



ACAEE

CENTRAL AMERICAN ASSOCIATION FOR AERONAUTICS AND SPACE

**REGIONAL COOPERATION IN SPACE ACTIVITIES FOR
EMERGING COUNTRIES:
THE CENTRAL AMERICAN CASE**

Carlos Alvarado
President
ACAEE, Costa Rica

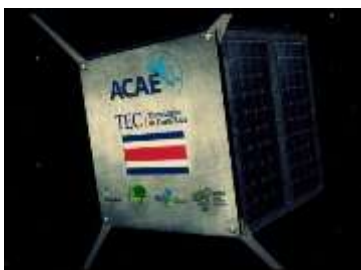
Co-Authors:

Luis E. Salaverría
(ESAI)

Willy R. Cabañas
(ACAEE, Guatemala)

Adolfo Johanning
(ACAEE, Costa Rica)

Aerospace Development in Costa Rica



- **1980:** Dr. Franklin Chang Díaz, selected to become a part of NASA's astronauts corps.
- **1986 - 2002:** STS-61-C, STS-34, STS-46, STS-60, STS-75, STS-91, STS-111
- **1989:** Foundation of ACIDE
- **1990:** I CEA
- **2004:** Foundation of ESXXI
- **2005:** Ad Astra Rocket Company's creation
- **2009:** Foundation of ACAÉ
- **2010:** Creation of CONIDA (36102 – RE – MICIT)
- **2012:** Costa Rica became member of COPUOS
- **2014:** Costa Rica's first satellite declaration of public interest (38340 – MINAE – MICITT)
- **2015:** Costa Rica announced to hold the UN Workshop on Human Space Technology: **Nov. 9-13, 2015**

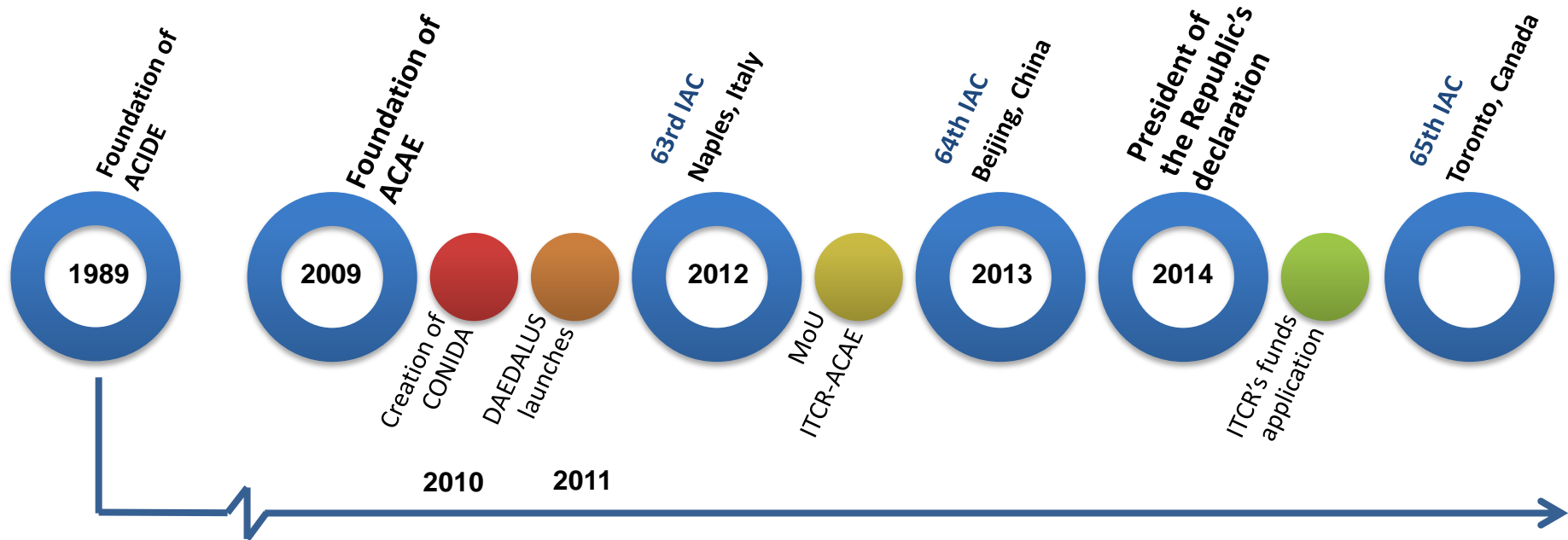
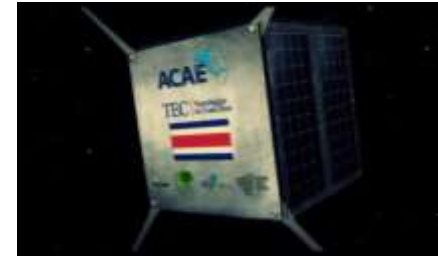
Picture credits:

1. Dr. Franklin Chang Díaz. 1982

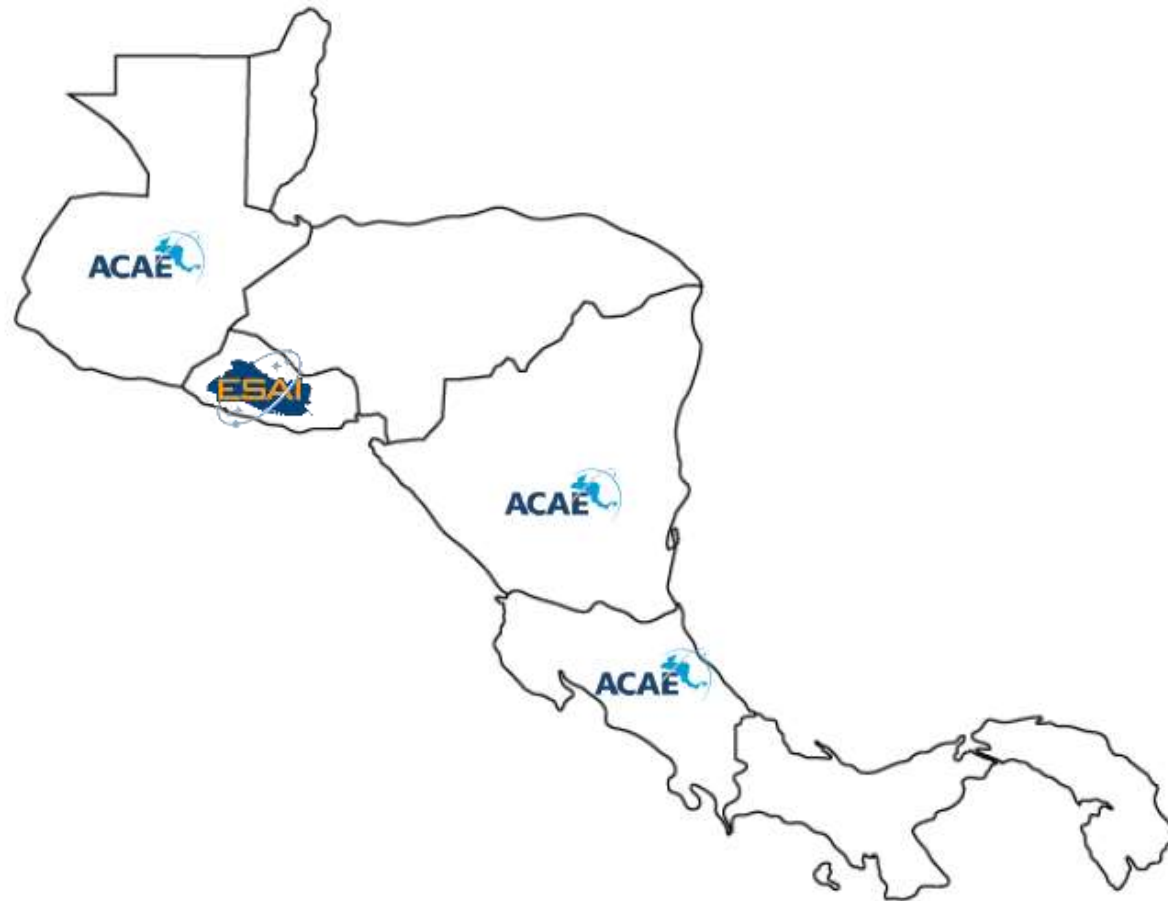
2. VX-200 Plasma at Full Power Both Stages. "Copyright Ad Astra Rocket Company © all rights reserved".

3. Costa Rican CubeSat artistic concept – Central American Association for Aeronautics and Space, 2014

ACAIE's PRELIMINARIES



AEROSPACE ORGANIZATIONS IN THE REGION



GOVERNMENT PARTICIPATION (CRO)



Launching of the Program of Aerospace Development of Costa Rica and Integration of the Central American Region in the Generation of New Technologies

Guanacaste, Costa Rica. July, 2010

GOVERNMENT PARTICIPATION (CRO)



CONIDA: National Council for Aerospace Research and Development



GOVERNMENT PARTICIPATION (CRO)



**DSPACE Declaration of Public Interest by the Former-President of the
Republic of Costa Rica
April 21st, 2014**

Project's Outlook

General Objective:

Develop a CubeSat, put it into orbit and operate it as a data relay of information measured in remote places.



Technological component

Build in Costa Rica and subsequently in the Central-American region, scientific and technological capabilities for developing space projects.



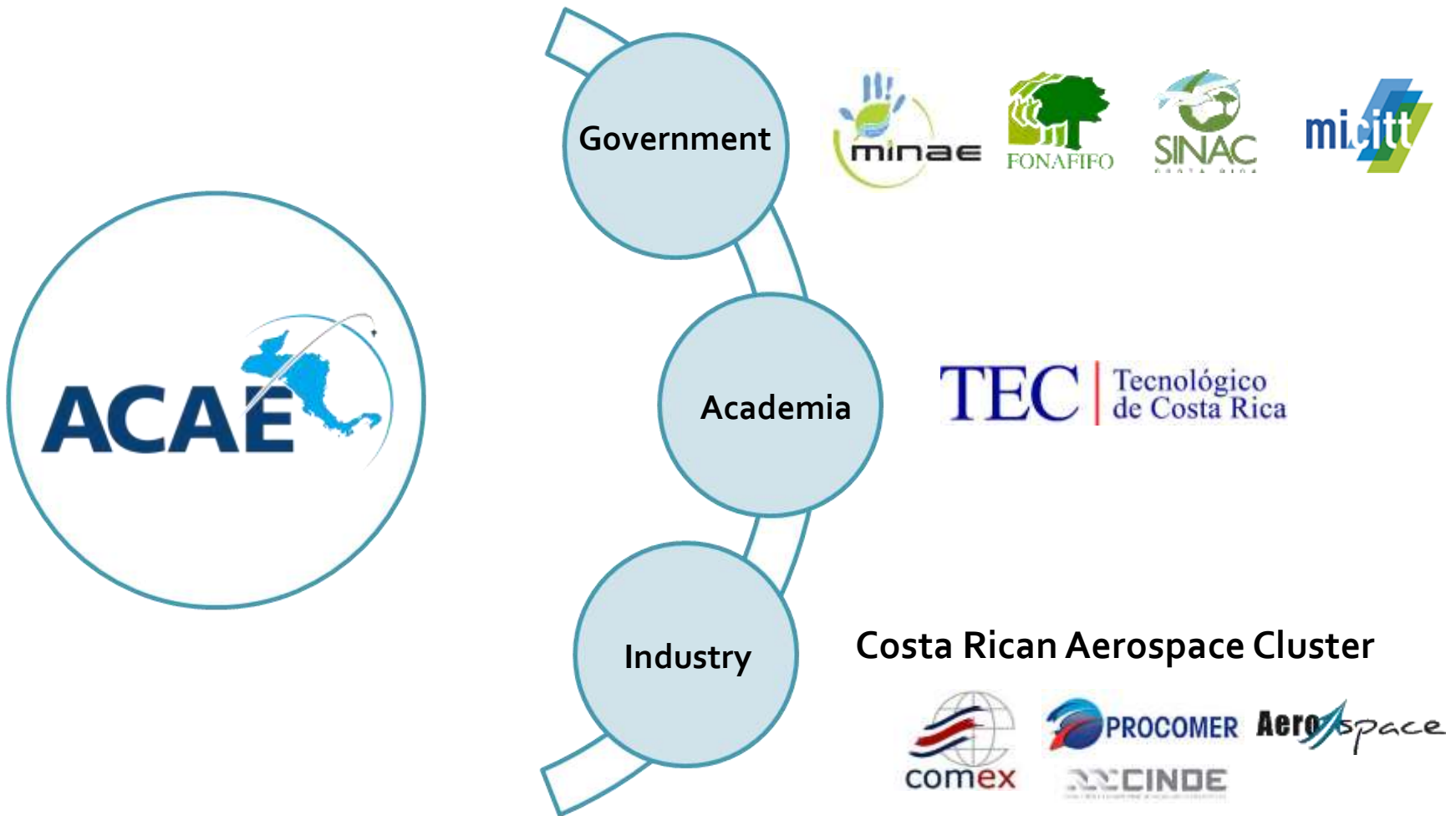
Scientific component

Develop a monitoring protocol of environment parameters related to climate change and forests.

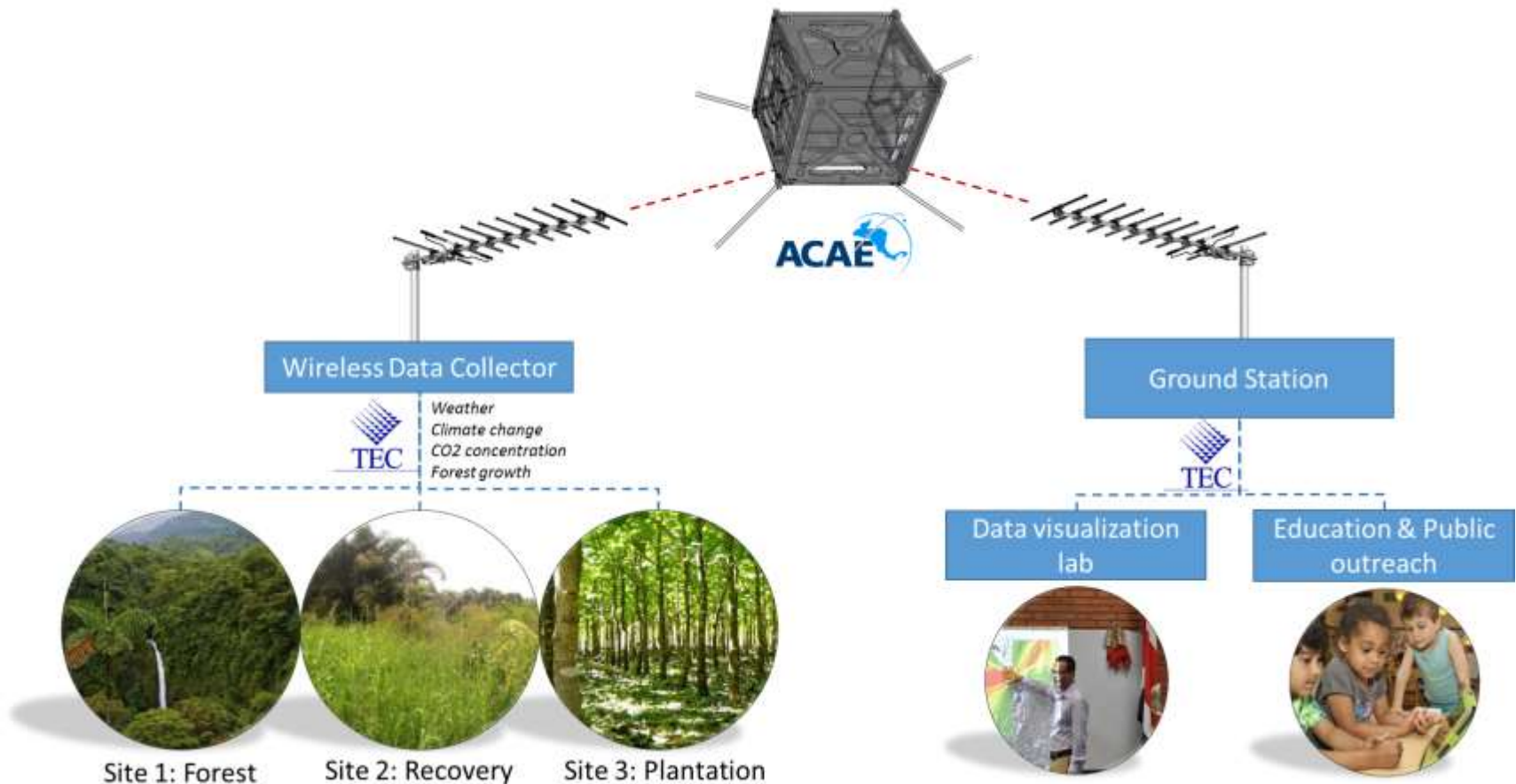
ACAÉ's human resources contribution as of Jan. 2015: USD \$100k

TEC's economic contribution as of Jan. 2015: USD \$60k

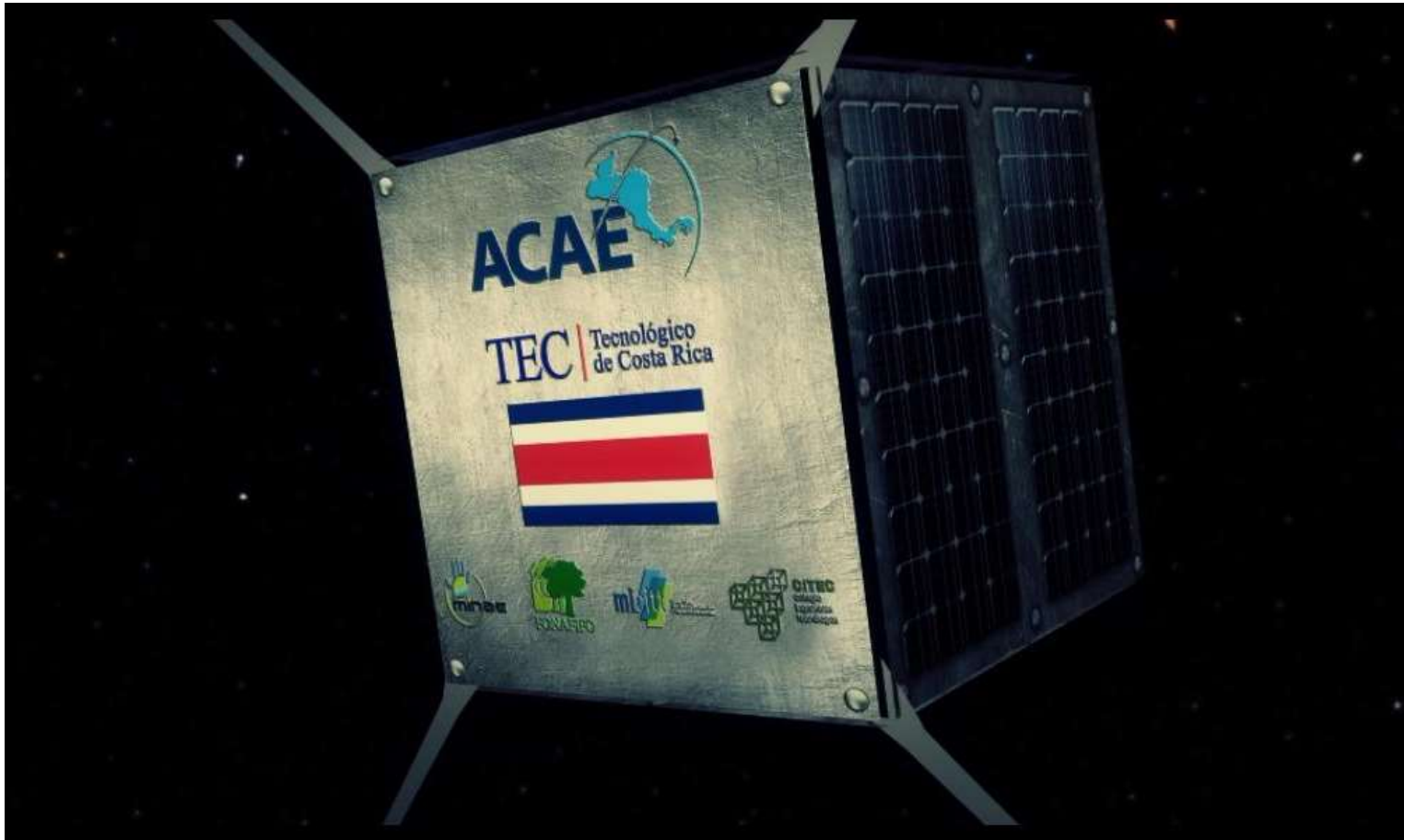
DSPACE BENEFICIARIES



DSPACE COMPLETE SOLUTION SCHEME



DSPACE MISSION VISUALIZATION



ELEMENTS REQUIRED FOR BUILDING A REGIONAL PROPOSAL OF PUBLIC POLICY

- **Political integration:** The role of SICCA would be vital in a potential scenario where the countries shall negotiate the conditions and terms.
- **Economic potential of the region:** Central America's has favorably advanced in the development of commercial tools and group negotiations (e.g. foreign trades' agreements negotiated and approved with USA and the EU).

LEGAL FRAMEWORK (Costa Rica)

- **Lack of a legal framework** to support the development of a space industry (Costa Rica has only acceded the Registration Convention, on May, 2010).
- Under the ***corpus iuris spatialis***, there is a government duty to authorize and supervise outer space activities, as a State could be considered responsible for them, even if the government has not been directly involved.

LEGAL FRAMEWORK (Regional):

To provide legal certainty to the development of commercial space products, services and spin-offs, Central American government should:

1. Assure adherence to the international **agreements relating to outer space activities**.
2. Achieve international and regional **cooperation agreements**.
3. Create a **national legal framework** for the upcoming space activities (including licensing, insurance, supervision and registration procedures).

THANK YOU FOR YOUR ATTENTION!



ACAÉ

Carlos Alvarado

carlos.alvarado@acae-ca.org

www.acae-ca.org