



The Latin American and Caribbean Network of National Contact Points (LAC NCP NETWORK)

With the support of the Service Facility

(The Service Facility in support of International Cooperation in Research and Innovation assists the European Commission (EC) in enforcing international policy dialogues world wide and identifying opportunities for increased cooperation, including the support of National Contact Points in European Union Partner countries)

NEWSLETTER

N°16

2021

DECEMBER



Introduction

Dear Colleagues from Latin America and Caribbean

Our objective as a Network has been to strengthen the capacities of the National Contact Points of Latin America and the Caribbean (NCP), so that everyone is in the best conditions to disseminate, inform and assist researchers, public and private organizations, civil society associations, promoting their participation in the Horizon Europe Program.

With this newsletter we try to bring information to researchers, universities, companies, civil society organizations and any other type of institution that tends to promote science, technology and innovation in the Latin American region.

It has been a pleasure for the team to work together throughout this year, with all the NCPs, institutions and researchers from Latin America and the Caribbean; in 2022 we will continue to reinforce the task that we have been developing in the region.

Our team is available to energize the network, increase the region's participation in the Horizon Europe Program and face the new challenges that await us in the approaching new year.

LAC NCP Network Team:

Claudia Romano Núñez - LAC NCP Network Coordinator [LinkedIn](#)

Maite Irazábal, Alejandro Quinteros, Graciela Morelli.

We invite you to follow us on our social networks:



Martin Penny's message for Latin America and the Caribbean



Head of Unit - International Cooperation Policy at European Commission

As we approach the end of the year, it is a tradition to look back at the work done and take a moment to appreciate our achievements and successes. However, at this particular moment, I would instead like to look ahead. Not because of the almost two years of pandemic behind us, which has faced us with a long period of hardship; neither because we don't have much to celebrate – on the contrary!

A lot of work has been done this year in starting the new Horizon Europe programme, immediately followed by the launch of its first Work Programme, which aims to invest almost €15 billion in 2021 and 2022; our EU-LAC collaboration has been reinforced thanks to the new [Strategic Roadmap](#), now also formally endorsed in the EU at the highest political level; and as you are reading this, political leaders of the EU and LAC have just held a special dialogue in the form of a '[Leaders meeting](#)', hopefully paving the way to a full EU-LAC summit in the near future – the first after many years!

It is perhaps natural for new colleagues to look to the future, with expectations and plans; even more so in the area of research and innovation! In July this year I took up the post of the Head of Unit in DG Research & Innovation of the European Commission, managing our collaboration between the EU and LAC on research and innovation topics. It is with this fresh view that I now look at the achievements of the previous months and look towards the next year(s).

[Horizon Europe](#) is for us the biggest news of the year. Many of you are already familiar with the programme, which replaces the previous Horizon 2020 programme – with more ambition, bigger budget and several important novelties. In many ways, Horizon Europe is similar to its predecessor: the three-pillar structure, focusing on excellent science, global challenges and on innovation; or its emphasis on openness and transparency. However, the programme also introduces the new [Missions](#): a new and innovative way to tackle big challenges in health, climate and the environment, and to achieve ambitious and inspiring goals in these areas; we have also launched the [European Innovation Council](#), which focuses mainly on breakthrough, deeptech and disruptive innovation with scale-up potential at the global level.

Lasting for seven years, between 2021 and 2027 Horizon Europe will invest more than €95 billion to fund the best science projects around the world.

One of the milestones of this year that will have a long-term effect on how the EU approaches its global partners is the new '[global approach to cooperation in research and innovation](#)'. This strategy reinforces the EU's position based on openness, multilateralism and common values;



with this new strategy, the EU aims to take a leading role in supporting international research and innovation partnerships and in delivering innovative solutions to green, digital, health and innovation challenges.

This new 'Global Approach' is in a way the logical next step in the evolution of the EU's cooperation priorities in research and innovation. 'Open to the world' has been for many years one of the fundamental design principles of the EU's framework programme – and now we are taking another step forward.

Of course, this by itself will not achieve much – we need our partners' engagement to make this work! The EU and LAC are perhaps the closest two regions in the world – we share common history, languages, culture, values and aspirations. This closeness is a tremendous asset that we should be proud of and use it to our common benefit!

The European Commission has for many years been working very closely with colleagues and friends throughout the LAC region. Together we have developed links and networks that help our scientists, our researchers, our innovators to join together in inspiring projects. Launch of a new framework programme is always disruptive and the transition takes time and effort; however, I believe that we are well on track: many LAC countries have already nominated new National Contact Points for Horizon Europe; we have held a number of events and dialogues to present the new programme and to discuss with our LAC partners the best way forward.

I would like to take this opportunity to again stress the importance of the Horizon Europe National Contact Points: they are a key element in connecting the national research communities with the programme and – ultimately – in improving participation. They are the ones informing the researchers about funding opportunities and guiding them through the process.

And there will indeed be many opportunities to take advantage of! In these two years alone – 2021 and 2022 – [there will be around 600 calls for proposals](#) under Horizon Europe with topics of direct relevance to our joint EU and LAC priorities, as described in the Strategic Roadmap. Whether it is health research, green transition, digital transformation, innovation – I strongly encourage the LAC scientists to take advantage of the openness of Horizon Europe and apply! We want to connect the best and brightest minds in the EU and LAC, because their joint work will benefit us all.

The European Commission is already starting its internal reflections on the next work programme, which will cover the years 2023 and 2024. Our collaboration with LAC scientists and general openness to their participation will remain a priority.

With these few paragraphs, I wished to show what is on our horizon: the opportunities and the intensifying collaboration between the EU and LAC. I wished to take this moment to stress that even in these difficult times, there is much that we can work on together and that we have much to look forward to. As we are nearing the end of the year, I will be looking forward to our discussions and joint work in 2022 and beyond!

Message from Stephanie Splett-Rudolph to the National Contact points of Latin America and the Caribbean



Head of department “North, Middle and South America” at the DLR Project Management Agency

Before we conclude another year significantly influenced by the COVID 19 pandemic, I would like to highlight a very motivating success story - the LAC NCP network and its coordination by our very competent and dear colleagues from Uruguay: Mrs. Claudia Romano from the Uruguayan Agency for International Cooperation, AUCI, and her team of independent consultants.

First, a short look back: The LAC NCP network is the first transnational NCP network that was established outside Europe. In the years 2015-2017 it reached an outstanding performance organizing over 20 training activities per year, a high information level and competency providing guidance in H2020 throughout the Latin American and Caribbean region.

The outcomes achieved in the LAC region have largely been possible through the work accomplished in the frame of the EU-funded project ALCUE NET (2013-2017) and the further commitment of the Ministry of Education (MEC) in Uruguay to continue with the coordination of the LAC NCP network (2018-2019).

From July 2019 until October 2021 the LAC NCP network was supported by the EC, in the framework of the specific contract “Support to the EU-CELAC Joint Initiative on Research and Innovation” of the Service Facility in Support of the Strategic Development of International Cooperation in Research and Innovation (Service Facility), coordinated by DLR.

Activities

The activities of the consultant team from Uruguay aimed at maintaining and further developing the LAC NCP network by

- Raising awareness, disseminating information and promoting participation of the LAC countries in the Horizon 2020 and the upcoming Horizon Europe programme
- Offering support to the LAC NCP network, to their national researchers, companies and institutions

More concretely the team conducted the following activities:

Training

- Organize the participation of LAC NCPs in three INCO flagship and/or brokerage events by EU NCP network projects
- Support the LAC NCP Network by offering trainings on NCP tasks, H2020, the Green Deal and Horizon Europe

Communication

- Support the dissemination of all communication measures (Webspace, newsletters, communication material) in the LAC NCP network
- Establish an interactive communication channel in LAC to collect feedback and information aiming at engaging them in discussions about future cooperation opportunities, including a bi-monthly newsletter in English and Spanish

Maintaining and further developing the LAC NCP network

- Maintaining an active list of LAC NCPs and establishing an interactive communication channel with them.
- Support the identification of additional national authorities / other stakeholders in LAC
- Support LAC governments with the nomination of NCPs

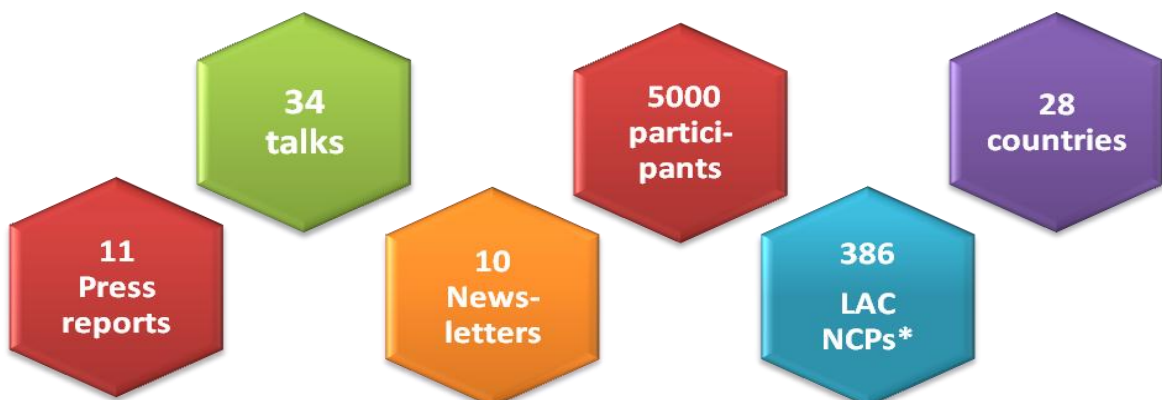
Policy Advice

- Offer phone and email advisory and support to the LAC NCP Network, EC and Service Facility
- Support gathering of input and recommendations from LAC countries feeding into the bi-regional policy process on science, technology and innovation

Networking

- Coordinate with the managers of the EU-LAC Interest Group Platform (located at FECYT in Madrid) to include relevant LAC NCP Network information to the website).

Facts and figures about the activities from July 2019 until October 2021



*The number of LAC NCPs increased from 363 in 2019 to 386 by the end of Horizon 2020



Achievements

In summary I would like to conclude that the Uruguayan consultant team fostered the LAC NCP Network in a very dynamic and proactive way, ensured its sustainability and thus promoted the participation of R&I actors in LAC in the H2020 programme. In addition, they continuously coordinated with key stakeholders and relevant institutions all over the LAC region and coordinated their work with relevant networks in LAC, such as CILAC, Red CLARA, CYTED, Net4Mobility+ or EURAXESS. Through their activities and with their vast experience and professionalism the team opened many doors and created synergies at all levels, thus contributing significantly to ensure the full impact of the EU and LAC Common Research Area.

On behalf of the whole DLR-team I would like to congratulate our esteemed colleagues on their very special achievements. We admire them for their continuously high engagement and look forward to collaborate closely with them and the whole LAC NCP network in the future. Our best wishes for a happy and healthy holiday season and an excellent year 2022.

Claudia Romano's message to colleagues from Latin America and the Caribbean



LAC NCP Network Coordinator

It is for the LAC NCP NETWORK, a real pleasure to have shared this year with you. A difficult year that has implied many challenges both personally and institutionally; That is why, once again, we want to recognize the work carried out day by day by all the National Contact Points of Latin America and the Caribbean in pursuit of strengthening the institutional capacities of the Ministries, Councils or Organizations responsible for public science policies,

Technology and Innovation of the region.

We also want to make explicit the recognition of the researchers who are working, creating and researching to improve the living conditions of the population of the Latin American and Caribbean region.

We also want to thank and acknowledge the trust that the European Commission, in particular the Directorate General for Research and Innovation - "DG Research and Innovation" led by Mrs. Cristina Russo and the team that makes it up Mr. Daniel Kiapes and Mr. Martin Penny, has always been have with us.

Special mention, we want to make the DLR team that every year renews our bond and trusts in the capabilities of our entire team.

Horizon Europe presents us with global challenges for which it is essential to work in coordination with the institutions of the region and renew our efforts so that in the coming year we can use all the opportunities that it presents us.

We send all of you our best wishes this holiday season together with your loved ones, hoping to meet in 2022 with all the strength and energy to continue developing actions that facilitate participation in the Horizon Europe program.

[Claudia Romano](#)

Horizon Europe - Opportunities for Researchers

(2021 - 2027) - €95.517.000



The Horizon Europe Program, is the fundamental instrument for carrying out the R & D & I policies of the European Union. The general objective is to achieve a scientific, technological, economic and social impact of the EU's investments in R&I, thus strengthening its scientific and technological bases and promoting the competitiveness of all Member States.

Horizon Europe has a structure based on three pillars:

Pillar 1, Excellent Science, which through the European Research Council (ERC) finances research projects on the frontier of knowledge designed and directed by researchers. It also supports the professional development and training of research staff, through the international and intersectoral mobility activities of the Marie Skłodowska-Curie (MSCA) program and will invest in improving and optimizing transnational access to world-class research infrastructures.

Pillar 2, Global Challenges and European Industrial Competitiveness, finances research within social challenges, reinforces industrial technological capabilities and establishes missions with ambitious objectives oriented towards major global challenges (health, climate change, renewable energy, mobility, security, digital, materials, etc.) In this pillar we also have the Joint Research Center (JRC) that will assist the EU and national governments in their decision-making by providing them with scientific evidence and technical support.

Pillar 3, Innovative Europe, aims to make Europe a pioneer power in market-making innovation and the growth of innovative SMEs through the European Innovation Council (EIC). Additionally, the European Institute of Innovation and Technology (EIT) will continue to promote the integration of research, higher education and entrepreneurship through Knowledge and Innovation Communities (KIC).

These three pillars will be based on a horizontal program, expanding participation and strengthening the European Research Area (ERA).

For the modality of collaborative projects, there are three types of actions:

- **Research and Innovation Actions (RIA)** provide funding for research projects that address clearly defined challenges, which can lead to the development of new knowledge or new technologies.
- **Innovation Actions (IA)** funding is more focused on activities closer to the market, such as prototyping, testing, demonstration, pilot testing, scale; either to produce new products or services or to improve them.
- **Coordination and Support Actions (CSA)** offer accompanying measures to support Research and Innovation (there is no research involved). Activities may include standardization, outreach, awareness and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies.

Pillar II of Horizon Europe is subdivided into 6 clusters to address the global challenges:

Cluster 1 Health



I) HORIZON-MISS-2021-NEB-01-01 Support the deployment of lighthouse demonstrators for the European New Bauhaus initiative in the context of the Horizon Europe missions.

Opening: September 28, 2021
time

Closing: January 25, 2021 5:00 p.m. Brussels
time

Type of share: CSA

Budget: € 25,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2021-neb-01-01>



II) HORIZON-HLTH-2022-DISEASE-06-03-two-stage Vaccines 2.0: developing the next generation of vaccines

Opening: October 06, 202

Closing: I) February 01, 2022 17:00 Brussels time.

II) September 6, 2022 17:00 Brussels time.

Type of share: RIA

Budget: € 40,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-disease-06-03-two-stage>

III) HORIZON-HLTH-2022-DISEASE-06-04-two-stage Development of new effective therapies for rare diseases

Opening: 06 October 2021

Closing: I) 01 February 2022 17:00 Brussels time.

II) September 6, 2022 17:00 Brussels time.

Type of share: RIA

Budget: € 60,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-disease-06-04-two-stage>

IV) HORIZON-HLTH-2022-DISEASE-06-02-two-stage Preclinical development of the next generation of immunotherapies for diseases or disorders with unmet medical needs.

Opening: 06 October 202

Closing: I) 01 February 2022 17:00 Brussels time.

II) September 6, 2022 17:00 Brussels time.

Type of share: RIA

Budget: € 60,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-disease-06-02-two-stage>

V) HORIZON-HLTH-2022-CARE-08-04 Better financing models for health systems

Opening: October 06, 202

Closing: I) April 21, 2022 17:00 Brussels time.

Type of share: RIA

Budget: € 30,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-care-08-04>



VI) HORIZON-HLTH-2022-TOOL-12-01-two-stage Computational models for new patient stratification strategies

Opening: 06 October 2022

Closing: I) 01 February 2022 17:00 Brussels time.

II) September 6, 2022 17:00 Brussels time.

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-tool-12-01-two-stage>

VII) HORIZON-HLTH-2022-TOOL-11-02 New methods for the effective use of real-world data and / or synthetic data in regulatory decision-making and / or health technology assessment

Opening: October 06, 2021

Closing: April 21, 2022 17:00 Brussels time.

Type of share: RIA

Budget: € 35,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-tool-11-02>

VIII) HORIZON-HLTH-2022-TOOL-11-01 Optimizing the efficacy in patients of existing prescription drugs for major diseases (except cancer) with the use of biomarkers.

Opening: October 06, 2021

Closing: April 21, 2022 17:00 Brussels time.

Type of share: RIA

Budget: € 60,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-tool-11-01>

IX) HORIZON-HLTH-2022-ENVHLTH-04-01 Methods to assess the health-related costs of environmental stressors

Opening: October 06, 2021

Closing: April 21, 2022 17:00 Brussels time.

Type of action: RIA

Budget: € 20,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-envhlth-04-01>



X) HORIZON-HLTH-2022-STAYHLTH-02-01 Personalized plan for chronic inflammation in the transition from health to disease

Opening: October 06, 2021

Closing: April 21, 2022 17:00 Brussels time.

Type of action: RIA

Budget: € 50,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-stayhlth-02-01>

XI) HORIZON-HLTH-2022-IND-13-01 Improvement of cybersecurity of connected medical devices

Opening: October 06, 2021

Closing: April 21, 2022 17:00 Brussels time.

Type of action: RIA

Budget: € 20,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-ind-13-01>

XII) HORIZON-HLTH-2022-IND-13-02 Expansion of multi-party computing, data anonymization techniques and the generation of synthetic data

Opening: October 06, 2021

Closing: April 21, 2022 17:00 Brussels time.

Type of action: RIA

Budget: € 20,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-ind-13-02>

XIII) HORIZON-HLTH-2022-IND-13-03 New pricing and payment models for profitable and affordable healthcare innovations

Opening: October 06, 2021

Closing: April 21, 2022 17:00 Brussels time.

Type of share: RIA

Budget: € 15,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-hlth-2022-ind-13-03>

Cluster 2 Culture, creativity and inclusive society



I) HORIZON-MISS-2021-NEB-01-01- Support the deployment of lighthouse demonstrators for the New European Bauhaus initiative in the context of the Horizon Europe missions.

Opening: September 28, 2021

Closing: January 25, 2022 17:00 Brussels time

Type of share: CSA

Budget: € 25,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2021-neb-01-01>

Cluster 3 Civil Security for Society



For this Cluster, currently there are no open calls for international cooperation.

Cluster 4 Digital, Industry and Space



I) HORIZON-CL4-2022-RESILIENCE-01-16 Construction and renovation by exploiting advanced materials for efficient energy and resource management

Opening: October 12, 2021

Closing: March 30, 2022 17:00 Brussels time

Type of action: IA

Budget: € 21,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-resilience-01-16>

II) HORIZON-CL4-2022-RESILIENCE-01-23 Safe and Sustainable Organic and Hybrid Coatings by Design

Opening: October 11, 2021

Closing: March 30, 2022 17:00 Brussels time

Type of action: RIA

Budget: € 20,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-resilience-01-23>

III) HORIZON-CL4-2022-RESILIENCE-01-12 Multi-material functional components and structures

Opening: October 12, 2021

Closing: March 30, 2022 5:00 p.m. Brussels time

Type of action: RIA

Budget: € 20,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-resilience-01-12>

IV) HORIZON-CL4-2022-RESILIENCE-01-14 Membranes for gas separations - membrane distillation

Opening: October 12, 2021

Closing: March 30, 2022 5:00 p.m. Brussels time

Type of action: IA

Budget: € 21,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-resilience-01-14>

V) HORIZON-CL4-2022-RESILIENCE-01-24 Novel materials for energy storage with supercapacitors

Opening: October 12, 2021

Closing: March 30, 2022 5:00 p.m. Brussels time

Type of share: RIA

Budget: € 21,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-resilience-01-24>

VI) HORIZON-CL4-2022-TWIN-TRANSITION-01-04 Intelligent handling of workpieces in a complete production line (Made in Europe association)

Opening: October 12, 2021

Closing: March 30, 2022 5:00 p.m. Brussels time

Type of share: RIA

Budget: € 21,500,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-twin-transition-01-04>

VII) HORIZON-CL4-2022-RESILIENCE-01-13 Smart and multifunctional biomaterials for healthcare innovations

Opening: October 12, 2021

Closing: March 30, 2022 5:00 p.m. Brussels time

Type of action: RIA

Budget: € 20,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl4-2022-resilience-01-13>

Cluster 5 Climate, Energy and Mobility



I) HORIZON-CL5-2021-D3-02-03 Market acceptance measures for renewable energy systems

Opening: June 24, 2021

Closing: January 5, 2021 17:00:00 Brussels time

Type of share: CSA

Budget: € 10,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2021-d3-02-03>

II) HORIZON-CL5-2021-D3-03-01 Nexus between food and water between the EU and the EU

Opening: September 02, 2021

Closing: February 23, 2021 17:00:00 Brussels time

Type of action: RIA

Budget: € 5,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2021-d3-03-01>

III) HORIZON-CL5-2021-D3-03-03 Hybrid catalytic conversion of renewable energy into carbon neutral fuels

Opening: September 02, 2021

Closing: February 23, 2022 17:00 Brussels time

Type of share: RIA

Budget: € 10,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2021-d3-03-03>



IV) HORIZON-CL5-2022-D1-02-04 Support the formulation of adaptation strategies by improving climate predictions in Europe and beyond

Opening: October 12, 2021

Closing: February 10, 2021 17:00 Brussels time

Type of action: RIA

Budget: € 20,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2022-d1-02-04>

V) HORIZON-CL5-2022-D1-02-03 Improvement of integrated assessment models in support of climate policies

Opening: October 12, 2021

Closing: February 10, 2022 17:00 Brussels time

Type of share: RIA

Budget: € 15,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2022-d1-02-03>

VI) HORIZON-CL5-2022-D1-02-01- Verification and reconciliation of estimates of climatic forcings

Opening: October 12, 2021

Closing: February 10, 2022 17:00 Brussels time

Type of share: RIA

Budget: € 15,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2022-d1-02-01>

VII) HORIZON-CL5-2022-D1-02-02- Development of high resolution terrestrial systems models for projections of global and regional climate change

Opening: October 12, 2021

Closing: February 10, 2022 17:00 Brussels time

Type of action: RIA

Budget: € 20,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-cl5-2022-d1-02-02>

Cluster 6 Food, Bioeconomy, Natural Resources, Agriculture and Environment



I) HORIZON-MISS-2021-NEB-01-01 Support the deployment of lighthouse demonstrators for the New European Bauhaus initiative in the context of the Horizon Europe missions.

Opening: September 28, 2021

Closing: January 25, 2021 17:00: Brussels time

Type of share: CSA

Budget: € 25,000,000

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2021-neb-01-01>

EU-LAC Collaboration in Research Infrastructures.



Inmaculada Figueroa

Coordinator of EU-LAC ResInfra - Deputy General Director of Internationalization of Science and Innovation Ministry of Science and Innovation

It is a pleasure for me to address you as the year 2021 draws to a close. I want to start these lines by wishing you all a Happy Holidays and a Happy New Year.

I take this review time to summarize what the year 2021 has been for the EU-LAC collaboration in the field of research infrastructures.

Although we thought that after the hard year of the pandemic in 2020, the conditions in 2021 would improve and we could return to normal, it has not been the case, and we continue to be mired in the effects of COVID and suffering the difficulties that the pandemic imposes. Projects such as EU-LAC ResInfra, "Towards a new EU-LAC association in Research Infrastructures", which are forced to rethink the planning of their activities and milestones. Notwithstanding the foregoing, we have been able to continue with bi-regional collaboration by exploiting the possibilities of telematic means to organize meetings, workshops, and events of all kinds in order to continue with the consolidation of bi-regional collaboration around research infrastructures.

A significant number of meetings have been held throughout the year, among the most relevant, 2 meetings of the Infrastructure Working Group of the CELAC-EU Joint Initiative on Research and Innovation, one in March and the other in November, in which we have been able to review the progress of the collaboration and laid the foundations for its sustainability with the definition of future actions. In particular, at the March meeting, the plans of the four EU-LAC ResInfra pilots were reviewed, as well as the role of the NCPs as fundamental actors for strengthening bi-regional collaboration.

In early June, ICRI2021, the International Conference on Research Infrastructures, brought together policy experts, facility managers, researchers and other stakeholders to discuss the challenges and new trends in research infrastructures around the world.

The fruitful collaboration between the EU-LAC ResInfra and EU-LAC RI-VIS projects, led by the Instruct-ERIC pilot, was reflected in the Latin America-Europe Symposium on research infrastructures, focused on giving visibility to European research infrastructures as engines for collaboration with Latin America, which took place between June 15 and 17.

Between August 30 and September 2, the TICAL2021 conference and the 5th Latin American e-science meeting took place, where BELLA (Building the Europe Link with Latin America) was inaugurated, the direct cable that connects Europe with Latin America.

From October 4 to 8 we participated in the Latin American Supercomputing Conference, CARLA. Forum that fosters the growth and strengthening of the High Performance Computing (HPC) community in Latin America, where the EU-LAC ResInfra pilot, the Ibero-American High Performance Computing Network (RICAP), co-organized some of the sessions.

As a result of the collaboration between EU-LAC ResInfra and RedClara, a workshop was held in which we had the opportunity to discuss the use of the scientific network and the services it offers for research infrastructures and users in general.

We also participated on October 1 in the Science Summit of the 76th UN General Assembly, where the contribution of research infrastructure to the UN Sustainable Development Goals (SDGs) was discussed. LifeWatch, one of the EU-LAC ResInfra pilots, organized a session dedicated to SDG 14, Life under water, and SDG 15, Life on land.

Finally, on October 19, we participated in the workshop "Exchange on progress made and opportunities for bi-regional cooperation in research and innovation - one year after the agreement on the strategic roadmap of the JIRI EU-CELAC 2021-2023" of the EU-LAC Foundation, where we presented the work carried out during the year.

Beyond the meetings, workshops and events, the pilots continued with their plans and activities, to highlight some, mentioning the INSTRUCT-ERIC calls restricted to the Latin American region and aimed at financing access to infrastructure and the exchange of personnel.

Furthermore, in June 2021 the Project successfully passed its mid-term review.



It is also worth mentioning in this annual summary, the importance of collaboration between European projects dedicated to coordination with Latin America, is the

case of the aforementioned RI-VIS, but also EULAC Permed dedicated to personalized medicine, or RISC2, to the coordination of research in high-performance computing; Establishing synergies, the exchange of experiences and the implementation of joint actions between them is essential to seek greater impact and make efficient use of resources from European programs.



Research infrastructures also play a role in the next call of the EU-LAC Interest Group, which has decided to incorporate specific topics destined to finance actions related to research infrastructures in prioritized areas: contribution to the SDGs, climate change, health and Energy.

Finally, I would not like to end these lines without mentioning one of the most relevant events of the year, the launch of the ESFRI Roadmap 2021 (European Strategic Forum for Research Infrastructures). The roadmap is the result of a long and exhaustive work that began in September 2019 and has now concluded with the official presentation on December 7 of this year. 11 new projects are added to the roadmap and 4 of the existing ones acquire the status of infrastructures implemented and providing services to researchers.

In the context that concerns us, it should be noted that, in the chapter on strategy, the section dedicated to "European research infrastructures on the world stage", express mention is made of collaboration with the Latin American and Caribbean region highlighting the importance of including research infrastructures in the cooperation agendas between the EU and priority regions. In addition, it is highlighted how ESFRI and its infrastructures (LifeWatch ERIC, INSTRUCT ERIC and E-RIHS, among others) play a fundamental role in the implementation of the EU-CELAC strategic roadmap.

All of the above confirms the importance of research infrastructures to consolidate the EU-CELAC collaboration in research and innovation. EU-LAC ResInfra already has new actions planned in 2022 that we hope will contribute to the consolidation of collaboration and to make it sustainable over time.

[Inmaculada Figueroa](#)

Hubs of Integrative Bioimaging as a catalyst for regional scientific / technological development and EU-CELAC bi-regional cooperation

Contribution of the Pasteur Institute of Montevideo- Leonel Malacrida Alejandro Buschiazzo



The concept of regional hubs is a way of organizing the research infrastructure in an open way for users of a region, making available technological resources of high complexity, but of intermediate size in terms of installation and operational costs. Under the supervision of highly qualified

experts, these hubs maximize the use of technology by researchers users, whether in the academic or productive sectors. Having regional hubs in Latin America is a key aspect to democratize access to large-scale infrastructures and to better coordinate the infrastructures available in our own region. This results in a more efficient and enduring use of the investment in state-of-the-art technology.

The European Union has decades of experience in developing these centers of excellence, including low, medium and large technology platforms, in the latter case including, for example, synchrotron radiation generators and large particle accelerators, with investments estimated in hundreds or even thousands of millions of euros in each case. 20 years ago the EU began to coordinate its efforts in the area of technological research infrastructures, generating fruitful experience with the European Strategy Forum on Research Infrastructures (www.esfri.eu). One of the results is coordination through regional hubs, democratizing national communities' access to large-scale infrastructures. ESFRI has had a huge impact on Europe's regional opportunities, accelerating scientific collaborations, and allowing it to compete on an equal footing with powers such as the US and China (the latter, countries on a regional scale).

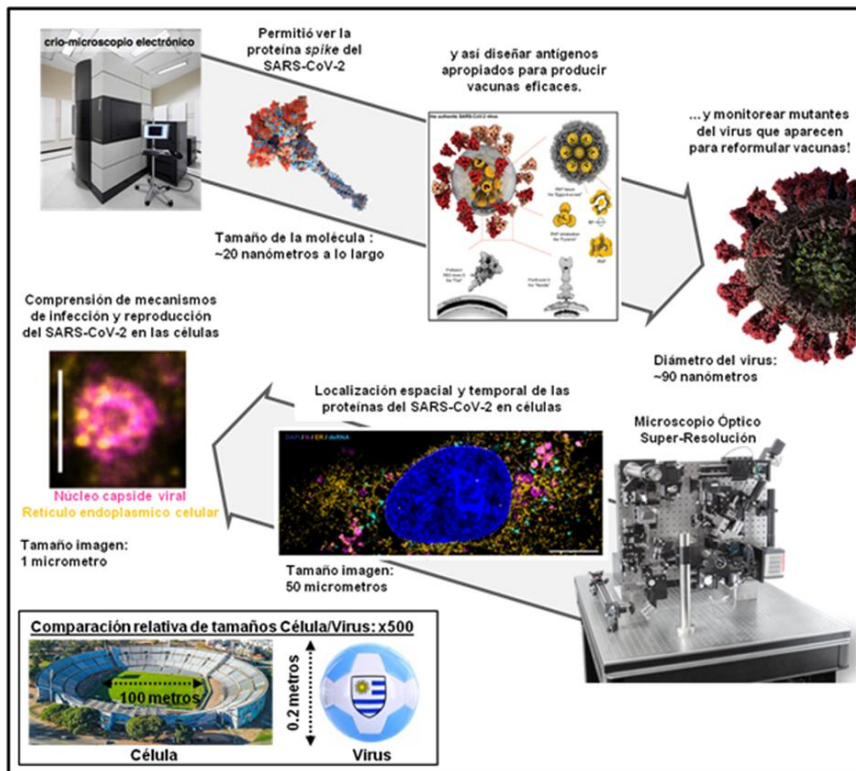
In Latin America there are still no institutional instances that allow us to articulate a regional vision in Science and Innovation, with transparent ways of financing and evaluating its impacts and progress. However, the current pandemic has cruelly demonstrated to us the enormous need for the best scientific and technological resources, as well as the ability to organize common efforts that allow us to tackle problems on a global scale efficiently.

A fundamental aspect of these hubs is the adherence to the monitoring of good practices (very precise criteria for the operation of technological infrastructure, defined at an international level), and the consolidation of protocols that ensure open access for local and regional users.

Working group coordinated by the Institut Pasteur de Montevideo, which associates the Advanced Bioimaging Units (UBA, a mixed unit with the University of the Republic) and the Protein Crystallography Unit (PXF), has been working with the European Infrastructure

Consortiums of Investigation (ERICs) INSTRUCT and EUROBIOIMAGING in the stabilization of a regional Hub.

Specifically, this project is focused on the creation of a Regional Hub for Integrative Bioimaging at the Institut Pasteur de Montevideo, in close cooperation with the ERICs Instruct and EuroBioImaging, will allow us to add to the existing technologies two state-of-the-art tools of great scientific-technological value: cryo- electron microscopy and super-resolution optical microscopy. These technologies will allow us to see biological structures by integrating the very different size scales of the biological. This hub will make available instruments and imaging technology that will make it possible to see individual biological molecules, such as each protein inserted in the envelope of a virus, up to its location and function in living cells and even observing the cellular structures of whole animals using intravital microscopy in depth.



For more than a decade, the UBA and PXF have been highly committed to training students and technical staff, consolidating collaborations and participation in regional and international consortiums, which are reflected in scientific works published in journals of great prestige and global impact (see link 1 and 2).

The integrative vision that unites structural biology and bioimaging is now being developed in different centers of the first world. Centers such as the Advanced Imaging Center of the Janelia Research Campus (Howard Hughes Medical Institute) in the USA or European centers such as the Imaging Center of the European Molecular Biology Laboratory (EMBL) in Heidelberg-Germany, dedicate enormous efforts to the development of hybrid technologies that combine cryo-electron microscopy and super-resolution light microscopy. These tools are having a significant impact on the development of effective vaccines (e.g. SARS-CoV-2), new drugs, as well as the use of cryo-electron microscopy to "see" the shape of individual proteins (for example the Spike protein of SARS-CoV-2) and even build virus models, going from unit scales to hundreds of millionths of a millimeter. (considering proteins and viruses,



respectively). Through super-resolution we can "see" unique molecules within cells and tissues, even track their behavior and identify their fates and modifications. Images taken from: Scherer et al. (doi: <https://doi.org/10.1101/2021.06.15.448497>) and Yao et al. (<https://doi.org/10.1016/j.cell.2020.09.018>).

Finally, in addition to the specific objectives of this Hub, this initiative from its design is committed to becoming a model for subsequent similar initiatives in the region, which will need to be multiplied throughout Latin America. engineering of proteins and cells to perform functions of interest.

[Leonel Malacrida](#)

[Alejandro Buschiazzo](#)

Horizon Europe Webinar: Opportunities for the Digital Sector and Space Industry in Central America.

On November 30, the “Horizon Europe Webinar: Opportunities for the digital sector and Space Industry in Central America” was held, organized by the Delegation of the European Union in Costa Rica and the Cooperation section of the European Union for Central America, with the collaboration of the LAC NCP Network, AUCI, the Costa Rican Ministry of Science, Innovation, Technology and Telecommunications (Micitt), the Costa Rican National High Technology Center (CENAT) and the Central American Integration System (SICA). It had the participation of 140 researchers from all over Central America.



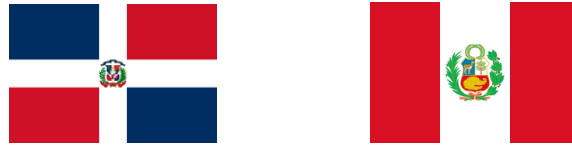
The opening remarks were made by Mr. Alberto Menghini, head of EU Cooperation in Central America and Jorge Cabrera Hidalgo Executive Secretary of SICA. Subsequently, Ms. Claudia Romano, coordinator of the LAC NCP Network, NCP Coordinator and NCP MSCA for Uruguay made the

general presentation of the Horizon Europe program; Eliana Ulate, NCP coordinator, of the Ministry of Science, Innovation, Technology and Telecommunications of Costa Rica presented Cluster IV (climate, energy and mobility) of Pillar II (Global challenges and European industrial competitiveness); Mr. Esteban Meneses, Director of the National Collaborative for Advanced Computing (CNCA) of CeNAT-CONARE presented the project “A network for supporting the coordination of High-Performance Computing research between Europe and Latin America (RISC2)” and Mr. Alejandro Quinteros Project officer in the LAC NCP and AUCI Network, reported the scope of the Network and the role of the NCP in supporting researchers.

The objective of the event was to inform about the Horizon Europe program, the opportunities for participation for researchers and institutions in Central America, especially in Cluster 4 Digital, Industry and Space world, in order to increase the number of participation of Central America in the program. Likewise, a winning project from the region “A network for supporting the coordination of High-Performance Computing research between Europe and Latin America (RISC2)” was presented to inform the most important and practical aspects when writing a proposal.

Event recording: <https://www.youtube.com/watch?v=mz2-Yx6tJXA>

National Contact Points of Dominican Republic and Peru receive training on the Horizon Europe Program



On October 27, November 12 and December 22, three training sessions were held at the National Contact Points of the Dominican Republic and Peru, organized by the Ministry of Higher Education, Science and Technology (MESCYT) of the Dominican Republic and the National Council of Science, Technology and Technological Innovation (CONCYTEC) of Peru; with the support of the LAC NCP Network and AUCI.



The workshops were conducted by Mr. Alejandro Quinteros, Project Officer for the Horizon Europe Program at AUCI and a member of the LAC NCP Network team. All 44 NCPs participated in the 17 areas of the Horizon Europe program.

The objective of the conference was to provide attendees with general information about the Horizon Europe Program, tools for writing proposals, for searching for partners, as well as for formulating and uploading institutional profiles. It also sought to motivate the NCPs of both countries to disseminate, inform and encourage the institutions and researchers in their countries to participate in the Horizon Europe Program.



On the occasion, the ENRICH in LAC project was presented, which is an initiative that aims to promote opportunities for collaboration and innovation for business actors in the regions of Europe, Latin America and the Caribbean.

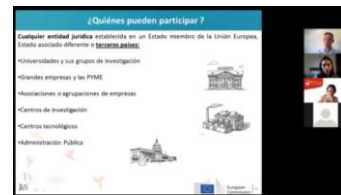
ENRICH in LAC's thematic focus is to contribute to a green and digital transition. The priority areas of work are: Health, Bioeconomy, Renewable energy, Sustainable urbanization and Digital transformation. They have been identified within the European Commission's innovation guidelines for collaboration with the LAC region. If you are interested in learning more about the project, we invite you to visit its page and register on the platform: lac.enrichcentres.

Latin America and the Caribbean strengthen their capacities

II) Colombia "Identify Opportunities in Horizon Europe for the Development of Proposals"

On November 4 and 18, the workshops called "Identify Opportunities in Horizon Europe for the Development of Proposals" were held, organized by Mrs. Natalia Sánchez Vargas, from the Directorate of International Relations - Vice-Rector for Research at the Universidad del Valle and featured with the support of the LAC NCP Network, AUCI and the Service Facility. The target audiences were researchers and authorities from the aforementioned University.

The opening remarks were given by the Director of International Relations of the University Ms. Doris Adriana Guzman Umaña. Mr. Alejandro Quinteros, from the LAC NCP Network team, spoke about the Horizon Europe Program.



The objective of the event was to inform about the aforementioned program, provide tools for both the writing of proposals and the search for partners, the formulation and loading of institutional profiles.

II) Financing opportunities for the Horizon Europe program in Latin America and the Caribbean



LAC NCP Network team.

On November 22, 2021, the webinar on financing the Horizon Europe program in Latin America and the Caribbean took place, organized by the Director of Foreign Economic Cooperation of the Ministry of Economic Development of Curaçao, Vanessa Toré. The event had as a speaker Ms. Maite Irazábal from the

The objective of the webinar was to inform and motivate the attendees of the event to participate in the calls of the Horizon Europe Program (2021-2027). This event was attended by numerous authorities from various institutions in Curaçao and other Caribbean countries.

Online training on International cooperation in Horizon Europe

On November 9th of 2021 took place a half day seminar on international cooperation in the Horizon Europe programme, organised by Horizon Europe NCP Portal. The objective of the training was to address the policy framework as well as rules and regulations for international cooperation under Horizon Europe to the participants.

The event has speakers from associated countries and third countries who give their perspective on participation in the framework programme as an example, and inform on available resources and contacts for NCPs in their countries.

Training objective was to provide some examples and enlarge participants' networks with other country-specific organisations fulfilling the role of NCPs. Participants were all NCPs, newly appointed to experience.



Trainers & Speakers were Daniel Kiapes, Policy Officer at the European Commission International cooperation unit, Mattia Ceracchi, Head of EU Liaison Office, APRE, Helmi Mardassi, NCP Coordinator for Tunisia, Manimaaran Sivasegaram, Innovate UK, UKRI Brussels office, Maite Irazábal, National Contact Point for Uruguay & LAC NCP Network staff, Jaqueline Jorge, National Contact Point Coordinator for Canada and Claire Chen, Director for Global Initiatives at NCURA



Horizon Europe NCP Portal it's a portal that aims to offer both NCPs and participants access to the vast knowledge, support tools and services that NCPs develop to support the wide participation in Horizon Europe. The mission of this portal is to serve as a stable entry point during the whole duration of the programme, complementing the official

Funding and Tender Portal.

Web page: <https://www.horizoneuropencpportal.eu/>

Twitter: [Horizon Europe NCP Portal](#) or @HE_NCP_Portal

Youtube: [Horizon Europe NCP Portal](#)

Opportunity for Researchers and Institutions in the Marie Skłodowska Curie Actions (MSCA)



The Marie Skłodowska-Curie Actions (MSCA) are the main instrument at Union level to do this. They contribute to excellent research, boosting employment, growth and investment by equipping research staff with new knowledge and skills and providing them with international, interdisciplinary and cross-sector exposure and mobility that will allow them to occupy the best positions in their professional career.

MSCAs not only have a positive impact on individual research staff, but also contribute to the development of excellent doctoral programs, post-doctoral training programs, and collaborative research projects. It has an impact on higher education institutions and other entities beyond academia by widely disseminating excellence and setting standards for the education and training of high-quality research staff, not only in the European Research Area (ERA), but also all over the world.

Doctoral Networks (DN): The aim to train creative, entrepreneurial, innovative and resilient doctoral students and doctoral students, capable of facing current and future challenges and transforming knowledge and ideas into products and services for economic and social benefit.

Postdoctoral Fellowships (PF): This call is open to excellent researchers of any nationality, including those who wish to reintegrate in Europe; to those who aspire to restart their research career and also to personnel displaced by conflicts. The program also encourages the implementation of research and innovation projects in the non-academic sector.

Staff Exchanges (SE): Promote international, intersectoral and interdisciplinary innovative collaboration in research and innovation through the exchange of personnel and the exchange of knowledge and ideas at all stages of the innovation chain.

Program co-financing (COFUND): MSCA COFUND co-finances new or existing doctoral programs and programs for the incorporation of research personnel at the national, regional or international level. The main objective is to disseminate the best practices of the MSCA program, including training in international, intersectoral and interdisciplinary research, as well as the transnational and sectoral mobility of researchers at all stages of their careers.



We share information about the opening and closing date of each of the openings

Announcement	Open	Close	Budget
MSCA-PF-2021 (Postdoctoral Fellowships)	22-06-2021 13-04-2021	12-10-2021 14-09-2021	242M€ 257M€
MSCA-DN-2021 (Doctoral Networks)	22-06-2021 03-05-2022	16-11-2021 15-11-2023	402.95M€ 427.28M€
MSCA-NIGHT-2022 (MSCA and the citizen)	22-06-2021	07-10-2021	15.5M€
MSCA-SE-2021 (Staff Exchange)	07-10-2021 06-10-2021	09-03-2022 08-03-2023	72.5M€ 77.5M€
MSCA-COFUND-2021 (Program co - financing)	12-10-2021 11-10-2022	10-02-2022 09-02-2023	89M€ 95M€

Recording of Dialogue Forum 1 and workspace focused on Cooperation Opportunities for institutions in Latin America and the Caribbean - Horizon Europe Program - Marie Skłodowska Curie Actions:
<https://www.youtube.com/watch?v=zZ4kENIKBcA&t=364s>

Recording of Dialogue Forum 2 and workspace focused on training and professional development opportunities for LAC research staff of cooperation for institutions in Latin America and the Caribbean - - Horizon Europe Program- Marie Skłodowska Curie Actions: [https:// www.youtube.com/watch?v=FmUvg33lvB4&t=53s](https://www.youtube.com/watch?v=FmUvg33lvB4&t=53s)

Next activities

Webinar Info Days European Union Missions - Horizon Europe



We invite you to participate in the “Info-Days” dedicated to the missions of the European Union that will take place virtually between January 18 and 19, 2022.

The EU missions are an additional part of the Horizon Europe research and innovation program for 2021-2027 and aim to tackle some of the biggest challenges facing our society.

The Info-Days will present a wide range of new themes for the five missions (adapting to climate change, restoring our oceans and waters by 2030, a deal for the soil, Cancer and 100 climate-neutral and smart cities by 2030)

Actions include direct support for the EU's top priorities, such as the European Green Deal, a Europe fit for the digital age, the action plan to fight cancer and an economy that works for people.

The event will provide specific information on the new Missions Work Program calls, funding opportunities and deadlines.

Link: https://ec.europa.eu/info/research-and-innovation/events/upcoming-events/horizon-europe-info-days/eu-missions_en

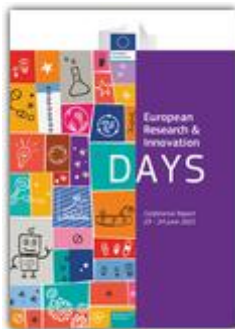
Report of the European Research and Innovation Conference



On December 13, the report of the European Research and Innovation Conference held on June 23 and 24 of this year was presented, which presents the main conclusion of the 21,000 participants and 200 high-level speakers.

It contains summaries and quotes from the 70 live online sessions and workshops of the event, as well as more than 200 consultations between participants and Commission representatives in the virtual Horizon Village.

The InfoDays Research and Innovation event is an annual flagship of the European Commission that brings together policy makers, researchers, entrepreneurs and the public to discuss and shape the future of research and innovation in Europe and the rest of the world.



Publication: <https://op.europa.eu/en/publication-detail/-/publication/599fb1da-5bc7-11ec-91ac-01aa75ed71a1/language-en/format-PDF/source-245732411>



INTERVIEWS

This section seeks to publicize relevant actors, institutions and projects for the promotion of Horizon Europe, in particular for Latin America and the Caribbean.

In this opportunity we convened Paula Brennan, Argentina National Contact Point for Marie Sklodowska Curie Actions





Paula Brennan (Argentina)

University Bachelor in Social Sciences with a specialization in International Relations, with a master's degree in Health Economics and Medicines. I have professional experience of more than 18 years in the management of R&D projects.

I worked for 13 years in the management of financing instruments of the Federal Council of Science and Technology (COFECYT) of the Ministry of Science, Technology and Innovation (MINCYT) of Argentina. I was in charge of preparing the bases for calls and evaluating more than 1,200 projects financed by COFECYT, including the articulation with other areas of government and the survey of existing capacities and demands throughout the Argentine territory. I am currently working in the National Directorate for the Promotion of Scientific Policy of the MINCYT, where I am in charge of managing projects financed by the European Union and linking different Argentine actors with possible partners abroad. I have been the National Contact Point for the Marie Skłodowska Curie Actions, by official appointment, within the framework of the Horizon 2020 and Horizon Europe programs for 5 years.

My objective as NCP is to promote Argentine participation in international projects, publicize our capacities and that they can be complemented with other countries to carry out joint projects that give exponential benefits to both parties and contribute to scientific diplomacy.



[Paula Brennan](#)



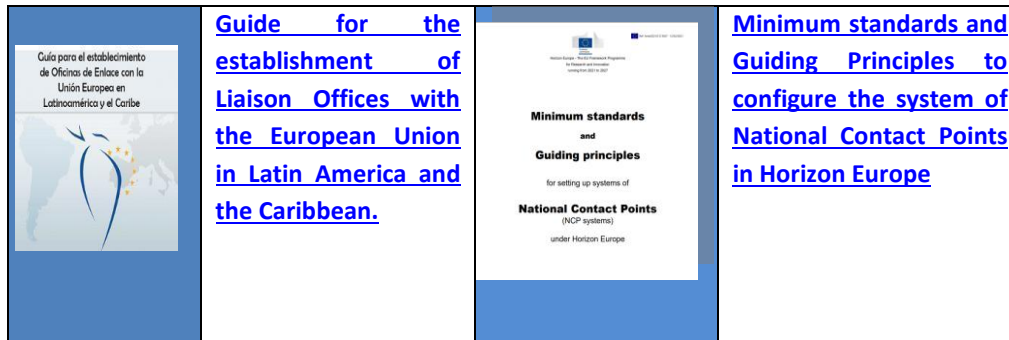
[Paula Brennan](#)



REFERENCE MATERIAL



Below we share a series of support materials (Linked to the Horizon Europe Program) Guide for the establishment of Liaison Offices with the European Union in Latin America and the Caribbean and the minimum standards and guiding principles to configure the system of National Contact Points in Horizon Europe.



Videos



Horizon Europe

[Link](#)

<https://www.youtube.com/watch?v=RCHtWPbKaO4>



Horizon Europe Presentation Day in Spain

[Day 1](#)

[Day 2](#)

https://eventos.cdti.es/ES/PresentacionHorizonteEuropa/Retransmision_1

https://eventos.cdti.es/ES/PresentacionHorizonteEuropa/Retransmision_2



General Information about Horizon Europe

[Link](#)

https://www.youtube.com/watch?v=pOBiEgOZ_sY



Proposals writing work shop to the Horizon Europe Programme (Spanish)

[Link](#)

https://www.youtube.com/watch?v=fT1_HuwE6YU



Proposals writing workshop for the Horizon Europe Programme (English)

[Link](#)

https://www.youtube.com/watch?v=UJO_kNSSKFs&t=3s



Horizon Europe: Clúster 1 - Health

[Link](#)

<https://www.youtube.com/watch?v=irKyvXzbH4>



Horizon Europe: Cluster 2 - Culture, Creativity and Society

[Link](#)

<https://www.youtube.com/watch?v=FlvGiDuTmtU>



Horizon Europe: Cluster 3 - Civil Security for Society

[Link](#)

<https://www.youtube.com/watch?v=xqslCCe9aFU>



Horizon Europe: Cluster 4 - Digital, Industry and Space

[Link](#)

<https://www.youtube.com/watch?v=DZx5f6E2gG8>



Horizon Europe: Cluster 5 - Climate, Energy and Mobility

[Link](#)

<https://www.youtube.com/watch?v=A6gmh9DtDFE>



Horizon Europe: Cluster 6 - Food, Bioeconomy, Natural Resources and Environment

[Link](#)

<https://www.youtube.com/watch?v=sXX102qZXCE>



MSCA in Horizon Europe

[Link](#)

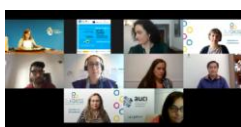
https://ec.europa.eu/research/mariecurieactions/events/msca-under-horizon-europe-information-event_en



New Marie Skłodowska-Curie Actions - What's for Mobility of Researchers and Institutions?

[Link](#)

<https://www.youtube.com/watch?v=qV-1KCga49A&t=2234s>



MSCA in Horizon Europe (CILAC)

[Link](#)

<https://www.youtube.com/watch?v=bFSuQFN0yrk>