CLAF-MCTI High-Level Seminar: Perspectives for the Scientific Cooperation in Physics in Latin-America

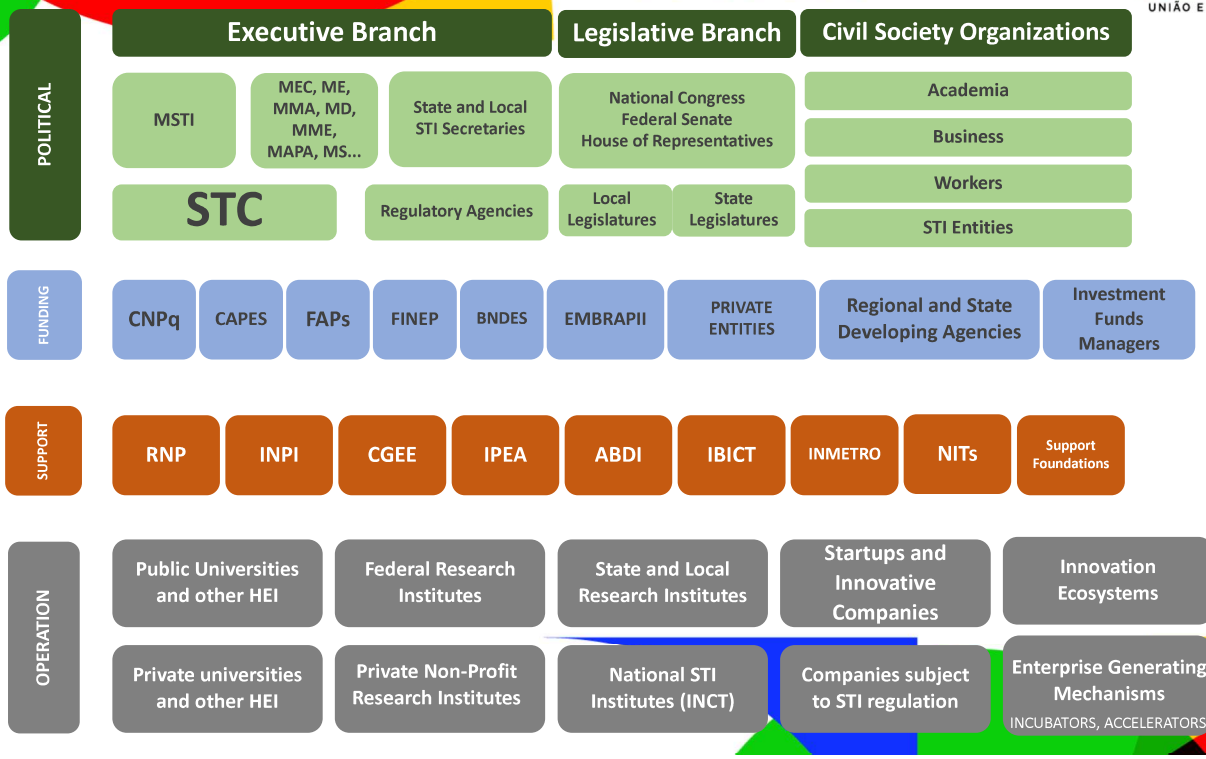
Outlook on Science Cooperation in Latin America

Brasília, 05 August, 2025

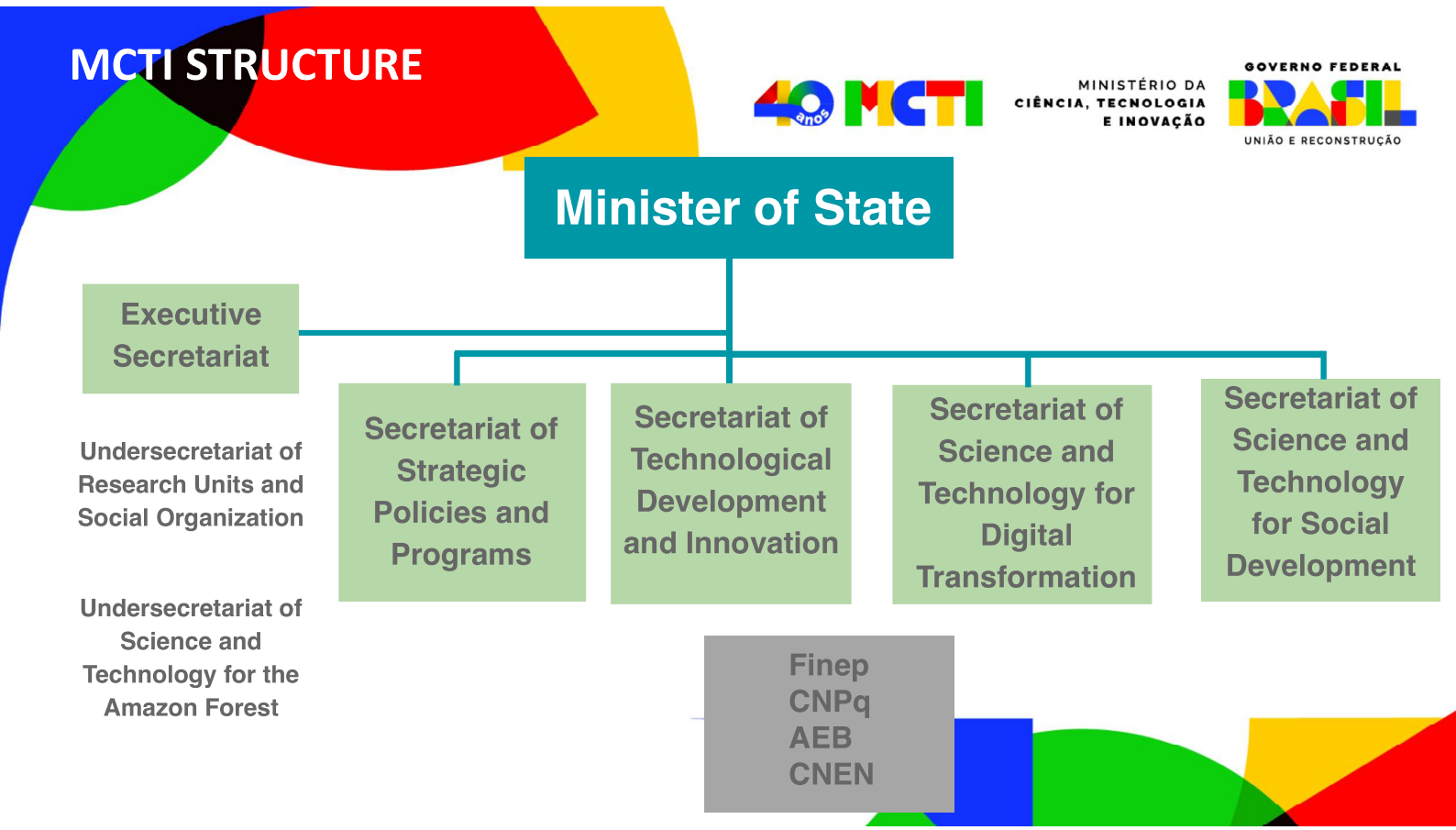
ST&I STRUCTURE IN BRAZIL

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO

GOVERNO FEDERAL BRASIL UNIÃO E RECONSTRUÇÃO



MCTI STRUCTURE

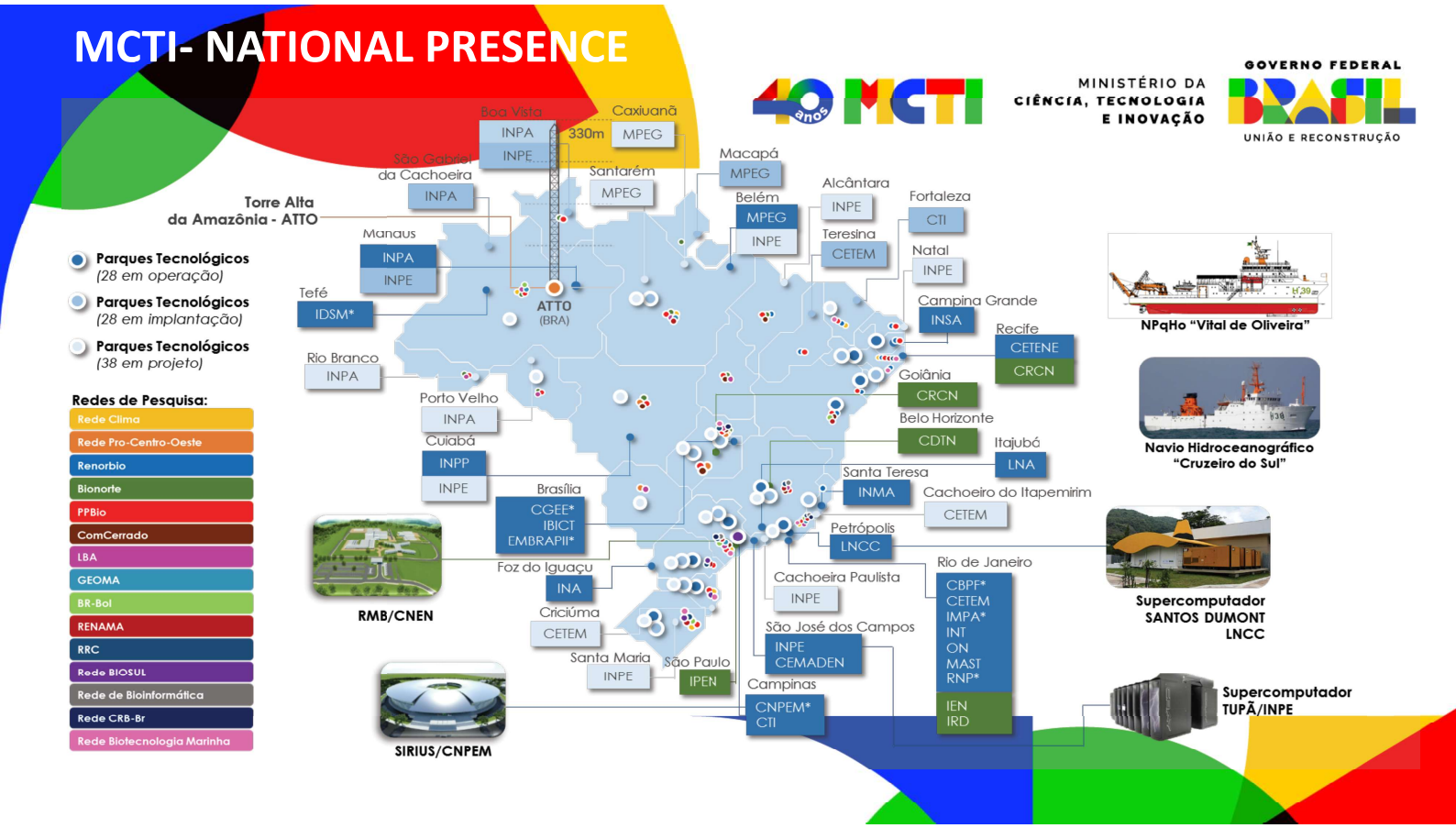


MCTI Structure

MCTI- NATIONAL PRESENCE

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO

GOVERNO FEDERAL BRASIL UNIÃO E RECONSTRUÇÃO



NPqHo "Vital de Oliveira"

Navio Hidroceanográfico "Cruzeiro do Sul"

RMB/CNEN

Supercomputador SANTOS DUMONT LNCC

SIRIUS/CNPEM

Supercomputador TUPÃ/INPE

National Strategy on Science, Technology and Innovation – 2024 - 2034

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO

GOVERNO FEDERAL BRASIL UNIÃO E RECONSTRUÇÃO

5ª CONFERÊNCIA NACIONAL DE CT&I

I - Recovery, expansion and consolidation of the National Science, Technology and Innovation System;

II - Reindustrialization on new bases and support for innovation in companies;

III - Science, technology and innovation for national strategic programs and projects;

IV - Science, technology and innovation for social development.

Science, Technology and Innovation for a Fair, Sustainable and Developed Brazil

Prioridades do MCTI

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO

GOVERNO FEDERAL BRASIL UNIÃO E RECONSTRUÇÃO

MISSÕES DA *NOVA* INDÚSTRIA BRASIL

Uma resposta a desafios da sociedade

MISSÃO 1

- Cadeias agroindustriais sustentáveis e digitais para a **SEGURANÇA ALIMENTAR**, nutricional e energética

MISSÃO 2

- Complexo econômico industrial da saúde resiliente para reduzir as vulnerabilidades do SUS e **AMPLIAR O ACESSO À SAÚDE**

MISSÃO 3

- Infraestrutura, saneamento, moradia e mobilidade sustentáveis para a integração produtiva e **BEM-ESTAR NAS CIDADES**

MISSÃO 4

- Transformação digital da indústria para ampliar a **PRODUTIVIDADE**

MISSÃO 5

- Bioeconomia, **DESCARBONIZAÇÃO** e transição e segurança energéticas para garantir os recursos para as futuras gerações

MISSÃO 6

- Tecnologias de interesse para a **SOBERANIA** e a defesa nacionais

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO

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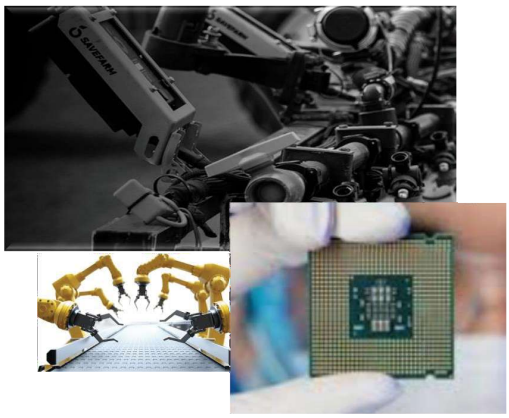
Support to Innovation – New Industry Brazil (NIB)

US$ 4,8 billion investments (2023-2024)



More Innovation Brazil

In 2023, 760 projects were contracted by NIB, with resources from FNDCT, executed by Finep.

In 2024, this number increased and corresponds to **1,416 projects.**

As a result of the two years, **2,176 projects were contracted**.

Planned Investments of US$ 18 billion (2025-2029)

National Fund for Scientific and Technological Development - FNDCT

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E INOVAÇÃO

GOVERNO FEDERAL BRASIL UNIÃO E RECONSTRUÇÃO

1 - Program for the Recovery and Expansion of Scientific and Technological Research Infrastructure in Universities

2 – Innovation Program for the National Re-industrialization
Mais Inovação

3 - Program Conecta e Capacita Brasil: Digital Tranformation Dissemination and Support

4- Integrated Program for Sustainable Development of the Amazon Region
Pró-Amazônia

5 - Talent Repatriation Program
Knowledge Brazil

6 - Support Program for Public Policies based on Scientific Knowledge
Science Policy

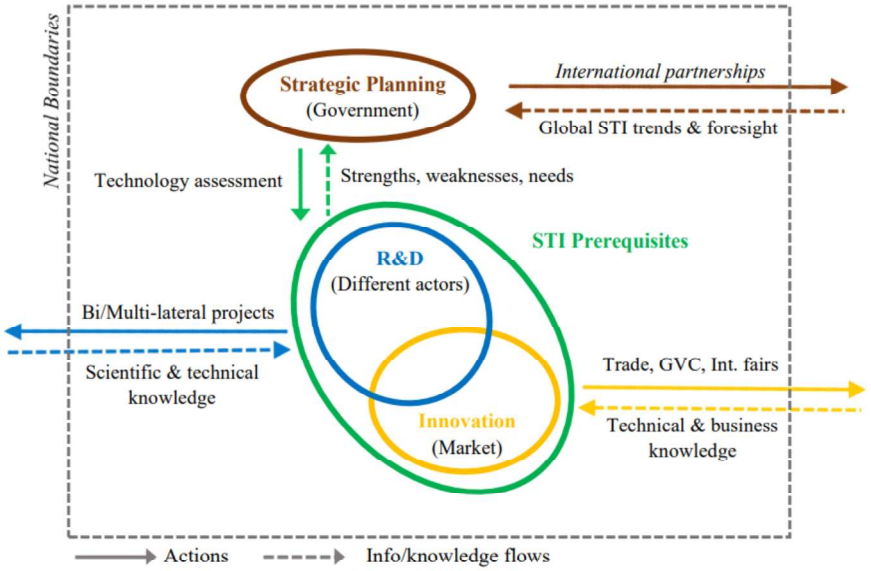
7 - Support Program for the Recovery and Preservation of National Scientific, Historical and Cultural Collections
Identity Brazil

8 - Support Program for National Strategic Projects: CBERS, RMB, NB4, Sirius

9 - Program for the Promotion of Technological Autonomy in the Defense Area
Technological Authonomy

10 - Science, Technology and Innovation Program for Food Security and Hunger Eradication

Figure 1: Key elements of a national STI system with international linkages



Note: The figure is not meant to provide exhaustive coverage of all the interactions and actors of a national innovation system but to highlight the main components and their external relationships.
Source: UNCTAD.

The importance of international cooperation for STI and its relationship with global governance

Traditional view that international cooperation helps global governance

(i) Science's values of rationality, transparency, peer review and universality are the same worldwide: science provides a non-ideological environment for participation and the free exchange of ideas, regardless of cultural, nationality, language or religious background.
(ii) The nature of current global challenges: which do not recognize geopolitical boundaries and require concerted solutions (climate change, loss of biodiversity, pandemics, hunger, etc.)
(iii) High costs related to frontier science: cutting-edge technology cannot be afforded by one single country (large research infrastructures)

A new global context

New geopolitical context

(i) Emerging technologies (semiconductors, AI, quantum technologies, etc.)
(ii) New actors/poles of geopolitical power – some indications: BRICS GDP surpassed G7 GDP in PPP, global trade flows between southern countries are in balance with flows between northern countries, China is already the country with the largest scientific production and largest patent deposit.
(iii) Fiercer competition for technological dominance and strong protectionism.
(iv) Geopolitical tensions in various parts of the globe .
(v) Increased barriers to scientific cooperation and technology transfer (cooperation based on common values and permeated by international security issues, not by scientific and technological enterprise and development).

A new global context

Possible outcome: Increased asymmetries in access to and production of science and technology

- UNCTAD STI Report 2023: countries in Latin America, the Caribbean and sub-Saharan Africa are the least ready to use, adopt or adapt to frontier technologies and are at risk of missing current technological opportunities for a low-carbon world and benefiting from AI, green hydrogen, and other technologies.

MCTI's role in implementing international cooperation

MCTI Vision: Cooperation in STI must be key to national development processes, technological sovereignty and autonomy, and the reduction of global asymmetries in scientific and technological access and production.

- Focus on Reindustrialization (on new technological and sustainable bases)

- Priority Areas (but not exclusive):

- Food and Nutritional Security
- Health Economic-Industrial Complex
- Energy Transition
- Ecological Transition (decarbonization)
- Digital Transformation (universal access and use)
- Defense Industrial-Technological Complex

MCTI's role in implementing international cooperation

MCTI has been working to maintain and deepen historical and successful cooperation with traditional partners, the USA and Europe, but also to give new impetus to cooperation with developing countries, with a focus on regional cooperation with Latin America and the Caribbean (Mercosur, CELAC, ACTO, etc.), with the BRICS, the African continent and Southeast Asia.

Some examples of major collaborations that we are deepening and launching are:
Traditional cooperations

i. AmazonFace – United Kingdom
ii. ATTO Tower – Germany
iii. Accession to the Eureka Network
iv. Accession to CERN
iv. Biosafety Level 4 Laboratory (Orion) – Several partnerships
v. Reactivation of the French-Brazilian Biodiversity Center
vi. Participation in the Dune Experiment with the USA

MCTI's role in implementing international cooperation

With countries of the Global South

i. CBERS-6 Satellite – China and CBERS-5, which will be the first geostationary satellite to be developed by Brazil
ii. 7 BRICS STI calls and the feasibility study for the BRICS cable
iii. CPLP Scientific Repository
iv. Connectivity for research data - Red Clara
v. Open calls by CNPq – Pró-Amazônia/ACTO
vi. CABBIO (almost 40 years old)
vii. CYTED
viii. Brazilian Multipurpose Reactor and Sabiá-Mar Satellite with Argentina
ix. To be launched: Pepe Mujica Program (LAC)

Potential of Latin America and the Caribbean

- From the perspective of ecological transition, LAC is the most megadiverse region in the world, thanks to the Amazon rainforest, playing an important role in biodiversity, bioeconomy and its relationship with the health of the planet.

- Regarding the decarbonization of the economy, although rich in oil, the continent is a leader in renewable energy and minerals essential for clean energy technologies and emerging technologies .

- It is also an interstate zone of peace, although intrastate violence remains at historically high levels.

- It is the largest net food exporting region, which helps stabilize food supplies and reduce price volatility worldwide.

FOR ALL POSSIBLE ACTIONS, COORDINATION IS THE KEY ASPECT AND MUST BE THE PRIORITY TASK FOR THE REGION. IT IS NOT EASY, BUT IT IS THE BEST POSSIBLE ALTERNATIVE.

Existing structures in Latin America and the Caribbean to deepen cooperation in STI

Coordination of STI international foruns

During the 3rd term of President Lula we manage to coordinate and host big forums related to STI:

- **G20 (2024)** – Creation of the RIWG. Approval of the Open Innovation Collaboration Strategy and 9 deliverables.
- **BRICS (2025) –** 1st Innovation Call, Submarine Cable and meetings of 13 WGs.
- **COP 30 (2025) –** Bringing STI to the core of the global climate debates.

2026: Brazil will host: (i) the ECLAC Conference on Science, Innovation and Information and Communications Technologies, (ii) the Ministerial Conference on the Information Society in Latin America and the (iii) Caribbean and the **Open Forum of Sciences of Latin America and the Caribbean (**CILAC Forum)

This will be a big opportunity to better coordinate several widespread initiatives.

www.gov.br/mcti