformations in the short, medium, and long term. From the ancient Greek academies to the modern research universities of the digital era, universities have continually adapted, grown, and evolved to contribute to the search for solutions to the present and future challenges of a sustainable society.

As evidenced by the Sustainable Development Goals, in the 21st century social, economic, environmental, and technological challenges are increasingly pressing and affect all social systems that make up society. From a university perspective, the following list highlights the challenges that will determine the future performance of higher education institutions:

1. **Digital transformation:** The rapid advancement of digital technologies requires universities and research institutions to adapt and embrace digital transformation. This includes upgrading infrastructure, adopting new teaching and learning methods, leveraging data analytics and artificial intelligence for research, and incorporating digital tools and platforms into their operations. The challenge lies in operating within this complex digital landscape and ensuring that the institution remains at the forefront of social and technological advances.
2. **Paradigm shift in learning:** The digital age has brought with it new approaches to learning and the dissemination of knowledge. Online learning as well as massive open online courses and other digital platforms developed for the same purpose have gained popularity. Universities and research institutions must adapt their teaching methods to effectively engage and educate students within this new digital learning environment. This involves rethinking the curriculum design, adopting innovative pedagogical approaches, and providing ongoing professional development so that teachers can improve their digital teaching skills.
3. **Open access and dissemination of research:** The digital age has ushered in the open access movement, which prioritizes free and unrestricted access to research results. Universities and research institutions are contending with the challenge of balancing the need to openly share research results and addressing concerns related to intellectual property rights, copyright, and funding models. In this sense, universities must adapt to the evolving paradigm of open science and adopt strategies to ensure the broad accessibility and impact of their research.
4. **Collaboration and interdisciplinarity:** The knowledge economy demands interdisciplinary collaboration to address complex social challenges. Universities and research institutions must foster a culture of collaboration among multiple disciplines, departments, and institutions. This requires breaking down silos, promoting interdisciplinary research initiatives, and creating structures and incentives to encourage interdisciplinary collaboration. Overcoming barriers, such as the differences in research cultures, funding mechanisms, and academic reward systems, poses a significant challenge.

Addressing such challenges requires a strategic vision, swift decision-making, and a commitment to innovation and continuous adaptation to extremely dynamic environments. To this end, universities and research institutions must embrace change, promote a culture of entrepreneurship, and nurture strong partnerships with industry, governments, and the community at large to thrive in the knowledge economy and the digital age.

Universities are not alone in their search for solutions to these challenges. These institutions have allies who acknowledge their value and are ready to contribute resources, capabilities, and competencies, both to train the human talent that the digital era demands, as well as to fund research and development initiatives aimed at generating models, knowledge, and technologies that will promote inclusive socioeconomic development. Initiatives such as **Society 5.0** which is being developed by Japan and **Industry 5.0** proposed by the European Commission unambiguously set out the responsibilities and leading role that universities must play in the evolution towards data-driven, human-centred societies supported by digital transformation technologies.

Fulfilling this role requires structuring global strategic dialogues under conditions that can effectively contribute to enhance the benefits of the digital age, as well as bridging the gap between ‘pioneer’ and ‘follower’ countries through the creation of innovative spaces for international collaboration and cooperation.

In the case of Latin America and the Caribbean, the digital divide has become increasingly pronounced, and urgently demands both the adoption of third generation public policies that can enable instruments and mechanisms for driving change, as well as the participation of the private sector and academia in the conception and management of this transformation process.

With this urgency in mind, the EU-LAC Digital Alliance —specifically the BELLA II project executed by RedCLARA— provide the opportunity to contribute to the search for solutions to catalyse the process of reducing the digital divide in the region. In the case of the BELLA II project, the process for the revitalization of universities and National Research and Education Networks (NRENs) will be channelled through the **Development of Digital Skills** strategic axis, a multidimensional axis that encompasses the training of human talent; research aimed at generating the science, technology, and innovation that the digital economy demands; and the incubation of new forms of socioeconomic development.

Preliminary thoughts on this strategic axis were presented at the World Café, which took place in Montevideo in November 2022, with the participation of NREN rectors and leaders. Efforts related to the implementation of initiatives derived from *Development of Digital Skills* will continue within the framework of the TICAL 2023 Conference. The theme of the TICAL 2023 Conference was “Bridges to transformation,” highlighting the role of the NRENs that interconnect the regional digital ecosystem across Latin America and the Caribbean and foster collaboration to advance the digital transformation in each country.

The TICAL 2023 Conference was an ideal space for universities and their research and education networks to explore questions such as: **What strategic vision should be driving the role of universities and NRENs in the region in the digital age? What infrastructures and processes should universities and NRENs**

create to build bridges to the digital economy? How can they contribute to the definition of a roadmap to enable digital transformations in science, technology, and innovation?

The workshop titled **“The Role of Universities and NREs in Building a Viable, Sustainable, and Impactful Digital Future in Latin America and the Caribbean”** was held within the framework of the TICAL 2023 Conference. This workshop is part of the Open Strategic Dialogue promoted by the BELL II project, the general objective of which is **to strengthen and expand the Latin American and Caribbean (LAC) digital ecosystem, enabling relationships and sharing among companies, research centres, educational institutions, and Latin American and European academic networks, to contribute to the achievement of the region's strategic objectives, with a focus on strengthening education, science, technology, and innovation.**

This report has been prepared for the purpose of documenting the design of the workshop, its execution, and outcomes. In addition to this introduction, the report has been divided into six sections, each of which describes: (1) the general and specific objectives of the workshop, (2) the affiliation of the stakeholders who participated in the workshop, (3) the methodology followed during the execution of the workshop, (4) the dynamics followed by the strategic dialogue sessions, (5) the outcomes of the dialogue sessions, and (6) implications of the outcomes of the dialogues from the point of view of RedCLARA as a meta-organization.

2. General and Specific Objectives of the Workshop

The workshop had the following general and specific objectives:

General Objective

Formulate a strategic vision for the role of universities and NRENs in addressing the challenges of the digital economy and to produce a roadmap that will allow them, within the framework of the BELLA II project and the EU-LAC Digital Alliance, to make substantial contributions to the sustainable development of a data-based and human-centred RedCLARA digital ecosystem that is a driver of innovation, knowledge management, and bi-regional socioeconomic development.

Specific Objectives

1. **Objective No. 1: The challenges of universities and NRENs in the digital age.**
 - Promote a reflection process among participants based on a presentation by RedCLARA about the challenges faced by universities and NRENs in the digital economy.
2. **Objective No. 2: Articulation of the strategic vision of the RedCLARA digital ecosystem.**
 - Define the reference framework that will support decision-making on project portfolios to be undertaken within the RedCLARA digital ecosystem, in the context of the BELLA II project and the EU-LAC Digital Alliance.
3. **Objective No. 3: Infrastructure and processes associated with the RedCLARA digital ecosystem.**
 - Generate information regarding the data space required for the operation of the RedCLARA digital ecosystem and the relational processes facilitated by social and digital technologies for the purpose of promoting innovation, knowledge management, and bi-regional socioeconomic development.
4. **Objective No. 5: Design the roadmap for the implementation of the portfolio of programs and projects.**
 - Based on the strategic vision, formulate ideas that contribute to the creation of a portfolio of projects that will showcase the relationships between technologies, services, products, and digital innovations, all of which drive the transformations associated with the digital economy.

3. Affiliation of Participants Invited to the Strategic Dialogues Workshop

The participants invited to the strategic dialogues workshop are listed and described below.

1. **Public policy makers:** Actors who share the responsibility at the national, local, and international levels for the design, implementation, and evaluation of policy instruments and mechanisms aimed at advancing scientific development, technological progress, economic growth, and social inclusion during this time of transition.
2. **Connectivity providers:** These include major telecommunications providers and the multiple small businesses that own infrastructure and provide services to local communities.
3. **Universities and research centres:** These stakeholders will be key for the creation of new NRENs and for conducting research that will lead to solutions to the most pressing problems related to research and education.
4. **National Research and Education Networks (NRENs):** These include the networks that created RedCLARA, whose role as RedCLARA's main users will be crucial in terms of knowledge management and innovation, and in the provision of the knowledge-intensive business services needed to overcome the digital divide between LAC and the most advanced OECD countries.
5. **Multinational organizations:** These include actors such as SICA and the European Union, whose role as promoters of international collaboration and good practices in ecosystem development will be a critical success factor for the execution of the BELLA II project.
6. **Large, small, and medium-sized enterprises:** These include private sector stakeholders whose role as funders, users, and developers of innovation capabilities and business models will be crucial to the sustainability of the evolving RedCLARA digital ecosystem.
7. **Financial organizations:** These include private and public funding agents capable of providing monetary resources for the construction of the necessary infrastructure and the execution of strategic projects.

As their affiliation shows, participants were carefully selected to have a representative sample the of stakeholders who directly or indirectly share the responsibility of designing, testing, and scaling solutions that will contribute to both the bridging of the digital divide, as well as to the processes for the co-production of value and co-creation of innovations to enable the social and economic development of Latin America and the Caribbean.

4. Work Methodology

The work methodology followed during the strategic dialogue workshop combined various dynamics to support group activities. Some of these dynamics were reflective in nature (where we are and how we got here), while others were generative (production of ideas on specific challenges related to the digital age) or strategic in nature (where we want to position ourselves and what we should do to get there).

This methodology included both parallel sessions for small groups, as well as plenary sessions based on “Large-Group Interaction Methods” (LGIM).

Large-Group Interaction Methods are based on the principle that complex problems such as those related to the BELLA II project can only be resolved by engaging representatives from all stakeholders in the dialogue, reflection, and socialization processes needed to find solutions to socioeconomic development issues in the digital economy. In essence, these methods can be applied to groups comprised of 25 to 1,000 participants and are characterized by:

1. Their speed compared to other approaches that require months of preparation and execution.
2. Generating participant engagement through intense socialization processes.
3. Harnessing dissatisfaction with a specific problem as a resource to promote actions for change.
4. Encouraging participants to share their knowledge and expertise through a learning process based on reflection and the analysis of both success stories and experiences of failure.
5. Promoting synergy among various “intelligences” motivated by the interest in finding solutions to a specific problem.
6. Bringing together planners, implementers, clients, and other actors in a shared space to solve issues of common interest.
7. Contributing to the consolidation of political agreements that allow managing the desired change.

The best-known LGIMs include *World Café*, *The Search Conference*, *Open Space Technology*, *Future Search*, *Real Time Strategic Change*, *The Conference Model*, and *Participative Design*.

During the strategic dialogue workshop held in Panama, we worked with *Future Search*. This method is particularly appropriate, as it allows involving every participant in three key processes related to the general and specific objectives, including: (i) strategic visualization of universities and NRENs in the digital age, and structure of the processes that must be implemented by the RedCLARA digital ecosystem to achieve the objectives of the BELLA II project; (ii) the conception of the meaningful connectivity process and the infrastructure needed to conduct the process in all its dimensions; and (iii) development of the roadmap showing how digital transformation technologies will help attain the positioning associated with the strategic vision.

5. Dynamics Followed during the Strategic Dialogues

The strategic dialogues process conducted during the workshop had a total duration of five hours and included the activities described in Table 1.

Table 1: “The Role of Universities and NRENs in Building a Viable, Sustainable, and Impactful Digital Future in Latin America and the Caribbean” - Workshop Program	
The Challenges of Universities and NRENs in the Digital Age (80 minutes)	
• Presentation of the BELLA II project by RedCLARA's executive management (15 minutes) • Presentations by Luis E. Cadenas (RedCLARA Executive Director), Eduardo Grizendi (RedCLARA President), and Carlos E. Seaton (Consultant) on the challenges of academia in the digital age (35 minutes) • Q&A (20 minutes) • Presentation by Carlos E. Seaton on the methodology followed during the workshop (10 minutes)	
Parallel sessions for the production of a strategic vision on the role of universities and NRENs in addressing the challenges posed by the digital society (45 minutes) • Working groups comprised of 7 members • Activity assigned to each working group • Facilitation of the work of each group	
Plenary Session (30 minutes)	
• Presentation of the outcomes of each working group • Comments and collective reflection	
Forging a Future That Will Enable the Strategic Vision	
• Parallel sessions: Each working group to produce a vision for the future of universities and NRENs and the strategies to achieve it. • Plenary session: Groups to share their visions and produce a first common understanding.	
Rapporteurship and Next Steps (10 minutes)	
Closing Session	
• Thank you and closing remarks by the European Union Delegation and RedCLARA	

6. Outcomes Achieved during the Execution of the Workshop

The outcomes achieved during the sessions are presented in the three blocks described below.

6.1 Challenges of the Digital Transformation

Throughout its twenty years of existence, together with the national networks that are members of the organization, RedCLARA has contributed to the construction and deployment of a powerful digital platform to support the work of universities and research centres across the region. The individuals and institutions both individually and collectively involved in this initiative strongly believe in the *primus inter pares* status of education, science, and innovation in sustaining and promoting the economic and social development of our countries.

There have been numerous accomplishments over these decades. Examples include the successful implementation of over twelve major projects supported by various institutions and organizations such as the European Commission, the Inter-American Development Bank, ECLAC, and the OAS, as well as the creation and support of organizations that now operate independently but play a significant role in complementing the work of RedCLARA, such as SCALAC, LA Referencia or LACNET.

Nevertheless, despite the significance of these accomplishments, the most significant achievement has been the ability to establish and maintain enduring cooperation among the majority of countries in the region. With a great diversity of conditions and resources, these countries have managed to forge a common agenda and a governance model that have served as the foundation and support for their work. This accumulated social capital is one of RedCLARA's most valuable assets.

The challenges posed by environmental degradation, the increasing social exclusion of vast regions of the planet, the deepening of the digital divide, migratory crises, and extreme nationalisms will shape RedCLARA's action scenarios in the years ahead. This environment poses serious threats to the sustainability of our planet, and the United Nations has already stressed that reversing negative trends calls for urgent solutions in which imagination, creative thinking, social innovation, and technological change are the pillars that will support the solutions to be developed.

The solutions developed in line with sustainable global development, with Japan's Society 5.0, and with Industry 5.0 proposed by the European Union share four strategic axes. Namely: the **creative exploration of new forms of financing**, the **establishment of test beds before upscaling**, **networks as the dominant collaboration and cooperation mechanism**, and the **development of human talent**.

The EU-LAC Digital Alliance seeks to build bridges to transformation by facilitating spaces and contributing resources for public management, networking, the incubation of digital enterprises, and connectivity to enhance relationships between innovation ecosystems. The BELLA II project is part of the framework built for this Alliance and proposes connectivity —RedCLARA's core strength— as a springboard to develop resources, capabilities, and competencies that will allow us to produce solutions that contribute to our future sustainability.

The workshop on **“The Role of Universities and NRENs in the Construction of a Viable, Sustainable and Impactful Digital Future in Latin America and the Caribbean”** began with three 10-minute presentations about the future evolution of RedCLARA in the coming decades. Box No. 1 presents a synthesis of the main ideas that were proposed.

Box No. 1: Synthesis of the three presentations

Eduardo Grizendi: Engineering and Operations Director at RNP- Brazil and President of RedCLARA.

- Innovation of RedCLARA as a meta-organization, which involves promoting interconnectivity among NRENs, enabling open innovation processes, contributing to the creation of test beds, and prototyping and scaling the solutions developed within the digital ecosystem.
- Meaningful innovation in connectivity, which involves applying social innovation, digital innovation, and innovations in technology- and knowledge-intensive services to processes for the co-production of value required by socioeconomic development.
- Public and private innovation, which involves providing reference models, infrastructure, and pilot digital spaces capable of contributing not only to systemic intervention in innovation ecosystems, but also to innovation labs and test beds for the private sector.

Luis E. Cadenas: Executive Director of RedCLARA.

- Adoption of agile financial innovation strategies, which involves adopting financial innovation processes aligned with the extraordinary changes that are occurring in present and future solutions, related to technologies for enabling connectivity between different networks.
- Innovation in the data space, conceived as an enabling effort for processes of innovation and knowledge management, citizen innovation and, above all, processes of co-production of value and co-creation of disruptive innovations with considerable impact on the socioeconomic development of the different regions.
- Innomediation, understood as a process that combines the role of generating ideas based on methodologies such as ideation and hackathons with that of a broker, for the purpose of producing portfolios of feasible projects that are in line with regional needs.

Carlos E. Seaton: Consultant

- Evolution toward smart research and education networks. This would align NRENs with current digital trends, encouraging the adoption of practices akin to those observed in European smart business networks and promoting projects that are not only more relevant but also have greater regional impact.
- Consolidation of the RedCLARA digital ecosystem, as the enabling space/time dimension of the dynamic digital infrastructure that promotes the co-production of value and the

co-creation of innovations among organizations, communities, and individuals who collaborate and cooperate by sharing resources, capabilities, and competencies.

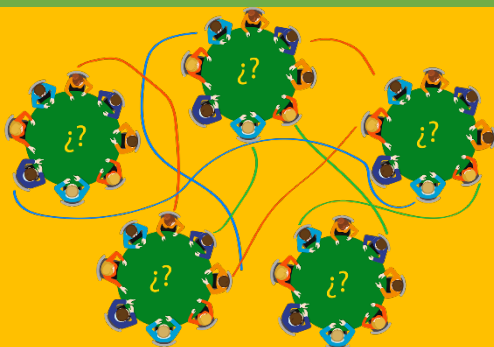
- Development of innovation cells, understood as temporary spaces for prototyping solutions to regional problems and initiating their scale up once their technological and economic viability is demonstrated.

6.2 Strategic Vision

A strategic vision is not merely a noble statement of principles; it is a dynamic force propelling individuals and organizations towards a desired future. Its importance lies in its ability to provide direction, inspire action, and foster resilience. In an ever-changing world, a well-defined vision is a powerful tool for achieving lasting success and having a meaningful impact. In other words, it is a commitment to a desired future positioning and the promotion of systemic relationships between the actors whose resources, capabilities, and competencies will make the desired socio-technical reality possible.

During the workshop, the idea-generating dialogue process for the production of the constituent elements of the strategic vision was conducted by five working groups to which participants were randomly assigned. Box No. 2 describes both the question that guided the reflection on the strategic vision and the activities conducted during the working sessions.

Box No. 2: The process of generating ideas about the strategic vision that should guide universities and national research and education networks to the positioning they desire within the digital age.



Question:

What strategic vision should drive governments, companies, universities, national research and education networks, and R&D&I organizations in their efforts to contribute from their respective areas of action to the search for solutions to the challenges of the digital age?

Parallel Sessions	Sessions conducted in the five working groups with the aim of maximizing and optimizing the participation of each of the various stakeholders (government, business, academia, civil society) who directly or indirectly share common objectives with universities and NRENs.
Plenary Session	A single session where each working group that participated in the parallel sessions presents a synthesis of their outcomes, sharing them for the purpose of encouraging the cross-fertilization of ideas and the identification of topics of common interest.

The process of observing the dialogues held by the various working groups revealed an intense exchange of ideas, opinions, and experiences, where the various participants representing government, private companies, academia, and civil society did not present a definition of the strategic vision, but rather a variety of arguments from which the necessary information can be abstracted to generate the strategic vision that will motivate the incorporation of Latin America and the Caribbean into the digital age and the knowledge economy. Below we present a summary of the different contributions made during the plenary session, where a synthesis of the ideas shared in the parallel sessions was presented.

Continental articulation: Articulation in its various forms was a common theme among the working groups. Participants stressed that articulation must evolve from being merely a relevant concept to becoming specific actions within a work plan agreed upon by representatives of the triple helix, for the purpose of enabling local, national, regional and bicontinental socioeconomic transformations derived from the strategic vision.

Dialogue as a permanent strategy: Maintaining strategic dialogues was considered important as an effective mechanism both for encouraging the monitoring and follow-up of agreed-upon actions, as well for updating the strategic vision and generating new program and project portfolios.

Data sphere or data space: This includes not only the data to facilitate decision-making by triple helix leaders, but also to support research, open science, and education capable of contributing to the search for solutions to the challenges of the digital age.

Regional prospective: Encouraging the organization of regional prospective exercises across the LAC regions to focus feasible programs and projects according to the resources available to each country and region so as to develop solutions that are more in line with their socioeconomic reality and have a greater impact and invigorating power on innovation ecosystems.

Social transformation: The ultimate goal of the agreed-upon objectives must be national and regional transformations geared towards maximizing the benefit and development of individuals, organizations, and institutions. In this context, the promotion of social innovation as a strategic axis

for territorial development, initiated by communities, is an initiative capable of generating profound changes in social thought and action.

Public innovation: The State plays a leading role in the conception and execution of public policies that promote the strengthening and revitalization of digital innovation ecosystems. The training of public leaders responsible for formulating the regulatory framework, defining the instruments, and implementing monitoring and evaluation for the desired changes is currently inadequate. In this sense, it is recommended to develop a training program aimed at building capacities for public innovation among managers of initiatives promoting science, technology, and innovation.

Collaboration and cooperation: Proposal to convert collaboration and cooperation processes into key strategic axes for the dissemination of best practices, access to additional sources of funding, and participation in projects that co-produce value and co-create innovations on a bicontinental scale.

Situational diagnostic: Developing capabilities for understanding society, detecting its needs, and developing programs and projects that generate the solutions they require.

According to the facilitators working with each group and the notes of some participants themselves and also to the synthesis described above, members of the various working groups that participated in the parallel sessions contributed their thoughts on the various aspects that condition the conception and realization of the strategic vision. Highlights include:

- **Political instability:** Perceived as a limiting factor, in the sense that there is no continuity in the agreed objectives, programs, and projects. With each change of administration, the work of the previous administration is disowned, which tends to dismantle successful experiences to begin working from scratch.
- **The strategic process:** The proposal is to implement the working agenda in two stages. The first stage would be in the short term and focus on the production of a situational diagnosis of the dynamic capabilities available in the regions. The second would involve the formulation, negotiation, and execution of high-impact programs and projects, coordinated by triple helix actors.
- **Auditing of resources, capabilities, and competencies:** Quantifying the resources available in the different countries in order to use them as seed funds around which additional financing might be produced to implement innovative and disruptive programs and projects.
- **Pilot projects:** Conceiving and executing pilot projects based on the auditing of resources, capabilities, and competencies.
- **Pillars for the realization of the strategic vision:** Three pillars were identified: first, conceiving and executing culturally feasible and systemically desirable projects; second, prioritizing small projects when the operationalization of the vision begins to produce early victories that

demonstrate the capabilities to meet the planned objectives; and third, developing dissemination processes that facilitate the replicability of the solutions that are generated.

- **Rescuing citizenship:** Within the data space associated with a digital ecosystem, this suggests establishing solutions to enable the democratization of access to drive the incorporation of citizens into knowledge and innovation management processes capable of contributing to the socioeconomic development of the regions.
- **NRENs as articulators:** Acknowledging that the strength of NRENs lies in their capacity for articulation, this raises the need to establish collaborative partnerships among networks, institutions, governments, and companies to foster innovation and leverage knowledge and experiences.

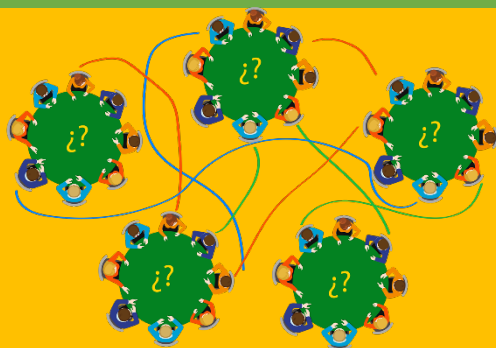
Collectively, the inputs of the working groups align perfectly with the five key aspects required for the formulation of a focused organizational strategic vision. These aspects are: (i) the specific nature of the actions that justify the adoption of the strategic vision; (ii) the scope of the solutions that must be developed to face the challenges of the digital age; (iii) the prioritization of the technology- and knowledge-intensive services to be provided by NRENs; (iv) the capabilities that must be acquired to transform the strategic vision into reality; and (v) the implications of the vision in terms of its contribution to the socioeconomic development of the regions.

6.3 Roadmap towards the Positioning Expressed by the Strategic Vision

Transforming a strategic vision into reality is a dynamic and iterative process that requires dedication, adaptability, and effective planning. A well-executed roadmap guarantees that the vision remains relevant and inspires actions that lead to achieving the objectives. The roadmap is the path towards the plan for transforming dreams into tangible results with a significant and relevant impact in the future.

During the workshop, the idea-generating dialogue process for the identification of the elements that make up the roadmap for the realization of the strategic vision was conducted by five working groups to which participants were assigned based on the nature of their leadership, their resources, and their capacities, and competencies. Box No. 3 describes both the question that guided the reflection on the strategic vision and the activities conducted during the working sessions.

Box No. 3: Strategic axes addressed during the open strategic dialogues workshop held at the EU-LAC Summit.



Question:

As part of your organization, what roles, functions, and responsibilities would you assume for the purpose of contributing to the action plan that allows the operationalization of the strategic vision conceived to support the processes of applying digital transformation technologies to the socioeconomic development of LAC?

Working Group No. 1: Public Policies.	Reflect on the regulatory framework, instruments, and soft factors that promote the conversion towards the digital society.
Working Group No. 2: Access to funding sources.	Reflect on new and innovative strategies to access funding sources.
Working Group No. 3: Human Talent.	Reflect on the educational innovations related to the training of the human talent that the digital age demands.
Working Group No. 4: Public and Private Innovation.	Reflect on potential initiatives that promote the realization of innovations in various modalities.
Working Group No. 5: Digital Ecosystem.	Reflect on the digital infrastructure that enables data-driven, human-centred innovation and knowledge management processes.

Below is a synthesis of the results generated by each working group, prepared based on the presentations by: (i) the presenters of each working group who participated in the plenary session, (ii) the conversations and notes of the working group facilitators, and (iii) the notes contributed by some of the working group participants.

6.3.1 Working Group No. 1: Public Policies

The box below includes a summary of the contributions of Working Group No. 1.

Working Group No. 1: Public Policies	
Facilitator: Mark Urban	
Presenter: Edwin E. Zapeta Gómez	
Participants	Organization
Melvin Asin (European Union Delegation in the Dominican Republic)	Head of Cooperation for the EU Delegation
Edwin E. Zapeta Gómez (Guatemala)	National Secretariat of Science and Technology
Synthesis of the contributions • Strategic axis: Integration action. Conceived with the intention of engaging members of the quadruple helix in the design and implementation of the public policies required to build a country strategy focused on a gradual digital evolution. • Strategic axis: Regulatory or governance action. This axis is focused on shaping the regulatory framework for the interactions that must take place to enhance socioeconomic development by strengthening and revitalizing the national innovation systems of the countries in the region, and the conception of the governance that will enable the desired transformations. • Strategic axis: Technical-operational action. This axis is geared towards the conception and implementation of the funding instruments required for the construction of the necessary digital infrastructure, and the scientific and technological calls designed to contribute to the creation of the programs and projects to help reduce the digital divide. • Strategic axis: Training action. Proposed as an initiative needed to develop human talent —both public and private— capable of leading and promoting complex digital transformation processes.	

6.3.2 Working Group No. 2: Access to Funding Sources.

The next box includes a summary of the contributions related to access to funding sources.

Working Group No. 2: Access to Funding Sources	
Facilitator: Arturo Martín González	
Presenter: Milagros Mainieri	
Participants	Organization
Milagros Mainieri (Panama)	R+D Director at SENACYT
Alain Lamadrid (Cuba)	NREN President
Thomas Hainzel (Austria)	NOKIA
Antonio Nunes (Brazil)	RNP

Synthesis of the contributions:

- Need to identify national and international funding sources aimed at solving specific problems that follow a clear strategy, in which representatives of the triple helix are involved and through which public, private, and multilateral organization funds can be accessed.
- Need to structure sectoral programs focused on finding solutions to challenges identified in a participatory manner.
- NRENs must collaborate with regional prospective exercises in order to apply their strengths towards the areas that have the greatest impact on the socioeconomic development of the regions.
- Need to acquire and develop the capabilities to formulate, negotiate, and execute viable international projects, capable of accessing global competitive funding windows.
- Need to conduct a survey of regional resource capabilities (both technical and financial) that would allow leveraging joint projects with the strengths contributed by each of the interested agents.

6.3.3 Working Group No. 3: Human Talent

The group working on Human Talent focused on the creation of a combinatorial matrix to address the development of capabilities and human talent within the science, technology, and innovation ecosystem. This matrix included key stakeholders such as the State, the academic sector, and networks, and was structured around four axes of action: Digital Capabilities, Multilingual Capabilities, Recognition of Competencies through Microcredentials, and Relevant STI Culture.

Working Group No. 3: Human Talent	
Facilitator: Eliana Marcela Alonso	
Presenter: Sandro Jiménez	
Participants:	Organization
Mayra Corado (Guatemala)	Universidad San Carlos de Guatemala
Susan Gudié Herrera (Guatemala)	Universidad San Carlos de Guatemala
Elano Cambel (Panama)	Universidad Tecnológica de Panamá
Sandro Jiménez (Colombia)	RENATA
Doris Jaime (El Salvador)	Secretaría de Innovación
Ricardo Reyes (El Salvador)	Secretaría de Innovación
Synthesis of the contributions	
Digital Capabilities:	

- **State:** Mapping of digital capability gaps following the DigComp framework, including an analysis of technological complexity and organizational capacity.
- **Academia:** Creation of a regional framework for bridging the gaps, exchanging good practices, and training among peers.
- **Networks:** Development of digital teaching capabilities and creation of a centre of shared digital academic resources.

Multilingual Capabilities:

- **State:** Expansion of multiple language teaching programs.
- **Academia:** Construction of a school for the development of applied language skills.
- **Networks:** Complementing with mobility and linguistic immersion programs.

Recognition of Competencies through Microcredentials:

- **State:** Creation of national Microcredential homologation systems.
- **Academia:** Collaborative offer of short cycle programs recognized as transferable Microcredentials.
- **Networks:** Implementation of a regional tokenization and Microcredential management system.

Relevant Science, Technology, and Innovation (STI) Culture:

- **State:** Promotion of public policies for Citizen Science.
- **Academia:** Strengthening research in STI with an emphasis on educational innovation.
- **Networks:** Stimulating communities geared towards social innovation.

The importance of intersectoral collaboration for the development of human talent in STI+I was emphasized, recognizing the need to adapt strategies to the specific contexts of each country in the region. The proposed matrix serves as a framework to guide future actions in these key axes.

It was agreed to advance the implementation of the actions proposed in the matrix, with special emphasis on the creation of synergies among the various actors of the ecosystem and the strengthening of regional cooperation.

6.3.4 Working Group No. 4: Public and Private Innovation

Working Group No. 4: Public and private innovation	
Facilitator: Cecilia Ortiz	
Presenter: Eduardo Grizendi	
Participants	Organization

Eduardo Grizendi (Brazil) Carlos Kan (Panama) Francisco García (Panama) Carlos Gamboa (Costa Rica)	RNP Brasil Autoridad de Innovación Gubernamental SENACYT RedCONARE
Summary of the contributions: • The group raised the need to promote the role of universities and NRENs in facilitating articulation between the interested agents of a national innovation ecosystem as a requirement for fostering the ability to innovate, competitiveness, productivity, and the socioeconomic development of the regions. • They believe that ideathons and hackathons are suitable methods for generating ideas that can serve as the foundation for portfolios of projects leading to the creation of incubated companies and various forms of innovation in the short, medium, and long term. • The group noted that it would be convenient to promote initiatives such as networks for open innovation, structured based on the project portfolios resulting from ideathons and hackathons. • They suggested the possibility of conceiving and facilitating events to promote relationships between the supply and demand of knowledge and technologies, aiming to develop solutions to the challenges of society in the digital age. • Another suggestion was detecting the needs of national governments, municipalities, and provinces in order to have a market that can be served by universities, NRENs, and research centres. • The group believes it is advisable to be aware of and document good practices related to regulatory frameworks and innovation-promoting instruments that have been developed by different countries. The intention is to contextualize these practices and apply them to the extent that they are culturally feasible and systemically desirable.	

6.3.5 Working Group No. 5: Digital Ecosystem

Working Group No. 5: Digital Ecosystem	
Facilitator: Laura Castellana	
Presenter: Moisés Torres	
Participants	Organization
Luis Furlán (Guatemala)	RAGIE
Moisés Torres (Mexico)	CUDI

María Irene Delgado (Chile)	REUNA
Xavier Trujillo (Panama)	UTP
Ambar Álvarez (Panama)	IGNTG
Luz María Martínez (Paraguay)	Universidad Nacional de Asunción
María Isabel Campuzano (Paraguay)	Universidad Nacional de Asunción

Synthesis of the contributions:

- NRENs should promote the integration of universities, research centres, and the private sector in a process of co-production of value and co-creation of innovations in scientific, technological, and economic areas of shared interest.
- There is a need to share digital resources among the various entities in the region to build digital infrastructures that are currently non-existent. For example, the creation of data repositories that can support initiatives such as innovation management and decision-making on strategic issues for the countries in the region.
- Capabilities for identifying common challenges with global impact should be developed. This is an area where NRENs can play a role as strategic allies for universities and research centres on issues such as environmental pollution and animal conservation.
- Human talent must be trained in areas that are critical for the functioning of the digital ecosystem. Specifically, there is a need to train human resources in advanced or supercomputing skills to operate high-performance machines.
- While connectivity understood as hard infrastructure such as subsea cables and overland connections is essential, its true significance lies in the promotion of spaces for the identification of common issues in LAC and leveraging the digital ecosystem to find solutions to these challenges. Work is already underway in this sense, as explained in the description of the BELLA II project, and in greater detail, in the White Paper on meaningful connectivity.

7. Implications of the Dialogue for RedCLARA as a Meta-Organization Created by National Research and Education Networks

The TICAL 2023 event provided a platform for profound reflection on the role of universities and NRENs in the digital age. Under the theme “**Bridges to transformation**,” it opened a dialogue space to explore the components of a strategic vision to guide the processes through which universities and NRENs can contribute to the search for solutions to the challenges of the digital economy in two areas. First, the **development of the human talent** required to undertake the necessary solutions; second, **excellence in research** to produce the science, technology, and innovation required for socioeconomic growth and to overcome the digital divide.

Projects representative of NREN resources, capabilities, and competencies were presented over the course of five days, innovative projects with the potential to be materialized based on the results of the ideathons and hackathons that were conducted. The event also included the Strategic Dialogues Workshop related to the updating of the strategic vision for NRENs.

Representatives of the triple helix (government, private sector, and academia), as well as the fourth helix represented by citizens, contributed their insights on the various elements of the strategic vision. Highlights of the contributions to the search for solutions to the challenges of the digital age included elements such as:

- Contribution to the development of reference models for the design of public policies that can contribute to fortify and revitalize national innovation ecosystems, and to explore and experiment with the instruments and mechanisms necessary to produce the desired transformations.
- Development of human talent as an indispensable condition without which it would be impossible to develop the resources, capabilities, and competencies required to promote socioeconomic development in the digital age.
- Conception and construction of a digital ecosystem as an integrating element around which relationships, communications, and processes are structured, supported by digital innovations, where co-produced value and co-created innovations enable the desired transformations.
- The need to initiate and consolidate a living situational diagnosis, where the resources, capabilities, and competencies of LAC are not only monitored, but also articulated and grown through the creation of an innovative data space.
- Localization, applied to both south/south and north/south relationships, leveraging the EU-LAC Digital Alliance to implement sustainable and long-impact digital transformation programs and projects.

These elements will contribute to the generation or updating of the strategic vision by each of the universities and NRENs that participated in the strategic dialogues workshop. The strategic dialogues workshop has contributed to the generation of such ideas. Adoption of these ideas by these organizations

will be necessary to contribute to the development of **Bridges to transformation**, the theme of the TICAL 2023 Conference.

From RedCLARA's perspective, the various discussions that took place during the strategic dialogues workshop have contributed to the consolidation of the strategic vision for RedCLARA, not only as a meta-organization but also in its role of executor of the BELLA II project.

By definition, a meta-organization is a complex social system, operationally closed and interactionally open, capable of coordinating various organizations, institutions, communities, and entities in order to conceive a common purpose or seek solutions to shared challenges. To do so, it operates based on a structure of decentralized networks, managing processes in a distributed and intelligent manner, and based on collaborative governance that is horizontal in nature.

Based on the input shared during the workshop, the mission and vision derived from RedCLARA's 2022/2025 Strategic Plan proposes the following vision as one of the key aspects not only for our meta-organization, but also for the visibility of our direction.

Strategies for RedCLARA as a Meta-Organization

To position itself as an intelligent network operating in Latin America and the Caribbean, based on a digital ecosystem, developing programs and projects in which NRENs, universities, and other research and development organizations systematically and recurrently collaborate and cooperate in the co-production of value and the co-creation of innovations that contribute to the search for solutions to the major challenges faced by the region.

The BELLA II project is part of one of the four pillars that make up the EU-LAC Digital Alliance, specifically, the connectivity pillar. Every vision includes an energy or driving force that motivates the organization to conceive the objectives and actions that will guarantee its relevance and sustainability in the medium and long term. In the case of RedCLARA and in relation to the BELLA II project, this energy is **meaningful connectivity**. In this sense, we propose the following strategic vision for the BELLA II project:

Strategic Vision for the BELLA II Project

To develop a digital ecosystem that is an international benchmark, and which articulates **hard connectivity** and **soft connectivity** to formulate, negotiate, and execute genuine and relevant programs and projects that meet the condition of data-centred, human-based transformational processes supported by digital transformation technologies.

Hard connectivity refers to the submarine cables, terrestrial connections, and 5G solutions that make up the spatial structure on which the assets that enable the expected socioeconomic transformations move. Within the digital ecosystem, **soft connectivity** refers to the social dimension, the true driver of change.

It includes social technologies supporting strategic dialogues, social innovation, and the management of distributed processes of co-production of value and co-creation of innovation.