

United Nations/Brazil Symposium on Basic Space Technology
"Creating Novel Opportunities with Small Satellite Space Missions"

NATAL, BRAZIL, 11 - 14 SEPTEMBER 2018

Co-organized by the United Nations Office for Outer Space Affairs and the Government of Brazil



FACT,

A Project for Small Sat building capacity

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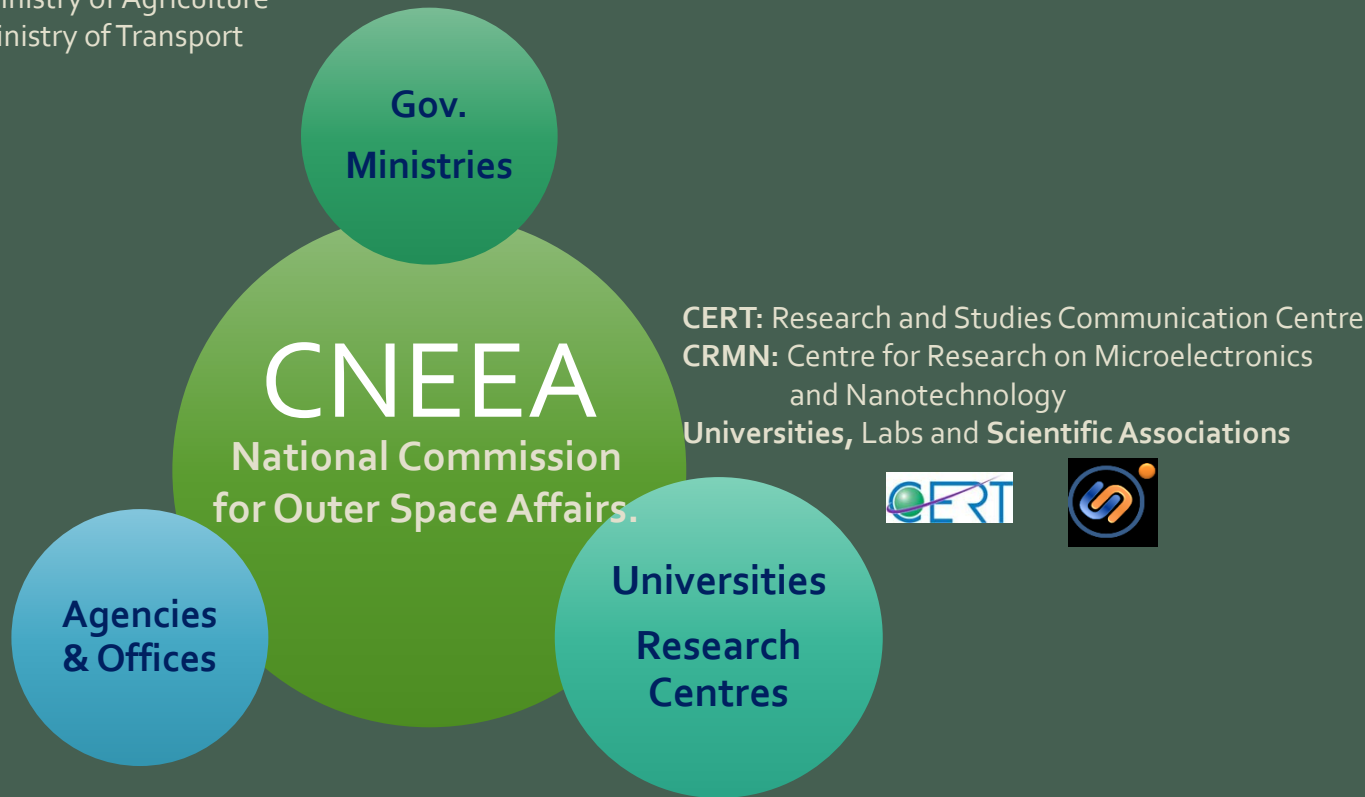
INTRODUCTION

- Tomorrow's society will be more closely linked to space activities.
- **African and MENA** countries have to catch-up faster their technological backward.
- They have their **specific challenges**: Water, Desertification, navigation, agriculture, illegal immigration, security of country borders..
- For that, our activities in recent years revolve around:
 - Promotion, collaboration and development of **education and research activities** in space technology and mainly in small satellite fields.
- As scientists, we have to inform society and **help train future socio-economic actors** in the challenges of the 21st century.....,

HIGHER INSTANCE OF COORDINATION

INTERNATIONAL CENTRES & ONG INSTALLED IN TUNISIA

MHESR: Ministry of Higher Education & Scientific Research (President)
 MDN : Ministry of Defense (Secretary)
 MA: Ministry of Agriculture
 MT: Ministry of Transport



CRTEAN: North African Center for Remote Sensing
 (Mauritania, Morocco, Algeria, Tunisia, Libya, Egypt, Sudan)
 Regional collaboration (north Africa)



AICTO: Arab ICT Organisation
 (All arab countries: Arab League)
 BEIDOU training Centre



African Association for Geospatial Development



Tunisian Association for Communication and spatial sciences

ATUCOM

METEO.TN
INM : National Institut of Meteorolgy

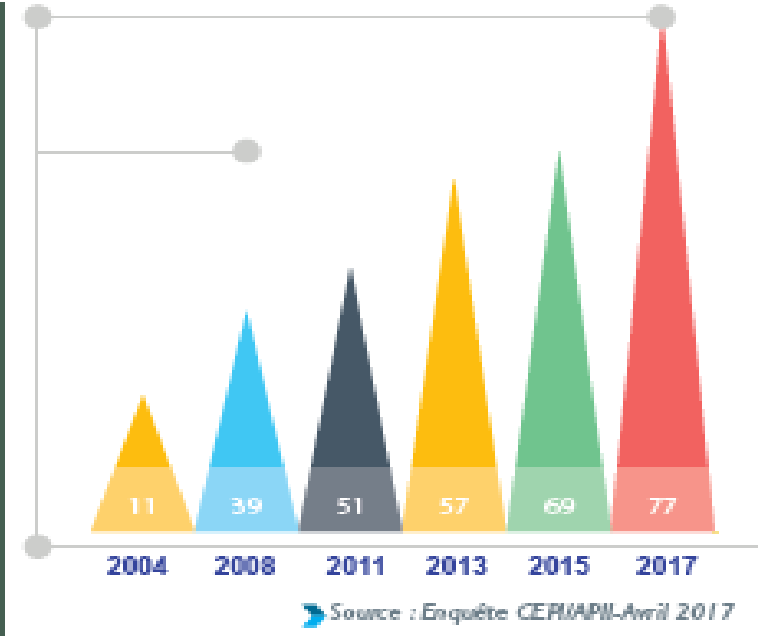


CNCT : National Mapping and Remote Sensing Centre

AERO & SPACE INDUSTRIES IN TUNISIA

TUNISIAN UNIVERSITIES

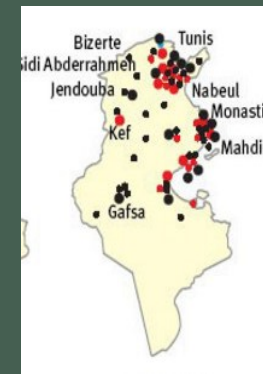
- Grouping of Tunisian Aeronautics and Space Industries (GITAS)
- ZODIAC,
- LATELEC
- SABENA TECHNICS
- STELIA AEROSPACE
- MECAHERS AEROSPACE
-



Evolution of the number of companies in aeronautics



- 1st Rank African Research Production per capita
- 3rd World Country for Women in Science
- 11.5 millions population
- 13 universities/37 Centres for research
- 320 000 students
- 1/3 in Fundamental sciences, engineering, Informatics, multimedia,...

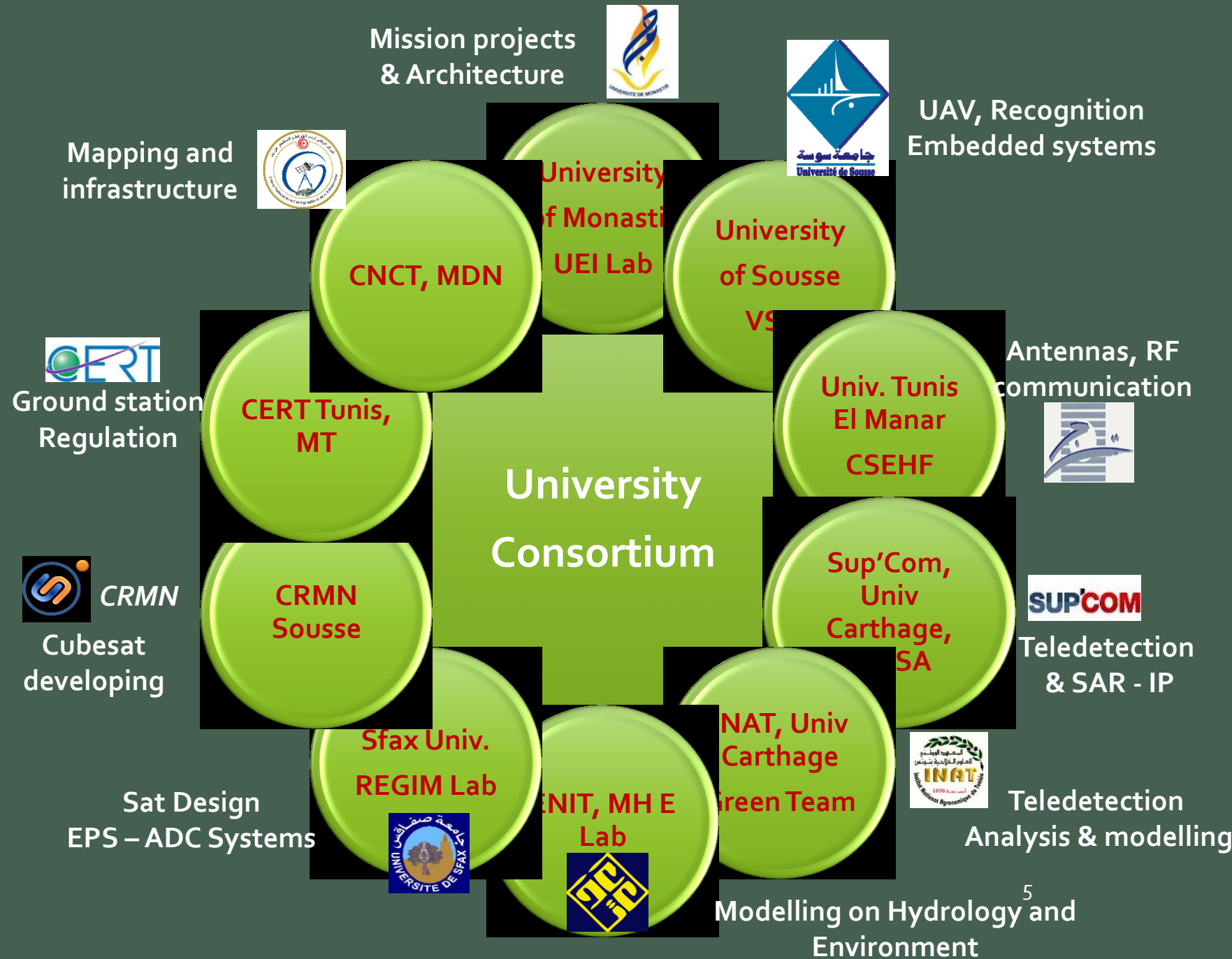


- Open to new opportunities
- Space technology is attractive when it becomes available



Objectives:

- Promotion of National and International projects:
- Working on Fundraising and Project Support:
- Promotion of the alliance
- Organization of events
- Communication and dissemination
- Promotion of International Cooperation:



COURSES ON SPACE TECHNOLOGY

We introduce courses in different levels for Basic approaches:

- Astrophysics ...
- Based knowledge in space physics and technologies
- Satellite Telecommunication
- GNSS
- Signal and image processing
- Small satellite design
- Mechatronics & Microelectronics
- Computer Technology (Space & Ground Segments)
- Space System Engineering (based on NASA model)
- Msc and PhD Thesis related to space applications



EVENTS AND CONFERENCES

Scientific Program

Organizers

THE 2ND MAGHREB INTERNATIONAL COURSES IN SPATIAL TECHNOLOGY

NANO-SATELLITES DESIGN

2nd MIST Maghreb - Tunisia 27-28 March 2014

UNISEC

1ST AND 2ND MAGHREB INTERNATIONAL COURSES IN SPATIAL TECHNOLOGY (NANO-SATELLITES)

UNIVERSITY OF MONASTIR APRIL 2012 & MARS 2014



Pr Schilling Pr Ageulet Pr Aslan Pr Alimi Pr Besbes Mr Hmaied



«Towards a Tunisian National Space Strategy»

22, 23, and 24 March 2018 Hammamet, Tunisia



NATIONAL CONFERENCE ON STRATEGIES FOR DEVELOPMENT SPACE TECHNOLOGIES,

CRMN SOUSSE, 22 DEC 2016



中国空间技术研究院
China Academy of Space Technology

Technopole Centre for Research on Microelectronics & Nanotechnology Sousse

JASMINe-12

1st Tunisia-China Space Tech Workshop

Mission design for remote sensing

CRMN, Sousse, Tunisia, 9-11 October 2018

INTERNATIONAL COLLABORATION

Skills development and Benchmarking

- Bilateral collaboration
- Conference organization
- Visiting Professor
- Internship for Young Researchers
- Workgroup and networking
- Participation on Cansat...
 - ISRO, ESA, DLR, CNES, ISA, JAXA, NASA, ROSCOSMOS, ..

Active participation since 2011

H2020 Associated country
with SPACE NCP since 2016

UNISEC Tunisia since
2013

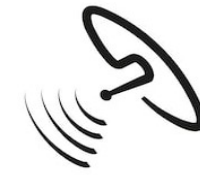
Coordinator and Several
participations
Semi finalist 2013

Tunisia China Declaration
of Intent July 2017

UNOOSA EVENTS &
PROGRAMS



WHAT IS FACT



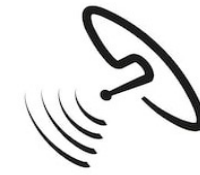
- **FACT means:** Fabrication and Application of CubeSats in Tunisia, 2018-2021
- Help us building **local capacity** on nanosatellite design assembly and integration
- **Implement** of CubeSat integration and testing **facilities**
- **Conducted by 4 partners:** Research Centre, Academic Research Lab., Robotic Compagny and National Centre for Earth Observation,
- **Funded by Tunisian Program** for Quality Development (PAQ Collabora, MESRS)
- Managed between **consortium members** as principal networking group
- Periodically evaluated with the presented indicators
- **Contribute to reinforce national Research and Innovation activities** related to space technologies in accordance with recommendation of (UN, UNOOSA, ESCWA, OCDE, BERD, ...)

WHY FACT PROJECT



- **Develop local autonomy:** materials, know how, team of young scientist
- **Upgrade the technical levels** by introduction of space technologies, internship, seminars,...
- **Training on the "System Approach"** and quality control used in space mission developing
- **Developing hands-on activities**
- **R&D on new ideas and specific applications** related to space missions and space use (water control)
- **Looking for flight opportunity** for first Tunisian nanosatellite,
- **Access to more important international programs** and collaboration on bigger projects. (H2020,...)
- **Implementation** of Spinoff, startup and new compagnies

HOW FACT WORK

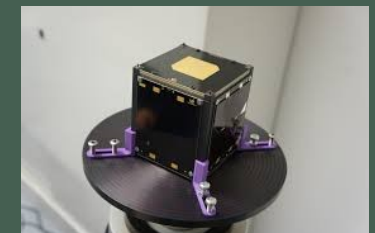


- The project FACT is presented in **5 Work-Packages**
- Each member of the consortium will be responsible to accomplish the different missions and work packages assigned to him..
- In accordance to the budget allocated to the project, each partner will **provide all human resources and technical equipment necessary to the achievement**
- Workshops and seminars would be organized regularly to **enhance the skills of team members** and interested parties.
- The **communication and dissemination** of the results of the project will be done based on the respect of intellectual property,

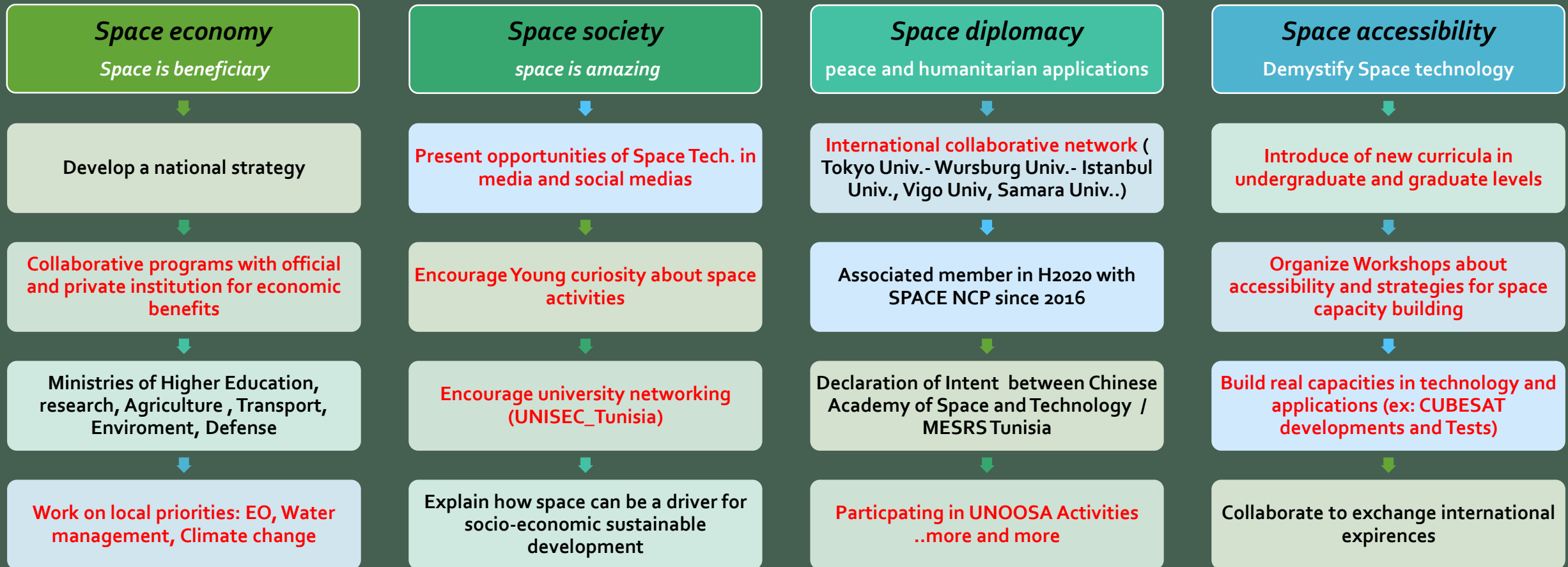
- Facilities for nanosatellite integration
 - Small clean booth



- Facilities for test:
 - Thermal vacuum test
 - Vibration test



10 GOALS IN BUILDING FUTURE SPACE TUNISIAN STRATEGY



First crossing of the Mediterranean
23 september 1913, Roland Garros
From South of France to Bizerte - Tunisia
780KM in 13 h 40

**Many Thanks to
Government of Brazil
and UNOOSA for this opportunity**



23 septembre après-midi : Garros à son arrivée à Bizerte

