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## Developing Space: Political and Socio-Economic Rationales of Emerging Space Programs

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# DEVELOPING SPACE: POLITICAL AND SOCIO-ECONOMIC RATIONALES OF EMERGING SPACE PROGRAMS



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## What is Space Generation (SGAC)?

- Global non-governmental organisation and network depending on the UNOOSA which aims to represent university students and young space professionals to the United Nations, space agencies, industry, and academia from the age of 18 to 35 years old
- Main events: Space Generation Congress (IAC) and Fusion Forum (NSS)
- Working Groups (7):
  - Space Law
  - YGNSS
  - Small Satellites





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Why do they go to space?

# Outline

- Rationales for a Space Program
- Developing Space Programs in Latin America
  - Mexico
  - Brazil
- Common Rationales
- Conclusions

# Rationales for National Space Programs

- *Emerging and new actors*, whose interests are primarily driven by their **national context and circumstances**.
- *Established actors* drivers are to pursuit advances in technological and scientific **innovation**



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AEM

AGENCIA  
ESPACIAL  
MEXICANA

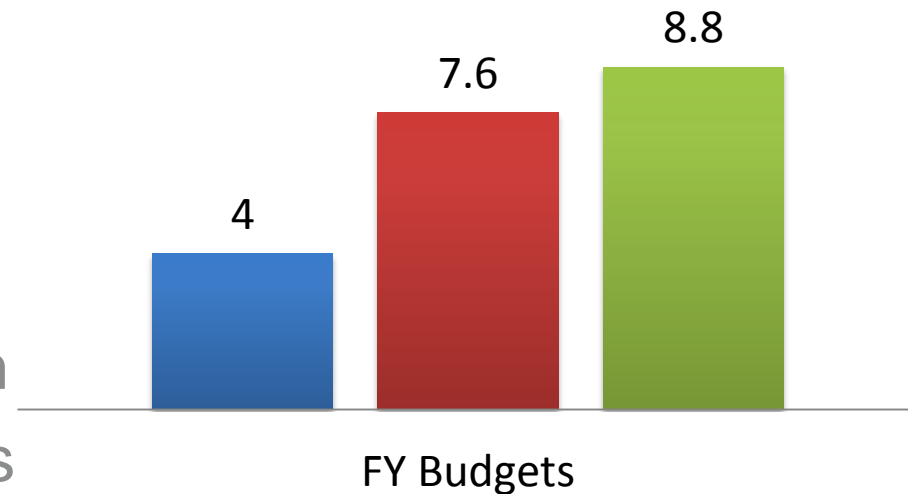
## Introduction.-Mexican Space Agency (AEM)

- July 2010 the Congress passed the law that established the AEM
- 2010 the board of governors is created formed by government representatives and academia who approve the AEM Space Program
- October 2011 AEM starts activities and programs

### AEM Budget Evolution in Million US\$

USD\$ 1=MXP\$ 12.86

■ 2012 ■ 2013 ■ 2014



Source: CÁMARA DE DIPUTADOS, *Diario Oficial de la Federación*, Presupuesto de egresos de la federación para el ejercicio fiscal 2012, 2013 & 2014.



## Mexico's Space Law Framework and Rationales

- 2011 The General Guidelines of the Mexican Space Policy are established
- National Space Activities Program (PNAE)

| Strategic Goals (PNAE) 2011-2012                                        | Drivers                             |
|-------------------------------------------------------------------------|-------------------------------------|
| Creation of <b>human capital and capacity building</b>                  | Education and workforce development |
| Development of <b>scientific and technological research</b>             |                                     |
| Support of <b>industry and business competitiveness</b>                 | Economic growth                     |
| Development on <b>international relations and security</b> space topics | National prestige and leadership    |

## The Mexican Space Program Priority Areas

### Disaster Management

- Earth Observation (i.e. Early Warning System)

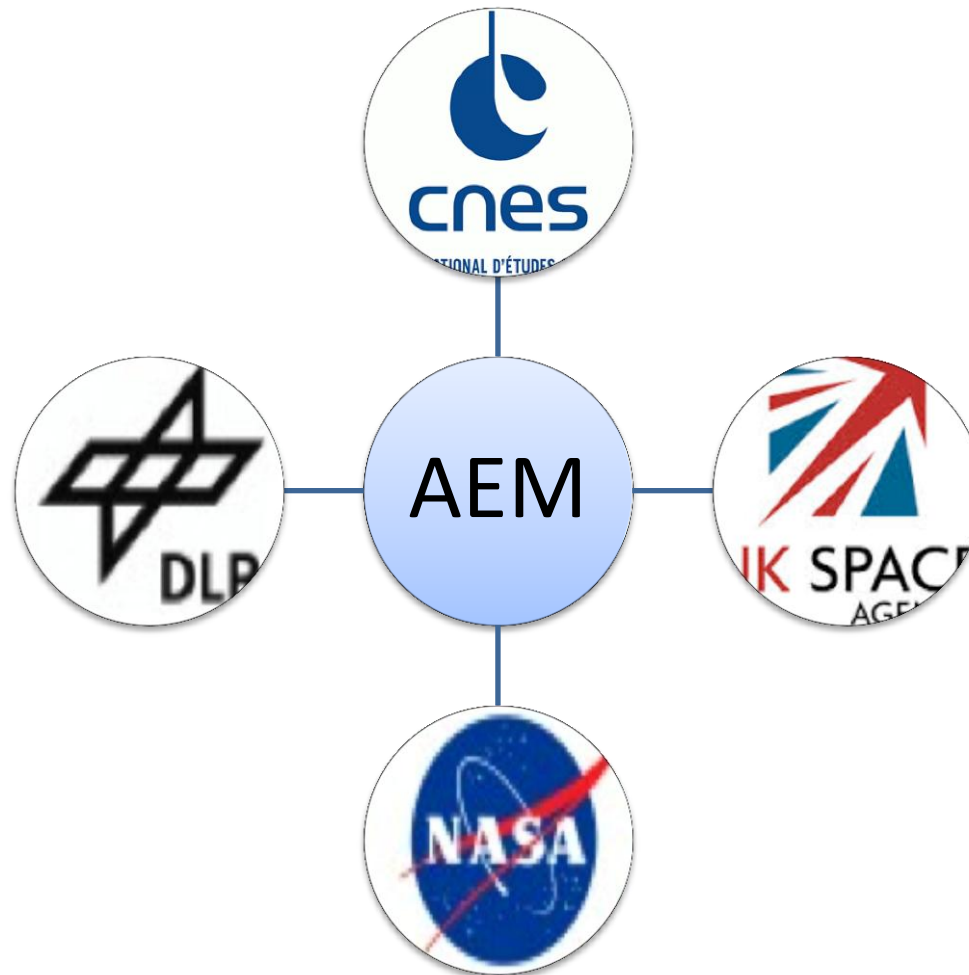
### National Security and Surveillance

- Scientific and technological development R&D (Small satellites manufacture)

### Telecommunications

- Communication Systems (i.e. Connectivity)

## International Space Partners



MoU's elaboration



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## Brazilian Space Agency (AEB) Introduction

- 1961, the Organizing Group for the National Commission on Space Activities (GOCNAE) was created.
- 1971 the GOCNAE was substituted by the Institute of Space Research (INPE).
- Brazilian Committee on Space Activities (COBAE) was also established.
- The Brazilian Space Agency (*Agência Espacial Brasileira* – AEB) replaced COBAE in 1994.
- AEB constitutes the **largest space organization in Latin America** with a budget of around US\$219 million in 2012

## Brazil's Space Law Framework

- The National Politics for the Development of Space Activities (**PND AE**)
  - Principles, objectives and guidelines of the **Brazilian National Space Policy**
- The National Plan of Space Activities (**PNAE**)
  - Elements, priorities and activities of the **space program**
- The National System for the Development of Space (**SINDAE**)
  - Carries out the **space activities**
- The most comprehensive space regulatory framework in Latin America: including private/commercial actors and activities.

## Brazil's Rationales

- The PNAE goals are based on the PNDAE rationales
- YET PNDAE needs to be reviewed and updated

| Strategic Goals (PNDAE)                           | Drivers                             |
|---------------------------------------------------|-------------------------------------|
| <b>Science and technology</b> competence          | Security and defence                |
| Support the Brazilian space <b>private sector</b> | Economic growth                     |
| <b>Space systems</b> development                  | Education and workforce development |

Brazil plays a dominant role in Latin America

## The Brazilian Space Program Priority Areas

Earth Observation  
(CBERS)

Infrastructure  
(Alcântara  
Spaceport)

Telecommunications  
(SGDC government  
communications  
satellite system.)

Meteorology

Access to space  
(ISS)



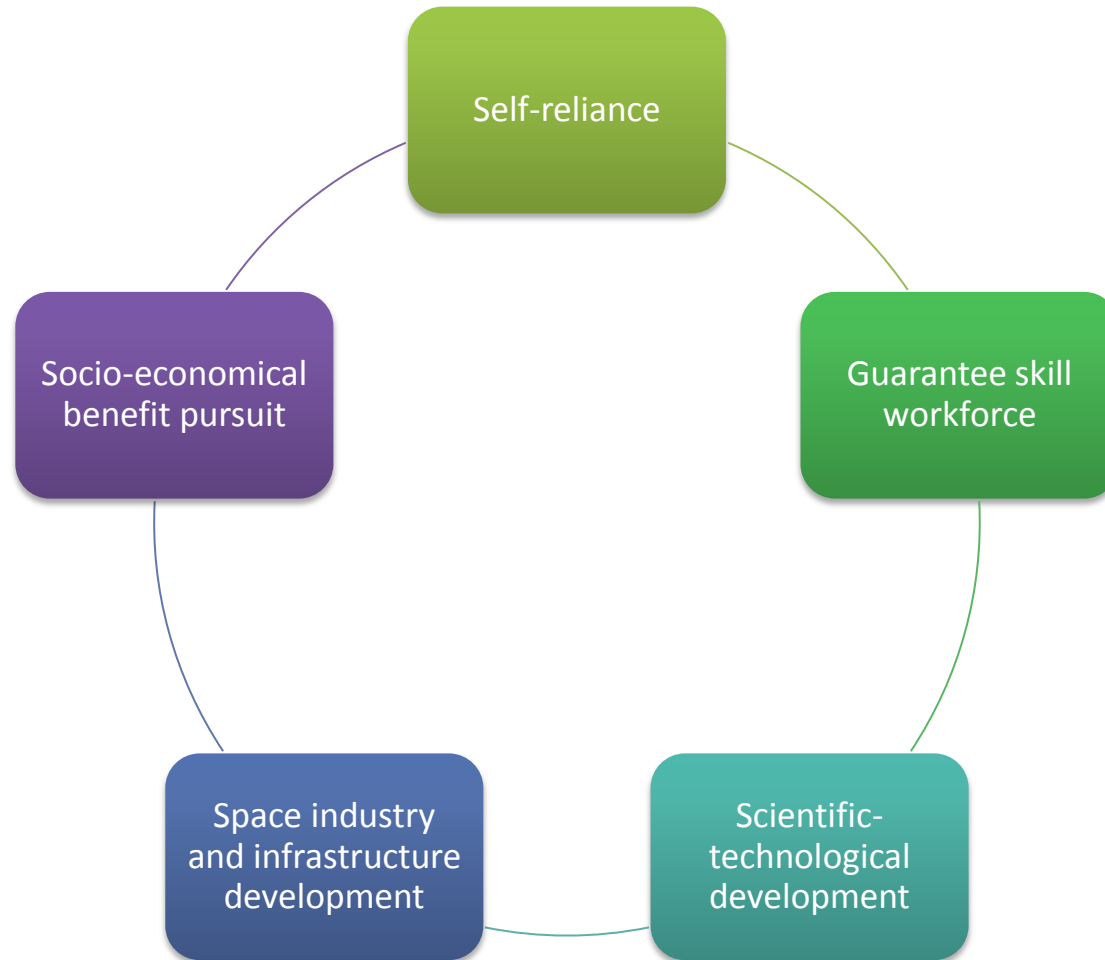
# Brazil International Space Partners



## Trends in Latin America

- South-South cooperation is more frequently observed.
- Projects can only be done by governmental funding.
- Interest focus: Telecommunications, EO, small satellite industry, R&D.

# Common Rationales of Emerging Space Programs



## Closing Remarks

- **Strategy 1:** To cooperate with developed countries in specific areas of expertise and tech transfer
- **Strategy2:** To identify a niche in the space industry
- **Strategy 3:** To innovate in space solutions due to tight funding
- **Strategy 4:** To accomplish short term projects in order to give to the population immediate results



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Thank you  
Merci

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