

ANNUAL REPORT 2023-24

UNESCO Chair on Science, Technology and Innovation for Sustainable Development for Latin America



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Foreword

I am pleased to present this annual report, which captures the remarkable progress of UNU-MERIT's UNESCO Chair on Science, Technology, and Innovation (STI) for Sustainable Development in Latin America. The Chair exemplifies our commitment to generating knowledge and fostering partnerships that advance sustainable development in a rapidly evolving global context. Through evidence-based research and capacity-building, this initiative underscores the transformative power of education and innovation, helping nations navigate complex challenges.

The work of this Chair aligns seamlessly with the newly launched UNU Strategy 2025–2029, which emphasizes the need for timely, policy-relevant research, collaborative partnerships, and capacity development, particularly in the Global South. As part of this strategy, UNU aims to expand its engagement with regional stakeholders, enhancing South-South and triangular cooperation. This Chair embodies these goals by actively engaging with national governments, regional organizations, and UN entities to bring actionable insights to policymakers across Latin America.

A key pillar of our strategy is **partnership-building**, particularly through collaboration with entities such as UNESCO and local academic institutions. The Chair has made significant strides in this direction by fostering cross-sector collaboration, facilitating academic exchanges, and providing training programmes that reflect the real-world needs of Latin American societies. This approach reinforces UNU's mission to serve as a bridge between knowledge creation and practical policy solutions.

At the heart of these achievements is the visionary leadership of Professor Carlo Pietrobelli and his dedicated team at UNU-MERIT. Their innovative research on critical areas — ranging from digital transformation to



sustainable value chains — has positioned the Chair as a thought leader in STI policy. Professor Pietrobelli's strategic mindset and entrepreneurial spirit reflect UNU's values of adaptability and impact-driven work.

Looking forward, this Chair will continue to play a pivotal role in advancing UNU's mission of fostering inclusive development through education and research. As we engage more deeply with the opportunities presented by emerging technologies, environmental sustainability, and economic transitions, the work of the Chair will remain essential in shaping policies that respond to regional challenges

With gratitude, I acknowledge the support of UNESCO, the Permanent Representation of the Kingdom of the Netherlands to UNESCO, the Netherlands National Commission for UNESCO, and all our partners in this journey. Together, we are not only advancing the frontiers of knowledge but also building the foundations for a future where innovation catalyses sustainable growth, resilience, and equality.

Tshilidzi Marwala
Rector, United Nations University
Under-Secretary-General,
United Nations

About the Chair

UNU-MERIT's UNESCO Chair on Science, Technology, and Innovation for Sustainable Development in Latin America is at the forefront of advancing transformative STI policies and research across the region. Established in May 2022, the Chair is dedicated to empowering academics, national and regional policymakers, experts, and industry leaders to drive sustainable development through innovative science and technology strategies.

Under the leadership of Professor Carlo Pietrobelli, the Chair serves as a dynamic hub for research, policy advice, training, and high-impact events. These initiatives are designed not only to address Latin America's most pressing STI challenges but also to foster a collaborative environment for developing solutions that align with the United Nations' Sustainable Development Goals.

Working towards the following Sustainable Development Goals



The Chair's strategic priorities include:

- Identifying and addressing key STI challenges in Latin America;
- Promoting and disseminating policy-relevant research to inform decision-making;
- Enhancing STI education in postgraduate programs across Latin American universities and providing targeted training for policymakers, students, and stakeholders in the region;
- Facilitating policy collaboration on design, implementation, and evaluation efforts, including contributions to the UNESCO Latin America Policy Lab.

Through its work, the Chair is committed to building resilient and inclusive STI frameworks that empower Latin America to achieve sustainable and equitable growth.

Impact: Research and Policy Advice

Throughout its second year (May 2023 – August 2024), the UNESCO Chair at UNU-MERIT engaged in diverse activities that advanced its mission of strengthening STI policy in Latin America. The Chair’s initiatives during this period emphasized improving policy through research and disseminating insights across multiple high-level forums, seminars, and training sessions.



In July 2023, the Chair addressed the critical theme of **"Big Data and STI Policy Decision-Making"** in a workshop held at the **University of Campinas, Brazil**. This workshop examined the potential of bibliometric and scientometric data to inform and shape STI policy development, reflecting the Chair’s commitment to integrating data-driven approaches in policy advisory efforts.

December 2023 saw the Chair providing strategic advice to **Peru’s Ministry of Production** on initiatives to diversify and promote industrial development through vertical policies. This contribution took place at the International Forum **"La Política Nacional de Desarrollo Industrial: Retos y Oportunidades para su Implementación"** in Lima, co-organized by UNIDO and the ILO.

Big Data and STI Policy Decision-Making

July 18

9h **Welcome**

9h30 – 10h30 **Institutionalization of Inequities in Science**
Cassidy Sugimoto (GATech)


11h – 12h **How bibliometrics can inform science policy: the case of research funding**
Vincent Lariviere (UdeM)


12h – 13h **Panel 1**
Adriana Bin (UNICAMP), Roberto Marcondes (USP), Rodrigo Costas Comesana (ULeiden), Ana Maria Carneiro (UNICAMP)


14h30 – 15h30 **Making visible the invisible: how novel (and open) scientometric data sources can help us unveil new perspectives on science**
Rodrigo Costas Comesana (ULeiden)

15h30 – 17h **Panel 2**
Cassidy Sugimoto (GATech), Vincent Lariviere (UdeM), Sergio Salles (UNICAMP), Euclides de Mesquita Neto (FAPESP)

17h **Closing**
Carlo Pietrobelli (UniRoma3/UM), Nick Vonortas (GW/UNICAMP)


InSySPo
Innovation Systems, Strategies and Policy


UNICAMP


THE GEORGE WASHINGTON UNIVERSITY
WASHINGTON, DC



PARTICIPANTS WITH MS. YESENIA OLAYA, MINISTER FOR STI OF COLOMBIA.

In April 2024, Professor Carlo Pietrobelli delivered a keynote address at the Fourth Meeting of the **Conference on Science, Innovation, and Information and Communications Technologies**, attended by ministers and government representatives from 23 Latin American countries. Hosted by the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) at the **Nariño Palace in Bogotá**, this event served as a permanent forum for policy and technical dialogue among regional STI policymakers. During his keynote, Professor Pietrobelli highlighted the importance of investing in innovation to leverage Latin America's natural resources amid environmental and digital transitions. His remarks were widely covered in regional media, including an article titled, "El crecimiento económico en América Latina lleva 25 años estancado, alerta experto." (Economic growth in Latin America has been stagnant for 25 years, expert warns).

The Chair further contributed two influential **studies to the Inter-American Development Bank (IDB) in support of policies for enhancing global value chains (GVCs) in Latin America**. The first study analyzed domestic value addition in exports from Latin American countries, proposing methodologies to increase local value intensity. The second examined policy options for boosting regional participation in GVCs, aiming to promote Latin America's competitiveness in the global economy.



In October 2023, Jorge Valverde and Mercedes Menendez, researchers from the UNESCO Chair, presented their findings on critical minerals and mining competitiveness to the SIDPA initiative. This initiative fosters research and dialogue on policies for productive development and is a collaboration between several leading Argentine universities and ECLAC.

In June 2024, the Chair published a pivotal report, "Strategy for Micro, Small, and Medium-sized Enterprises (MSMEs) in Latin America and the Caribbean," which will inform **IDB-Invest's regional strategy for 2025-2030**. Co-authored by Elisa Giuliani of the Università di Pisa and Professor Pietrobelli, the report provides actionable strategies to support MSME development across the region.

Impact: Research Outreach and Global Dialogues

In Spring 2024, a series of webinars broadcast on UNU-MERIT's YouTube channel reached a global audience, engaging policymakers, academics, and the public in discussions on critical minerals, green finance, and global science policies. These webinars highlighted the essential role of STI policies in addressing major global challenges and featured leading experts, including Tom Moerenhout (School of International and Public Affairs, Columbia University), Rodrigo Valdés (Director, Western Hemisphere Department, International Monetary Fund), and Cassidy Sugimoto (Georgia Institute of Technology).

WEBINAR SERIES

Towards an empirical lens for science diplomacy

Thu 20 June // 15:00 CEST

Speaker: Cassidy R. Sugimoto (Georgia Institute of Technology)

Discussant: Fabiana Visentin (UNU-MERIT)

ONLINE EVENT

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Critical minerals, vital for the energy transition, continue to be a core focus of the Chair's research, as Latin America holds significant mineral reserves that offer a comparative advantage in these markets. However, as Tom Moerenhout noted, natural resource advantages must be matched by strategic industrial policies—such as tax incentives and subsidies—to strengthen global value chains, especially in sectors like lithium batteries and green ammonia.

WEBINAR SERIES

Critical mineral supply chain fundamentals throughout a changing geopolitical landscape

Tues 14 May // 14:30 - 15:30

Speaker: Tom Moerenhout (Columbia University)

Discussant: Jorge Valverde (UNU-MERIT)

ONLINE EVENT

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The climate emergency poses both risks and prospects for Latin America. Mineral-rich countries have opportunities to benefit from the global shift toward sustainable energy, while fossil-fuel-dependent economies face challenges in adapting. Rodrigo Valdés of the IMF underscored the **importance of substantial financing for climate resilience and adaptation measures in the region**, highlighting the IMF's Resilience and Sustainability Trust as a mechanism to mobilize funds from private, bilateral, and multilateral sources.

WEBINAR SERIES

The Role of Macro-Finance in Climate Change

Tues 21 May // 15:00 - 16:00

Speaker: Rodrigo Valdés (International Monetary Fund)

Discussant: Anthony Bartzokas (UNU-MERIT)

ONLINE EVENT

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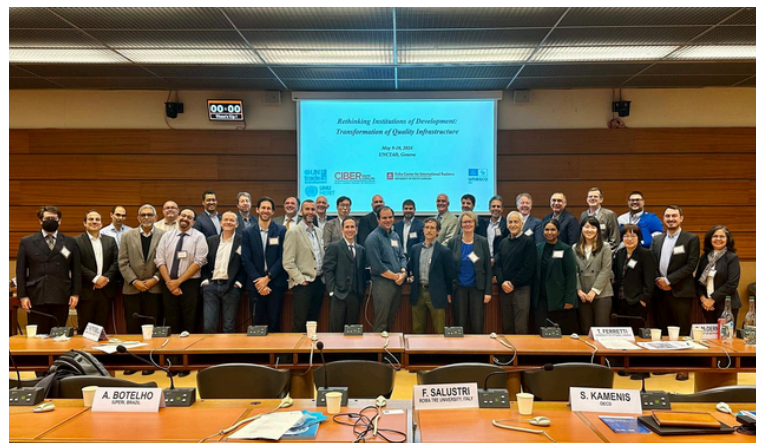
Impact: Research Outreach and Global Dialogues

Cassidy Sugimoto from Georgia Institute of Technology addressed the imbalance in global scientific collaborations and called for greater inclusivity in scientific data-sharing. She emphasized the role of science diplomacy in fostering international cooperation through R&D agreements, essential for evidence-based decisions in diplomatic and security arenas. **Open, inclusive, and accessible scientific data** are critical to bridging global disparities in scientific collaboration and innovation.

The UNESCO Chair actively participated in several international conferences and workshops throughout the year, presenting a range of research outputs. A full list of webinars and presented papers can be found at the end of this report.

In June 2023, during the Latin American Network for Economics of **Learning, Innovation, and Competence-Building Systems (LALICS) Conference in Asunción, Paraguay**, the Chair convened a roundtable on the role of STI in reducing inequality and promoting social inclusion amid the green and digital transitions. The panel, held from 19 to 21 June, featured renowned academics, including Gabriela Dutrénit (UAM, Mexico), Martín Puchet (UNAM, Mexico), Keynor Ruiz (UNA, Costa Rica), Carlos Bianchi (Universidad de la República, Uruguay), Frederico Rocha and Marina Szapiro (UFRJ, Brazil), Guillermo Anlló (UNESCO), Florencia Barletta (UNGS, Argentina), and Carlo Pietrobelli. Discussions emphasized STI policies' crucial role and the importance of collaboration among academia, government, and the private sector to foster technological capabilities for sustainable development. The roundtable insights were later published in the UNU-MERIT Working Paper Series as "[Navigating Challenges: STI Policies for Sustainable and Inclusive Development in Latin America](#)"

In May 2024, the Chair introduced a new research line on quality infrastructure (QI) for innovation and development at an international workshop titled "**Rethinking the Institutions of Development: The Vital Transformation of Quality Infrastructure**" hosted by **UNCTAD in Geneva**. QI, the ecosystem of institutions supporting domestic SMEs in upgrading capabilities to meet international standards, is increasingly critical to fostering sustainable development. However, a lack of systematic understanding persists around the effective structuring of QI institutions and their alignment with industrial and innovation policies.



To address this, the Chair launched a new network of researchers and practitioners, in collaboration with experts such as Richard Doner (Emory University) and Gerald McDermott (Folks Center for International Business, University of South Carolina). This network includes key international partners: UNCTAD, UNIDO, ITC, WIPO, OECD, and the IDB, and aims to advance research and policy development on QI for development.

Special Mini-conference at SASE 2023

The world is rapidly transitioning to a new techno-economic paradigm, with clean technologies replacing fossil fuels and digitalization becoming a core technology across industries. To address these challenges, the UNESCO Chair organized a panel at the Society for the Advancement of Socioeconomics (SASE) 2023 Conference, held in Rio de Janeiro, titled “The Dual Transition in Latin America and the Caribbean (LAC): A Window of Opportunity or an Extra Constraint for Economic Growth in Natural Resource-Rich Countries?”

This panel convened researchers and policymakers to explore Latin America’s rich natural resources within the context of global uncertainties and conflicts. Findings from nine key papers were presented, with travel grants awarded by the UNESCO Chair to three authors to support their attendance. These papers covered vital topics, such as natural resource decommodification, the Global South’s role in the energy transition, and the adoption of digital technologies, automation, and AI by Latin American firms.



The awarded papers included:

- Amir Lebdioui, “Leveraging Local Biodiversity for Innovation and Economic Upgrading in Latin America,” Oxford University
- Fabianna Bacil, Zenathan Hasannudin, and Clovis Freire, “The Readiness of Latin American Countries to Capitalize on Economic Opportunities in a Low-Carbon World,” UNU-MERIT and UNCTAD
- José Eduardo Alatorre, Martín Cherkasky, Camila Gramkow, Gabriel Porcile, João Romero, “Can the Three Dimensions of Sustainable Development Be Mutually Reinforcing? An Analytical Framework and Policy Simulations for Latin America,” ECLAC and UFMG, Brazil



BLOG POST

UNU-MERIT UNESCO CHAIR
Lessons from the SASE 2023
Conference in Rio de Janeiro



PhD Early Career Researchers Workshop in Montevideo

On 7-8 September 2023, the UNESCO Chair co-organized the PhD Early Career Researchers International Workshop “Structural Change, Social Inclusion, and Environmental Sustainability: New Perspectives and Policies in Economic Development,” held in Montevideo, Uruguay, as part of the Institute for New Economic Thinking (INET) - University of the Republic (UDELAR) framework. The workshop provided a platform for emerging researchers from Latin America and Europe to present research on sustainable development’s economic, social, and environmental dimensions. Keynote speakers included Mark Setterfield (The New School for Social Research, New York) and Gabriel Porcile (ECLAC).

Seminar on Friendshoring at UNA Costa Rica

In November 2023, Carlo Pietrobelli led a seminar titled “Friendshoring: The Reorganization of Value Chains and Development” at the International Center for Economic Policy for Sustainable Development (CINPE), part of the National University of Costa Rica. The seminar addressed the evolving nature of global value chains and implications for development, with a focus on regional partnerships.



FRIENDSHORING
LA REORGANIZACIÓN DE LAS CADENAS DE VALOR Y EL DESARROLLO

Expositor:
Dr. Carlo Pietrobelli
Universidad de Roma Tre

Profesor de la Catedra UNESCO sobre “Políticas de Ciencia, Tecnología e Innovación para la sostenibilidad en América Latina” en la Universidad de Naciones Unidas UNU-MERIT, Maastricht, Holanda, y Profesor de Economía en la Universidad Roma Tre, Italia. Fue Economista Líder del Banco Interamericano de Desarrollo (2009-2016).

Sus libros fueron publicados por Harvard University Press, Edward Elgar, Palgrave y Routledge.
Sus intereses de investigación se centran en como la innovación y la organización en cadenas de valor influyen en el desarrollo sostenible de empresas y países.

Jueves 30 de noviembre 1:30 P.M. Lugar: Sala Dinamarca-CINPE

Logos: unesco, UNU MERIT, ROMA TRE, Departamento de Economía, CINPE, 50 años UNA, Siempre necesaria

Catching Up and Global Value Chains Symposium

On 19-20 February 2024, UNU-MERIT and the UNESCO Chair hosted the final symposium of CatChain, titled “Catching Up and Global Value Chains in Times of Transformation.” This four-year EU-funded research project, led by Bocconi University and involving 12 international partners from Europe, India, Brazil, Costa Rica, Malaysia, South Africa, and South Korea, aimed to examine GVCs’ role in the Fourth Industrial Revolution. The event brought together 40 researchers from over 20 countries, with participation from organizations such as UNCTAD, IFC, and the World Bank. Keynote speakers included Jorge Katz (University of Chile) and Bart Verspagen (UNU-MERIT), who introduced fresh perspectives on GVC research within the digital and sustainability agendas. Discussions by experts Maria Savona (LUISS and SPRU), Luc Soete, and Carlo Pietrobelli (UNU-MERIT) furthered the dialogue on policy strategies to support catching up in digital and sustainability transitions.



Presentation at the RIE Conference in Ecuador

In parallel to these initiatives, UNESCO Chair researcher Jorge Valverde presented his paper, “Domestic Value-Added in Global Value Chains: A Methodological Approach to Discover Sectoral Opportunities,” at the 7th Network of Innovation Economists (RIE) Conference in Guayaquil, Ecuador, on 20-21 October. This study explores strategies for enhancing domestic value-added in GVCs by strengthening sectoral competitiveness.

The Year Ahead



The UNESCO Chair mandate to promote and disseminate policy-relevant research, offer impactful policy advice and contribute to enhancing STI education in Latin America will continue during 2024-25. The following key initiatives have already been planned, and will be executed:

- Delivering a keynote address and offering advisory support at the Ministerial Regional Policy Dialogue for Central America on Productive Development Policies in Panama, October 2024, in collaboration with the IDB and the Government of Panama.
- Contributing to the Science, Technology, and Innovation Week in the Dominican Republic in November 2024, in partnership with LALICS and the Instituto Tecnológico de Santo Domingo.
- Organizing two research and debate panels at the Latin American and Caribbean Open Science Forum (Foro CILAC) in San Andrés, Colombia, December 2024, in collaboration with UNESCO.
- Hosting a Research Workshop on Quality Infrastructure and Innovation Policy at Brown University, Providence, February 2025, in partnership with the University of South Carolina and Emory University.
- Providing research and policy guidance on a green industrial policy project, focusing on critical minerals and regional integration, in collaboration with UNCTAD, BNDES Brazil, and ECLAC, in Spring 2025.

These initiatives will enhance the Chair's influence and engagement across Latin America and the Caribbean, contributing to sustainable development through policy innovation and collaborative research.

Key Messages



BLOG POST

UNU-MERIT UNESCO CHAIR
Macroeconomic challenges of the green transition in emerging nations

“Fulfilling the demand of open, inclusive and comprehensive scientific data is an imperative for the international community”, **Cassidy Sugimoto, Georgia Institute of Technology**

“The country decision to move through the value chains of critical minerals from extractive to processing industries and engage in downstream manufacturing is a tailored mineral-country-specific challenge that needs careful analysis and Government strategy”, **Carlo Pietrobelli and Jorge Valverde, UNU-MERIT**

“Implementing effective climate mitigation, adaptation, and transition policies will require substantial upfront financing for LAC countries, and international financial institutions have an important role to play”, **Rodrigo Valdés, IMF Director.**

“Four economies still coexist in most Latin American countries and reveal a world of contradictions and rising disparities facing a new digital-biological paradigm”, **Jorge Katz, University of Chile**

“While biomimicry presents tremendous opportunities to leapfrog towards high value-added knowledge-intensive activities by using local biodiversity and related expertise as factor endowments, policy, and institutional factors have led to the persistence of important coordination failures that hinder the expansion and commercialization of biomimicry-based R&D.”, **Amir Lebdioui, Oxford University**

“Productive development policies (PDPs) and their modernization and upgrading are necessary to overcome another lost decade and promote higher, sustained, inclusive and sustainable growth”, **José Manuel Salazar-Xirinachs and Marco Llinás, UN Economic Commission for Latin America, ECLAC**



BLOG POST

Jorge Valverde Carbonell
What are critical minerals, and why are they so important?



Appendix

Selection of Papers Presented

By Carlo Pietrobelli and other colleagues of the Chair

- “Energy transition, critical minerals and windows of opportunity from an economic complexity approach” presentation by Menendez and Valverde at the 2nd CATCHAIN Conference on Global Value Chains, Latecomer Development and the Green Transformation, UNU-MERIT, Maastricht 29 June 2023.
- “Changing Dynamics of GVCs and Nearshoring: What is in there for Latin America?”, Pietrobelli at SASE Conference, Rio de Janeiro, 20-22 July 2023
- “Suppliers’ entry, upgrading and innovation in mining GVCs. Lessons from Argentina, Brazil, and Peru”, Beatriz Calzada Olvera and Carlo Pietrobelli, Extractive Industries and Sustainability Transitions in South America, Regional Studies Association (RSA) 21st September 2023
- “Does GVC participation facilitate the adoption of Industry 4.0 technologies in developing countries?”, Pietrobelli at XXVIII Reunion Anual Red Pymes Mercosur, Argentina, September 28, 2023
- “Critical minerals and countries’ mining competitiveness: An estimate through economic complexity techniques”. Jorge Valverde-Carbonell and Mercedes Menendez, 7th Webinar SIDPA, University of Buenos Aires – CONICET, Buenos Aires, October 2023.
- “Avenues to Maximizing Value Added from Critical Minerals”, Carlo Pietrobelli and Jorge Valverde, at Downstream Diversification of Critical Mineral-Rich Countries Workshop, IISD Geneva, Columbia University, New York, and the Graduate Institute of International and Development studies, Geneva, November 2023
- “Green window of opportunity through global value chains of critical minerals: An empirical test for refining copper and lithium industries”. Jorge Valverde-Carbonell, Final Symposium of the project CATCHAIN, Catch up and global value chains in time of transformation, Maastricht, February 2024.
- “Latin America network knowledge under green and digital transition”. Menéndez, M., Palomeque, S., Pietrobelli, C., Valverde, J., Final Symposium of the project CATCHAIN, Maastricht, February 2024.
- “Global value chains reshoring and implications for industrial and innovation policies”, Carlo Pietrobelli at workshop on Regional Integration & Multilateral Coordination of Industrial Policy, Oxford University, 23 February 2024
- “Building critical minerals regional value chains”, Carlo Pietrobelli, workshop on Green Transition in Latin America, BNDES, Rio de Janeiro, Brazil, 8-9 April 2024.
- “Critical minerals, downstream manufacturing and economic complexity”, Carlo Pietrobelli, Centro Ricerche Enrico Fermi (CREF) and Sant’Anna Workshop on Capabilities, GVCs and productive complexity, Rome, 23 April 2024.
- “Impact Evaluation of Development Policies. Integrating Quantitative and Qualitative Methods”, Pietrobelli at 5th Summer School on Impact Evaluation of Development Policies, University of Roma Tre, Tor Vergata, Sapienza and ICID, Rome, June 2024.
- “Global Value Chains and the Caribbean Economies. Innovation, capabilities, policies”, webinar by Pietrobelli at the Caribbean Course on the Economics of Innovation, Compete Caribbean, Barbados, July 2024

Appendix Multimedia

- [Cadenas Globales de Valor](#) Carlo Pietrobelli for [RELAI Red Latinoamericana de Agencias de Innovacion](#), July 2023.
- Critical Minerals and Countries' Mining Competitiveness, [SIDPA](#), October 2023.
- [Mineria, crecimiento y medioambiente](#), Carlo Pietrobelli for [Primer Click](#), [Diario Financiero](#), [Chile](#), November 2023.
- [Changing dynamics of GVCs and Nearshoring](#), Carlo Pietrobelli, November 2023.
- UNESCO Chair webinar on [Critical mineral supply chain fundamentals throughout a changing geopolitical landscape](#), May 2024
- UNESCO Chair webinar on [Varieties on middle income trap](#). Carlos Bianchi, September 2024.

ABOUT UNU-MERIT

The United Nations University Maastricht Economic and Social Research Institute on Innovation and Technology (UNU-MERIT) is a research and training institute of the United Nations University (UNU) which collaborates closely with Maastricht University. UNU-MERIT aims to advance societal policy and innovation research, provide education and mobilise knowledge in order to unlock the full potential of innovation for achieving inclusive sustainable development. The research agenda of UNU-MERIT on 'Comprehensive Innovation for Sustainable Development' (CI4SD) focuses on the interconnected risks and opportunities of innovation, as they relate to climate change, digital transformation, poverty and inequality, migration and population, and the future of work.