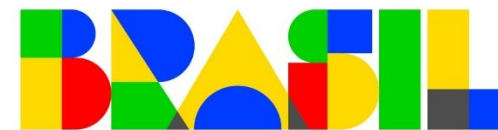


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# Technology Development in the Space Sector – Political and Institutional Setup in Brazil

Speaker: Osório Coelho Guimarães Neto  
Director of Innovation Programs –  
2024, January, 29



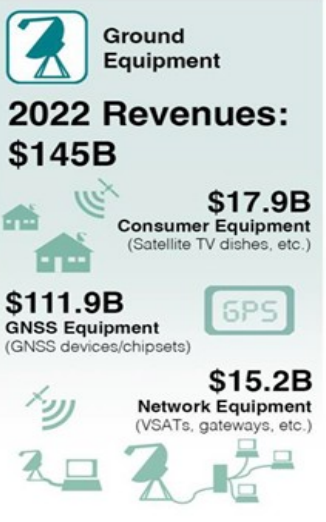
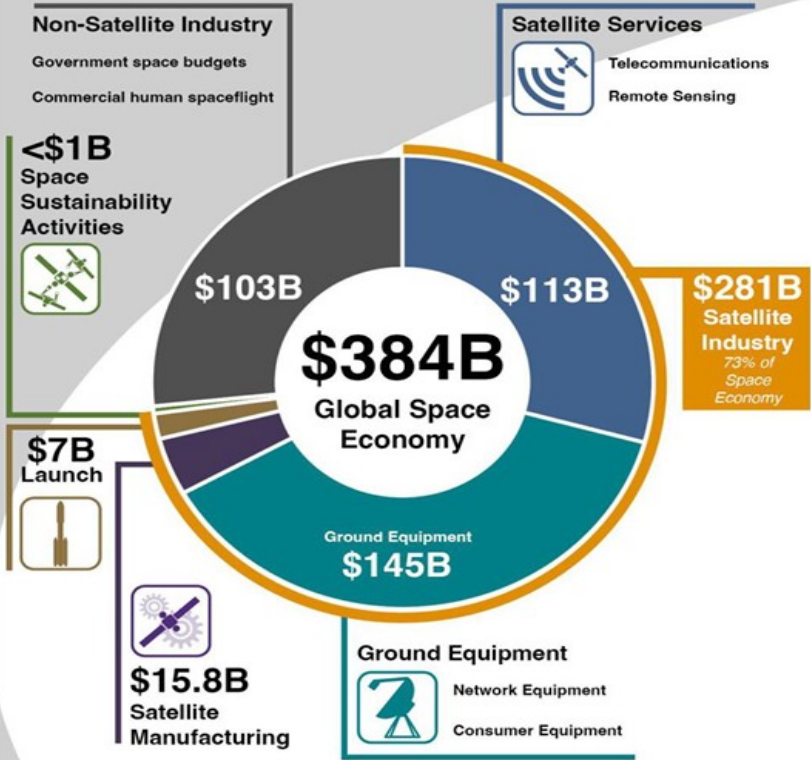
# The Global Space Industry Market



## 2022 Global Satellite Industry Revenues

### The Satellite Industry in Context

(2022 revenues worldwide in billions of U.S. dollars)



### Changing Industry Dynamics: Increasing Affordability and Productivity, New Capabilities



# Brazil: a country of continental dimensions



- Highest GDP in Latin America
- Population of 203,080,756 (IBGE, 2022)
- 5th largest country in the world
- Area: 8.510.417 km<sup>2</sup>
- 17.000 km of frontiers
- 7.400 km of Marine Coast
- Demands of space area: Public Safety, National Defense, Communication, Meteorology, Environment, Navigation, Intelligence, Agriculture, Mining, Infrastructure and Civil Defense.

# Brazilian Space Program

## National Program For Space Activities – from 2022 to 2031



**Vision For The Future:**  
*To be the leading South American country in the space market*

Enable the national space sector.

Drive strategic Space activities.

Foster private sector growth and attract foreign business.

Define and communicate a clear vision and strategy.

Establish a conducive and strategic regulatory framework.

Be the national space sector's International reference.



# Strategic Dimension

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**INNOVATION**  
**PLANNING** **SCIENTIFIC SOVEREIGNTY**  
**DEVELOPMENT** **OBJECTIVE**  
**SPACE** **SPACE PROGRAM** **ENTREPRENEURSHIP**  
**EDUCATION**  
**INDUSTRY** **SOCIETY** **POTENTIAL BENEFITS**

# Sustainability

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Challenges for the sustainable use of the planet's resources

# Monitoring and Decision Support Systems

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- Deforestation and wildfires
- Monitoring of the seas and frontiers
- Optical sensing, SWIR and SAR
- Telecom, geospatial and signal intelligence





## Amazonia 1

First Brazilian Satellite projected, integrated, tested and operated by Brazil

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### Earth Observation

- Launch: 2021 (PLSV - India)
- Orbit: Polar LEO
- Distance: approximately 752 km
- Multimission Platform (PMM)
  - Energy and Control
  - Platform: 250 kg
  - Payload: 280 kg



# Develop the national industry: Amazonia 1



# Climate Challenges

Explosive Cyclogenesis in the Atlantic should affect Brazil,  
causing heat waves and storms



A bomba meteorológica foi formada no Leste da Argentina e deve afetar o Rio Grande do Sul

Imagem: Reprodução/MetSul



Colaboração para o UOL, em São Paulo

28/04/2022 04h00 | Atualizada em 28/04/2022 15h48

Um ciclone bomba deve afetar a região Sul do Brasil, trazendo fortes ventos e temporais a partir de hoje. Em todo o Sul do Atlântico, incluindo Argentina e Uruguai, podem ser esperadas rajadas de vento de 150 km/h a 200 km/h, bem como ondas com altura bem acima do normal. As informações são da agência meteorológica MetSul.

# Catarina Constellation Program



## A Framework for Cooperation with Nanosatellites

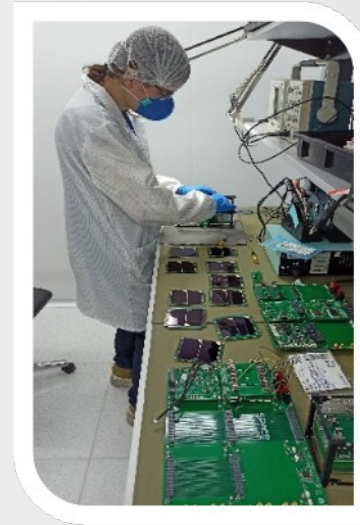
Comprises a set of consortium initiatives aimed at the development of space systems based on the use of nanosatellites which complement each other through the collaborative sharing of spatial infrastructure, knowledge, data, services and space applications.

Fleet A Mission: collection of hydrometeorological environmental data.

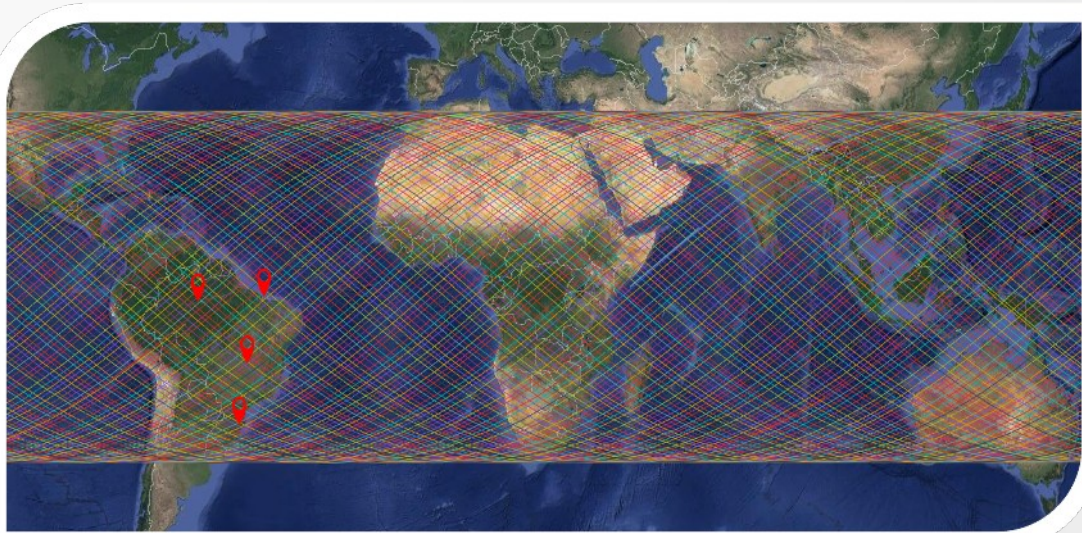
# Catarina Constellation



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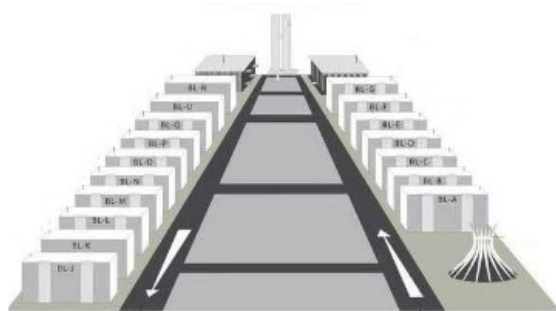
GOLDS-UFSC  
1º Prototype, 2U



# Catarina Constellation

Triple Helix: Academia, Government and Industry

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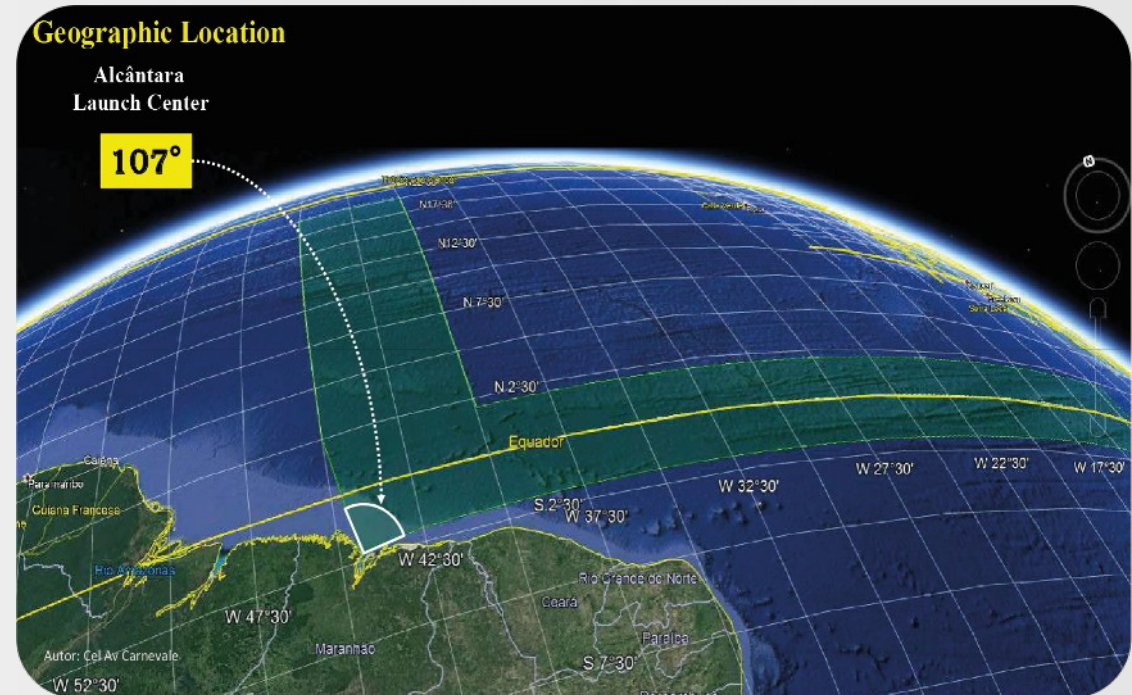
Sistemas Embarcados - SC



# Spaceport of Alcântara

## Features of Alcântara Launch Center

- Proximity to the Equator line (2 degrees south), which provides energy gains for equatorial or low-slope launches. This translates into better performance, or better payload, for launch vehicles;
- Large launch azimuth, for different orbital planes, safely and without the need for evasive maneuvers;
- Well-defined and favorable meteorological conditions, which makes it possible to carry out launches practically all year round;
- High level of geological stability;
- Low population density in the surrounding regions;
- Available land for construction of dedicated infrastructure.



# Spaceport of Alcântara

## Use and strategic location of the Alcântara Launch Center

Alcântara Launch Center (CLA), 18 km from São Luís, the capital of Maranhão.

The Spaceport has already carried out more than 500 suborbital launches, since its implementation.





# National development of Launch Vehicles



VSB30 launch from Esrange (Sweden)



Static test of the S50 engine

# Space Market in May, 2024

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**SpaceBR Show**

THE EVENT ▾ PROGRAM ▾ EXHIBITION ▾ SIMULTANEOUS EVENTS ▾ NEWS ▾ CUSTOMER'S AREA

EXHIBITORS 2024

May 21st to 23th, 2024 Expo Center Norte - São Paulo - Brazil

## SpaceBR Show

### WELCOME SOLUTIONS FROM SPACE

Space economy, satellites, rockets and benefits for society

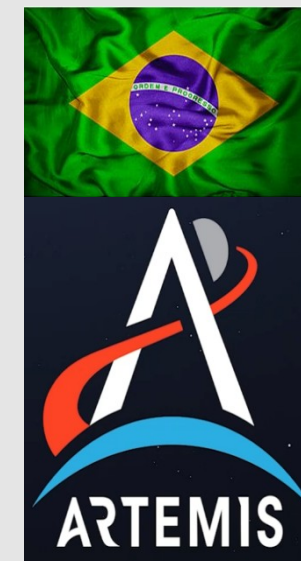
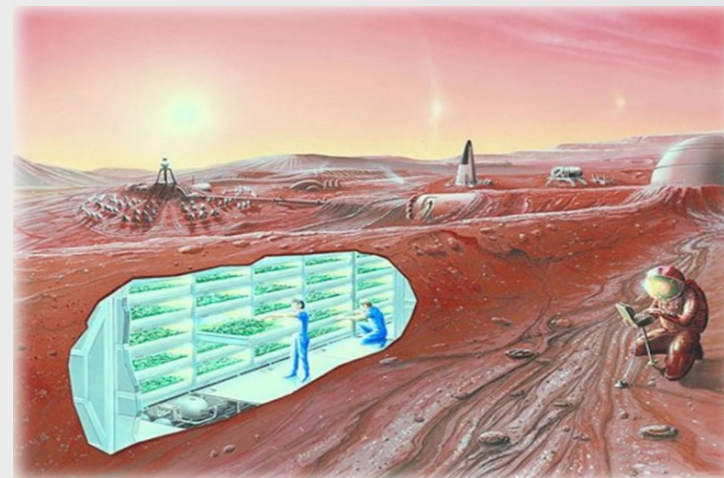
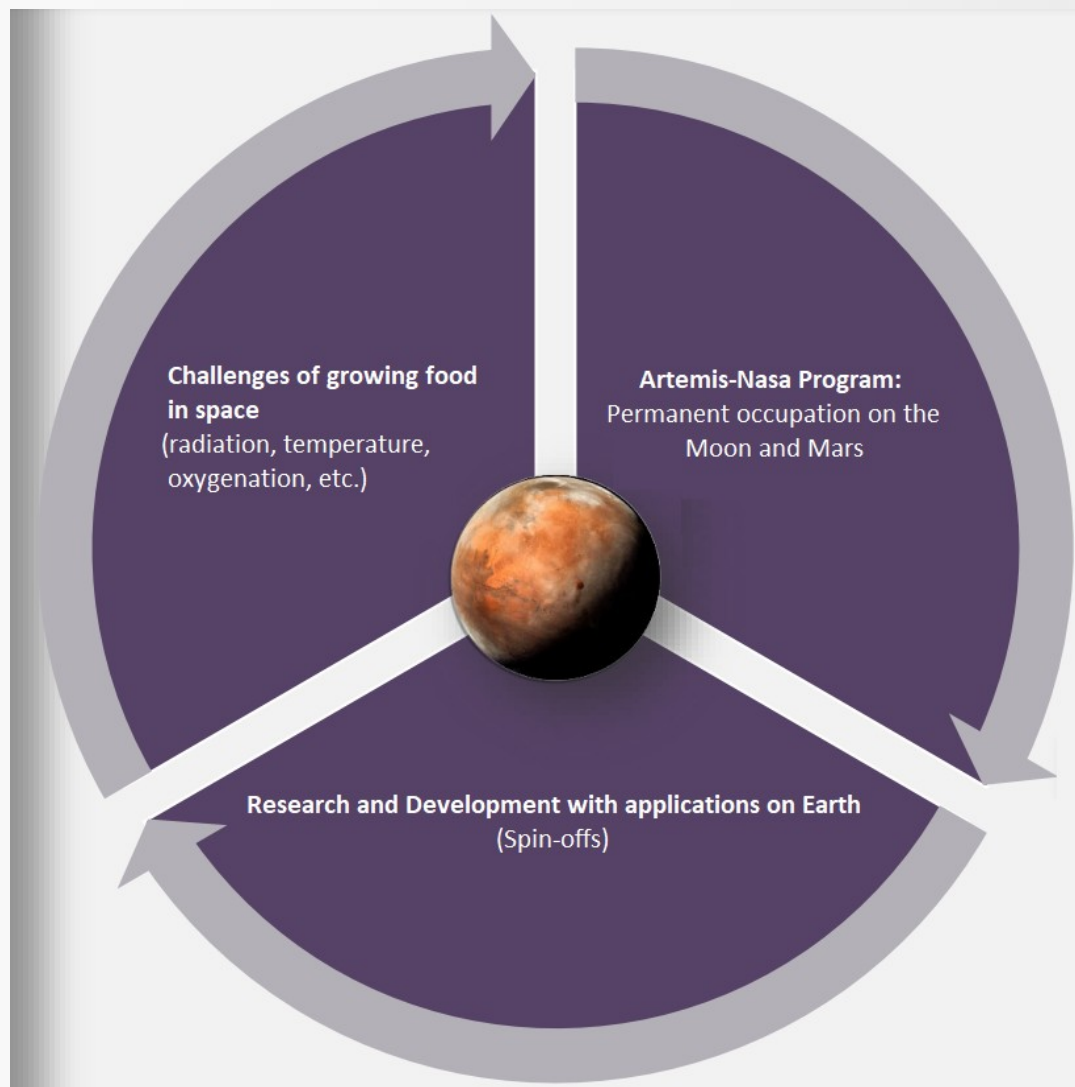
- Forum: Space Opportunities
- Space Industry Trade Fair
- Business Roundtable
- Startups Pitches

Satellite Services Software Hardware Infrastructure Applications

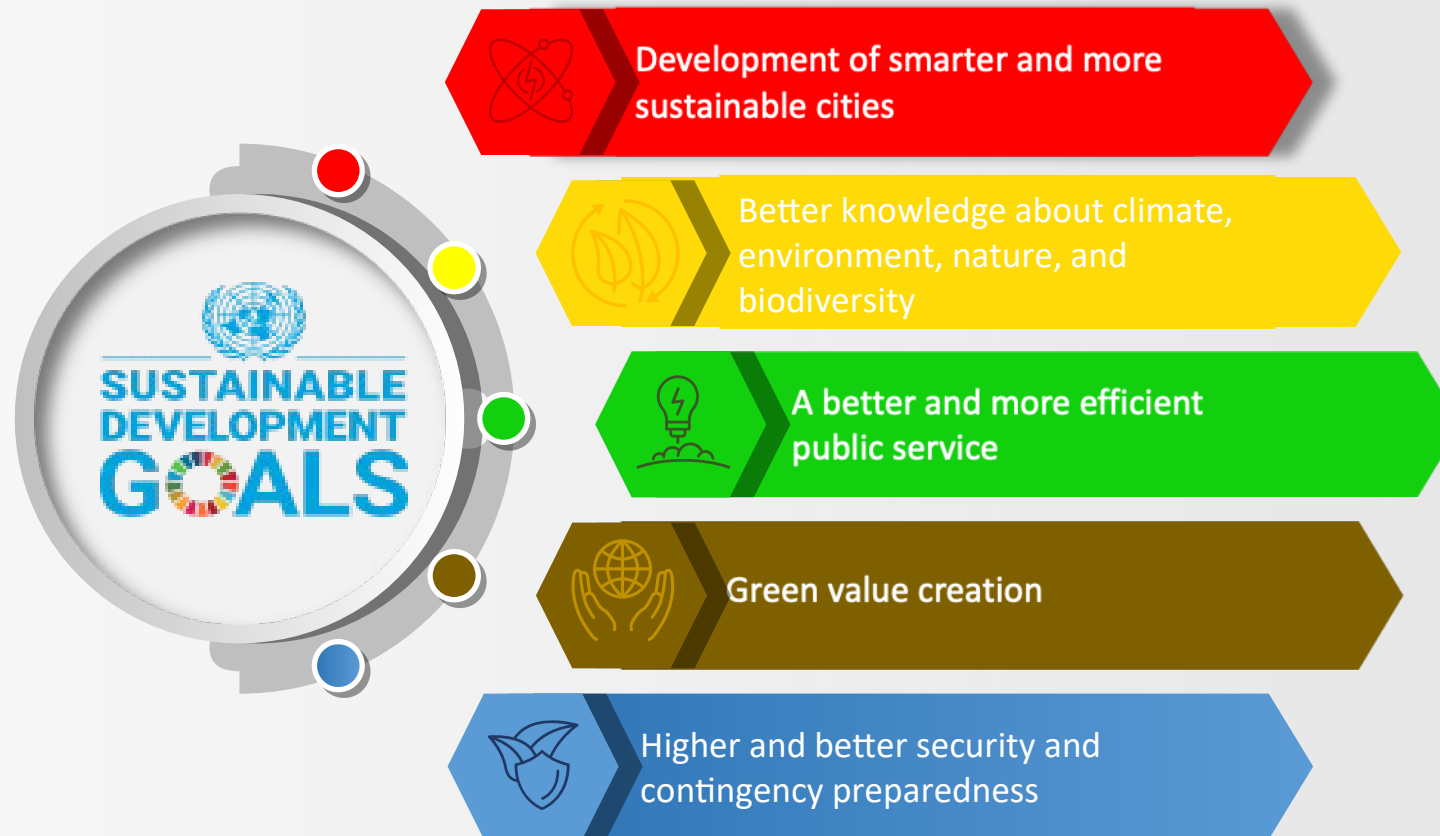
# Space Farming

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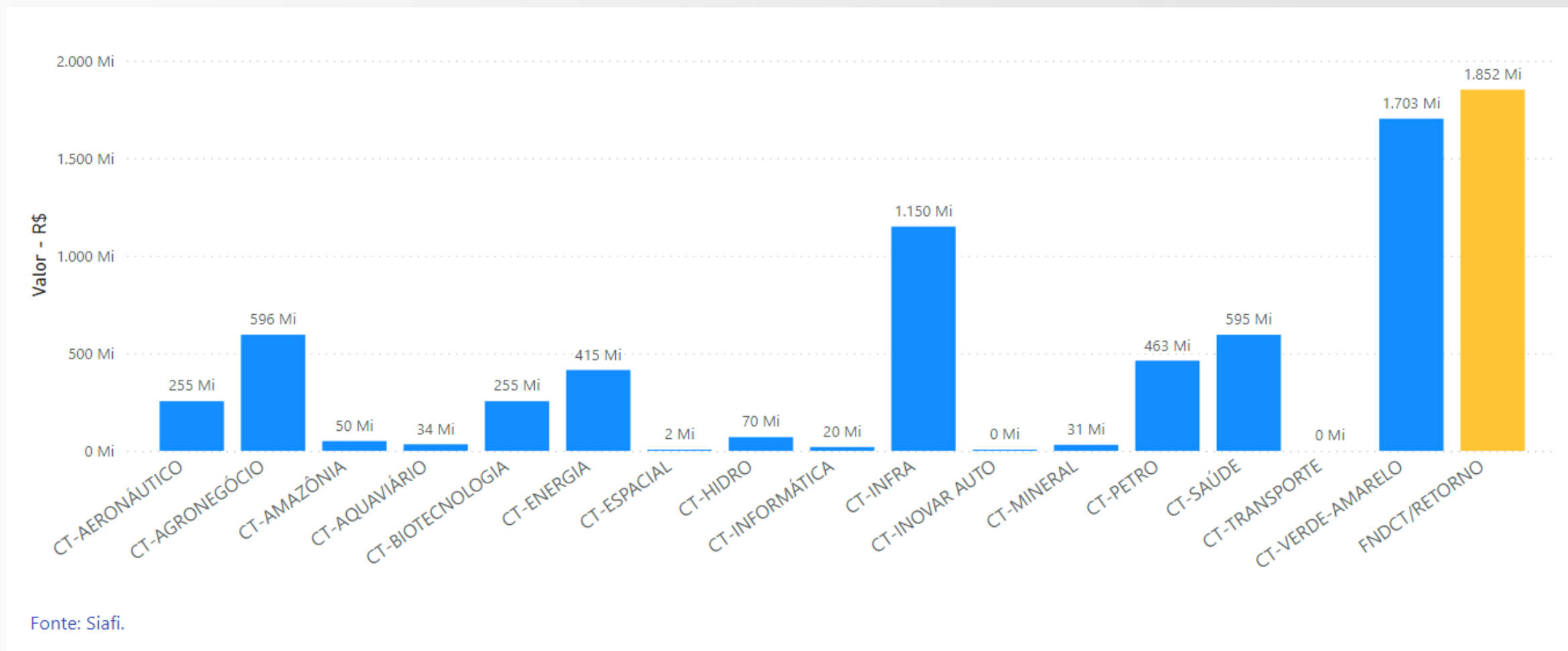
# Synergy with the Sustainable Development Goals



# Instruments to promote Innovation

## National Fund for Scientific and Technological Development (FNDCT)

Amount collected by the 15 funds



# CT - SPACE

DEMANDA ORÇAMENTÁRIA (COMPROMETIMENTO)		
2023	2024	2025
40.865.410	43.521.568	21.163.022
Room for new initiatives in 2024		0a

## STATUS OF PAI\* INITIATIVES – 2021-2022

Initiative Name	Status	PAI Year	Total Initiative Amount (R\$ Mil)
Development of the L25 Liquid Propellant Rocket Engine. Phase 1 development (electric/inverter engine).	Contracted	2022	15.000
SELENITA: a space climate and geophysics mission to monitor the moon.	Contracted	2022	39.620
Uniespaço Program	Processing Contract	2022	15.000
MCTI/FNDCT/CNPq/2022 Call - Technological development of Cubesats and their applications in areas of interest to Brazil	Processing Contract	2022	6.160
Advanced development of ionospheric sensors – EQUARS Space Mission	Contracted	2022	13.566
Development of electromagnetic signal reception payloads for satellites.	Contracted	2022	28.600
Navigation and Control System to Space	Contracted	2022	3.500
			121.446

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Programs

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[www.gov.br/mcti](http://www.gov.br/mcti)