



EXCELSIOR

ERATOSTHENES:

Excellence Research Centre for Earth Surveillance
& Space-Based Monitoring of the Environment

The Excelsior Project & ECoE

@excelsior2020eu     

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under Grant Agreement No 857510.



This project has received funding from the Government of the Republic of Cyprus through the Directorate General for the European Programmes, Coordination and Development.



CONSORTIUM

The idea behind Excelsior

To **upgrade** the existing Remote Sensing & Geo-Environment Lab (*ERATOSTHENES Research Centre*), established within the Faculty of Engineering & Technology of the **Cyprus University of Technology (since 2007)**, into a *sustainable, viable and autonomous Centre of Excellence: the ERATOSTHENES Centre of Excellence (ECoE)*

The Eratosthenes Center of Excellence (ECoE) for Earth Surveillance and Space-Based Monitoring of the Environment will provide the **highest quality** of related services both on the **National, European and International** levels through 'EXCELSIOR' Project under H2020 WIDESPREAD TEAMING.

EXCELSIOR Consortium



DEC
DEPARTMENT OF ELECTRONIC
COMMUNICATIONS



Prof. Diofantos G. HADJIMITSIS -
Coordinator



Mr. Georgios KOMODROMOS



BEYOND
Centre of EO Research & Satellite Remote Sensing



Dr. Haris KONTOES



**Deutsches Zentrum
für Luft- und Raumfahrt
German Aerospace Center**



Mr. Gunter SCHREIER



Dr. Albert ANSMANN



TROPOS

Leibniz Institute for
Tropospheric Research

Our Team (before the submission)!



Our Team (during kick off, Nov 2019)!



Public inauguration of Excelsior by the President of the Republic of Cyprus: 22/11/2019

- **The public inauguration** event of the strategic research project 'EXCELSIOR': ERATOSTHENES: Centre for Excellence in Land Surveillance and Environmental Monitoring was successfully held on the **22nd of November 2019**.
- The event took place at the Cyprus University of Technology under the auspices of the **President of the Republic of Cyprus, Mr. Nicos Anastasiades**.







External Advisory Board

Name	Position	Organisation
Dr. Vincent Ambrosia (M)	Associate Program Manager NASA Applied Sciences Program	NASA/California State University (USA)
Dr. Marcello Maranesi (M)	International business experience in Geo-Spatial Information and Earth Observation	Independent consultant (Italy)
Prof. Lena Halounová (F)	Head of the Remote Sensing Laboratory/ IPSRS Secretary General	Czech Technical University (Czech Republic)
Dr. Peter Zeil (M)	Senior expert in the field of EO services and applications	Spatial Services GmbH (Austria)
Dr. Simonetta Cheli (F)	Head of Coordination Office	ESA Headquarters
Mr. Daniel Barok (M)	Senior Space Consultant	SpaceFarma (Israel)



Why this consortium?

The **strategic partners** of the EXCELSIOR project form a **highly complementary team** possessing the full range of skills and expertise necessary to technically assist and carry out the proposed activities successfully.

- **DLR will support the planning and establish a satellite receiving station** including attached processing and archiving functions with the possibility of a direct data flow into EO-based services and networks.
- **NOA will seek to establish sustainable links between the ERATOSTHENES CoE (ECoE), and the BEYOND Centre of Excellence**, which is established in the **European Research Area** as a regional **Copernicus node** for EO-based monitoring.
- **TROPOS** will be the key partner for the establishment of a **ground based Remote Sensing station** in ERATOSTHENES CoE, providing close links between European networks and satellite validation activities.
- **DEC-MTCW** will **provide the links to the local and governmental community and promote** space issues on the national level

Why Teaming Widespread?

Widening consists of three main actions, i.e. **Teaming**, **Twinning** and **ERA Chairs**:

ERA Chairs stands for 'excellence to institution'

Outstanding academics, with proven research excellence and management skills, with potential for research excellence.

Twinning stands for 'institutional networking'

Transfer of Knowledge

Teaming means 'institution building'

Despite efforts to reduce disparities in country research and innovation performance in the EU, sharp differences among Member States still remain. Exploiting the potential of Europe's talent pool by maximising and spreading the benefits of research and innovation across the Union is vital for Europe's competitiveness and its ability to address societal challenges in the future. **This could help countries and regions that are lagging behind in terms of research and innovation performance to attain a competitive position in the global value chains.**

Teaming projects create new or update existing centres of excellence in Widening countries through a coupling process with a leading scientific institution.

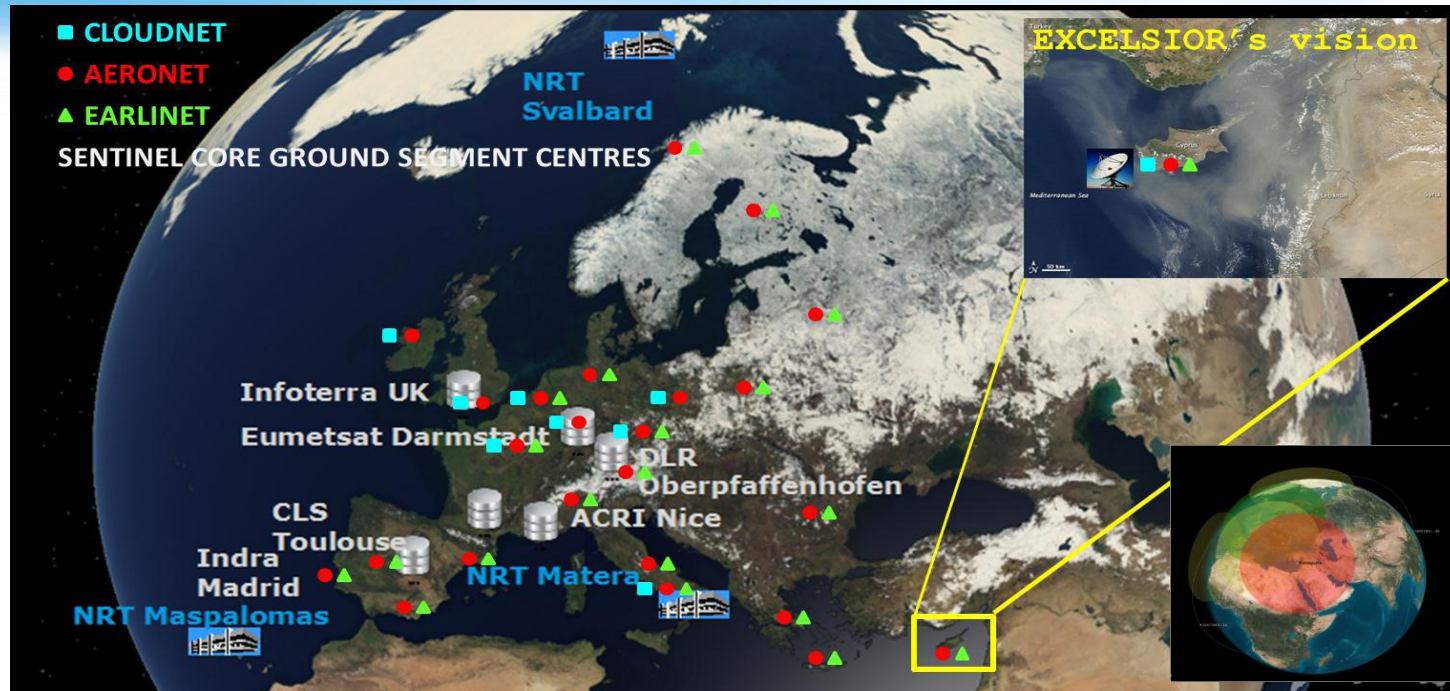


EU opportunities for widening
EXCELLENCE...

Why Cyprus?

Cyprus's **unique geostrategic position** can support Earth Observation from satellites programmes in three continents and provide valuable services in the satellite **calibration and validation** processes.

The ERATOSTHENES CoE – with its expertise and infrastructure could further **complete the existing network of international ground stations**.



The *EXCELSIOR's* vision and the geostrategic position of Cyprus

Cyprus is ideally located to host the ECoE, due to its **climate**, which is characterised by **300 days of sunshine a year**, providing **excellent weather conditions** for **cloud free** satellite images!

Why Earth Observation in Cyprus?

Excellent weather conditions

Availability of cloud free images optical (passive) remote sensing

ocean

land

Ideal place

Calibration\Validation of satellite observations

**More than 78 % are cloud free images
(>18 out 24 cloud free Landsat images per year)**

Landsat 5/7/8 from 2000 to 2017 [database of USGS]

Why ECoE? Needs

There are some distinct needs and opportunities that motivate the establishment of **an Earth Observation Centre of Excellence in Cyprus.**

Needs:

- **Supersite for aerosol and cloud monitoring in the Eastern Mediterranean, Middle East and North Africa (EMMENA) :** strong demand for EO monitoring to provide data to evaluate the extent of pollution and climate change, especially in the EMMENA region
- **Droughts and water shortages in the EMMENA region**
- **Rehabilitation programmes in EMMENA**
- **Disaster Risk Reduction**
- **Regional Digital Innovation Hub for Earth Observation in Cyprus**



Why ECoE? Opportunities



- The ECoE has the **potential** to become a **catalyst** for **facilitating and enabling Regional, European and International cooperation**.
- **Capitalise** on the favourable **environmental, weather and climatic conditions of Cyprus** to conduct **cutting-edge research** with **impact** in **various sectors**, including **climate change, marine, solar energy, etc.**
- The development of the **Government of the Cyprus space strategy** can be exploited for further **EO research and applications**
- Create a unique European capacity in Cyprus by **mobilizing internal national assets** and **consolidating European EO capabilities** in Cyprus to serve EMMENA. Such, currently missing, assets and infrastructures are: **European Satellite Ground Stations covering EMMENA.**
- **Availability of funding instruments for EO national and European Level**
- **Big Data management and analytics**

Why ERATOSTHENES?

- **ERC** is the **only established Centre** in Cyprus for Space-based EO, Remote Sensing and Geo-informatics.
- Has 13 years of operation,
- **Participated** in more than 60 research projects
 - **Coordinated** more than 25 research projects.
- **Secured funding** from various competitive sources such as:
 - National,
 - European Union,
 - Industry



REPUBLIC OF CYPRUS



EUROPEAN UNION



Networks



Existing 'Stakeholder Hub of Eratosthenes' consists more than **500 members from Europe and International Level..!**

Funded under H2020 & Republic of Cyprus

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Pillar: **Spreading excellence and widening participation**

Work Programme Year: **H2020-2018-2020**

Work Programme Part: **Spreading Excellence and Widening Participation**

Call: **H2020-WIDESPREAD-2018-2020**

Topic: **WIDESPREAD-01-2018-2019 Teaming 2**

Type of action: **CSA (Coordination and support action)**

Grant Agreement number: **857510**, Acronym: **EXCELSIOR**

Total Budget: **44,000,000 €**

(15 millions from EC+ 15 from Republic of Cyprus+ 8 millions from CUT etc)

Duration: **7 Years (EC) + 8 years (Republic of Cyprus/RC)**

Start: **1 October 2019** / End: **30 September 2026 (EC) / 30 September 2034 (RC)**

ECoE Implementation

Investment

- 112 Personnel in 7 years, 132 in 15 years
- 2000m² offices and Research Laboratories
- State-of-the-art-Remote Sensing Research Infrastructure

Skills Development

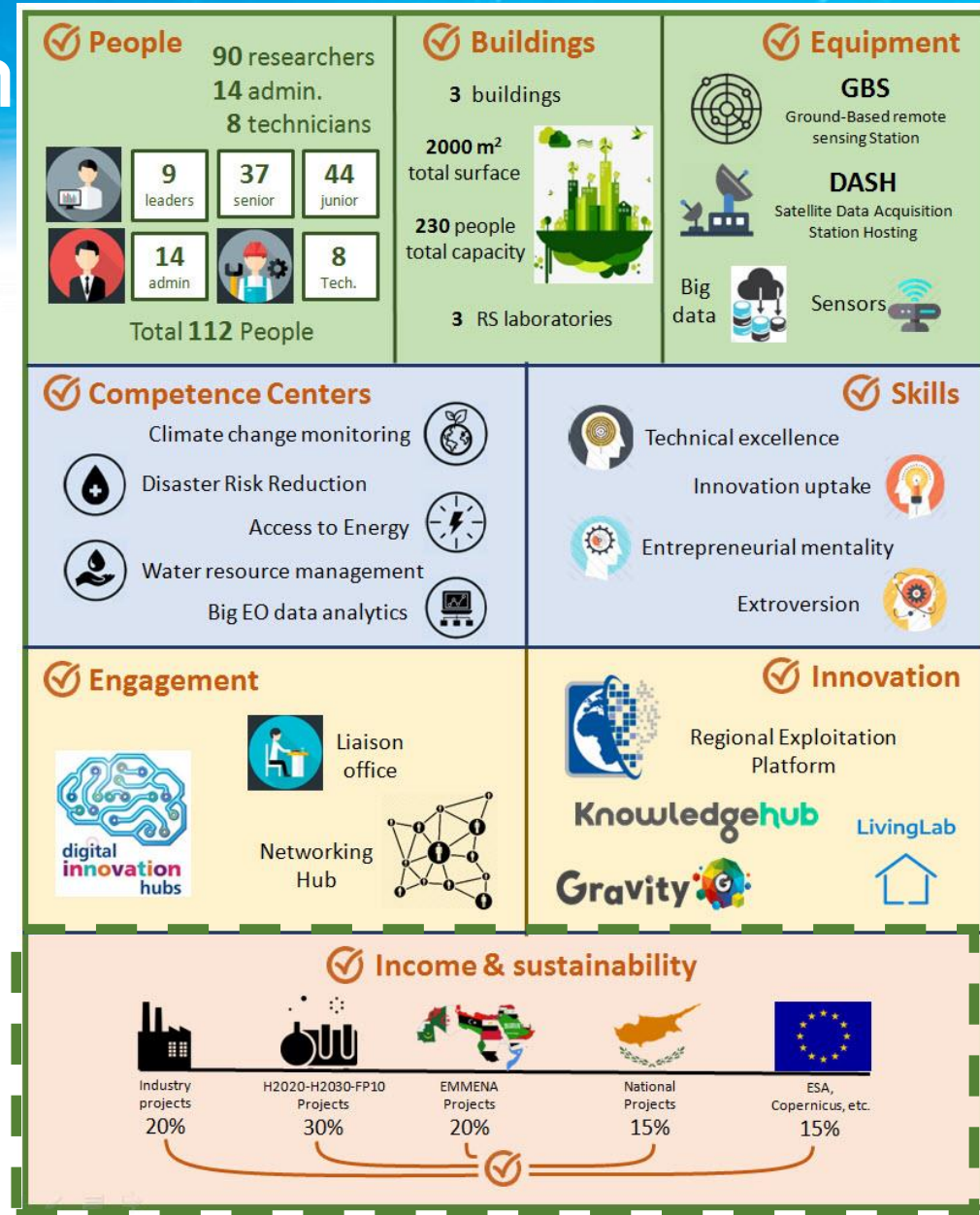
- Technical excellence
- Innovation Uptake
- Entrepreneurial mentality

Achievement

- World class Research, Innovation, Education
- Digital Innovation Hub
- Living Labs Ecosystem

Engagement

- Networking Hub
- Liaison Office
- Regional Exploitation Platform



Main Infrastructure and Partners Contribution

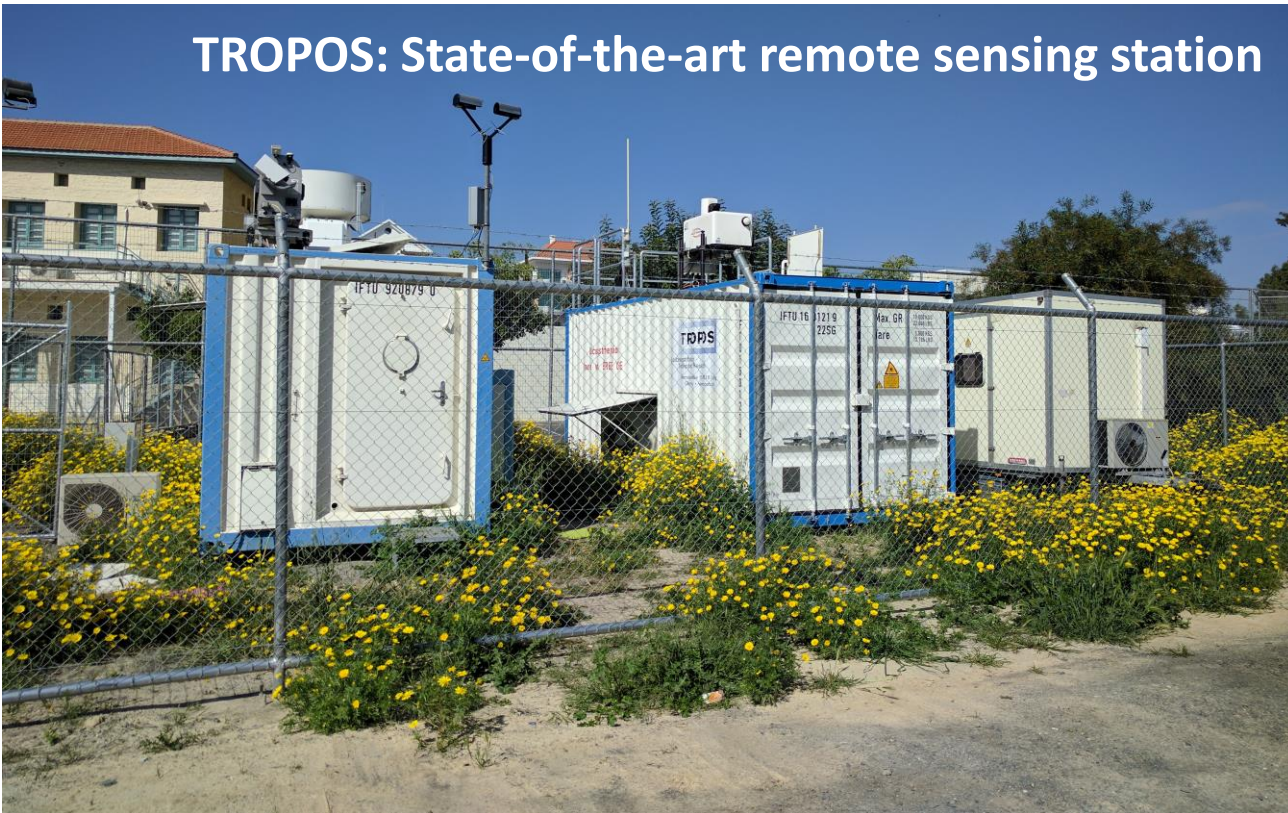
NOA: Copernicus Hub, Natural Hazards-related Infrastructure

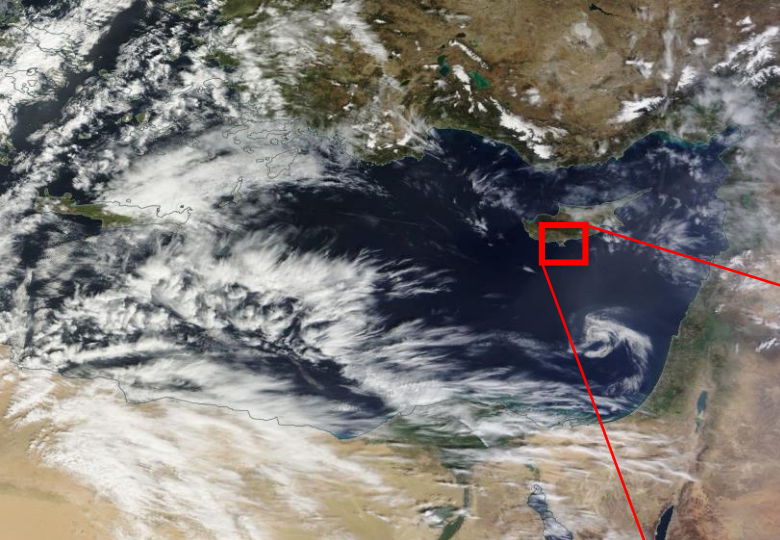


DLR: Receiver Antenna



TROPOS: State-of-the-art remote sensing station



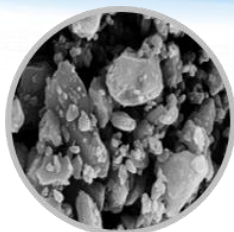


Limassol, Cyprus [34.7°N, 33°E]
ideal natural laboratory
for advanced and comprehensive
field studies of
climate change,
aerosol-cloud-dynamics-precipitation interaction,
weather-precipitation-dryness complex,
representative for
typical Mediterranean and even Middle East
meteorological conditions and for coastal areas in
the EMMENA region



Ground Based super site for
atmospheric profiling





Disdrrometer

Microwave Radiometer

Polly^{XT} Raman lidar

Cloud Radar

Doppler lidar

solar radiation station
Sun-lunar photometer

ECoE Vision: Within the next 7 years, the ECoE will become a world-class Digital Innovation Hub (DIH) for EO and Geospatial Information becoming the reference Centre in the Eastern Mediterranean, Middle East and North Africa (EMMENA)

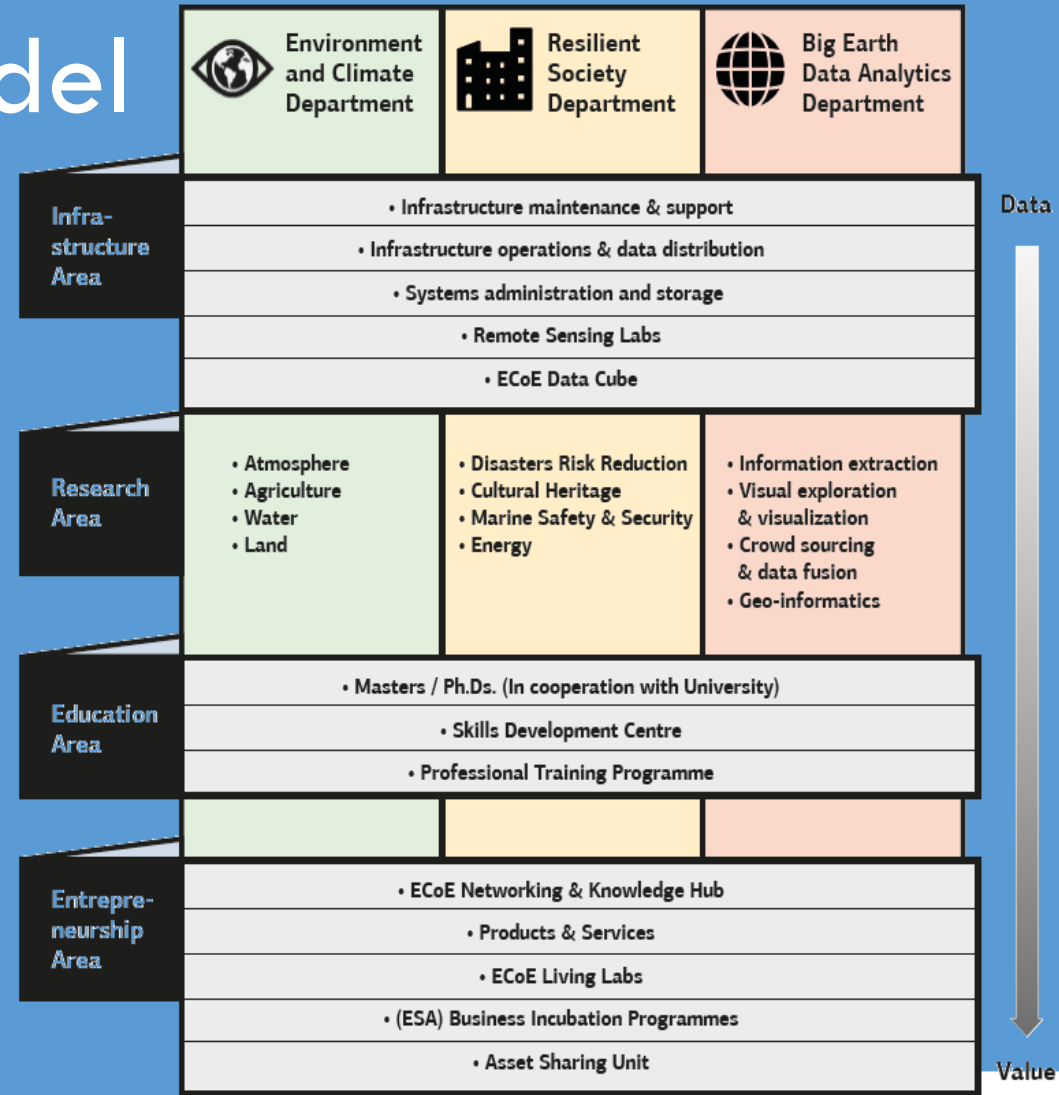


Research Excellence: To excel in five domains



Two-Axis Model Model

- **Sustainability Model:** To deliver **Open Science and Open Innovation** through Digital Innovation Hub, as a multiplier
- **Regional Growth and Competitive advantages:**
 1. to install and operate a **supersite for aerosol & cloud monitoring** and a **real time EO data receiving station in the EMMENA**
 2. to become a Gateway for facilitating and enabling International cooperation in the EMMENA
- **Autonomy:** to be fully autonomous (Establishment of New Entity 'Eratosthenes Centre of Excellence- ECoE)
- **Concept:** to adopt a **two-axis model:** three thematic clusters vs four functional areas



ECoE Impact

- To provide relevant information for **decision making** to:

- **science,**
- **industry**
- **Governments**

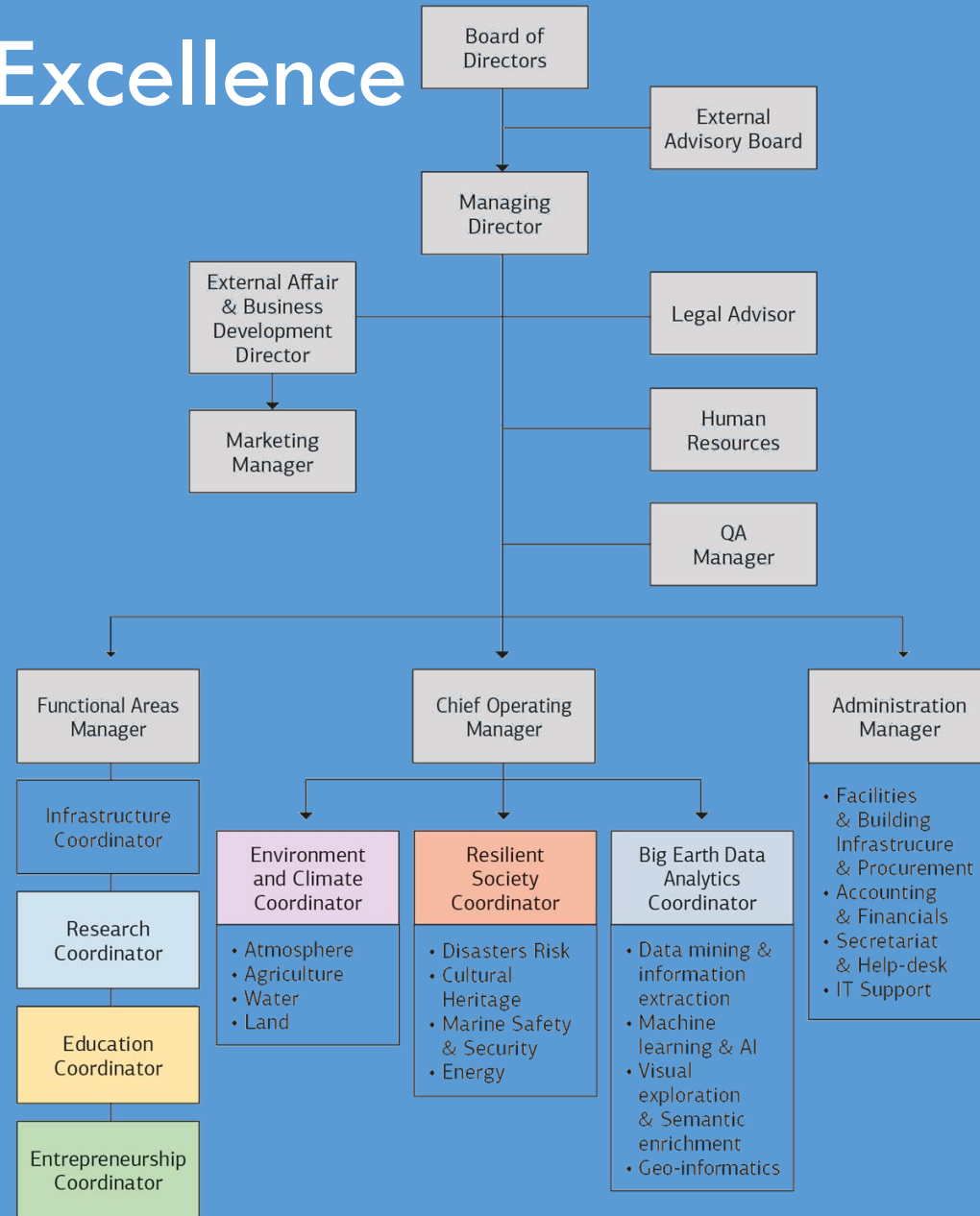
in order to:

- **support policies**
- **business development**
- **improve the quality of life for all citizens**
- **generate economic growth**



Eratosthenes Centre of Excellence

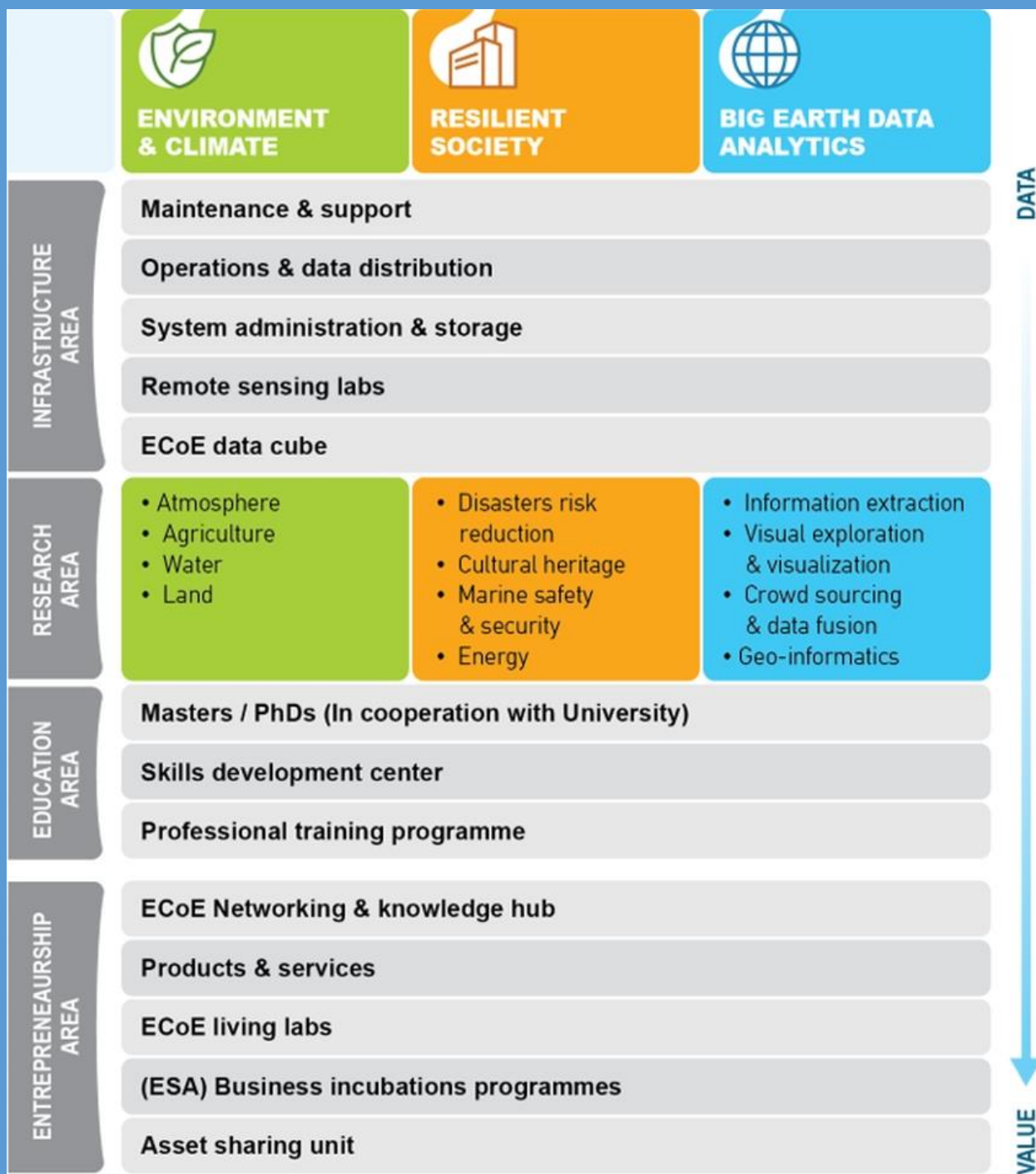
- A new legal entity has been established with the following name: **‘ERATOSTHENES CENTRE OF EXCELLENCE’** that will guarantee the ECoE’s autonomous operation (approved by the CUT board)
- The ECoE has been established as a **Company Limited by Guarantee without Share Capital non-profit limited company.**
- The ECoE will be **completely autonomous in its decision making, as it will be managed by its own Board of Directors (BoD), which will be composed of seven (7) members.**



Board of Directors of the ERATOSTHENES CENTRE OF EXCELLENCE

1. Associate Professor **Evangelos AKYLAS** - Cyprus University of Technology;
2. Mr. **Marios DEMETRIADES** - Managing Director of the MD Mindset Capital Ltd; Former Minister of Communications and Works
3. Mrs **Vasiliki ANASTASIADOU** - Former Minister of Communications and Works;
4. Mrs **Barbara RYAN** - Former Secretariat Director of GEO (Group on Earth Observations);
5. Dr **Rosa LASAPONARA** – CNR, Italy;
6. Dr **Nektarios CHRYSOULAKIS** - Director of Research, Foundation for Research and Technology (FORTH), Greece;
7. Mr. **Christos STYLIANIDES** - Former European Commissioner.





DATA

VALUE

Where?

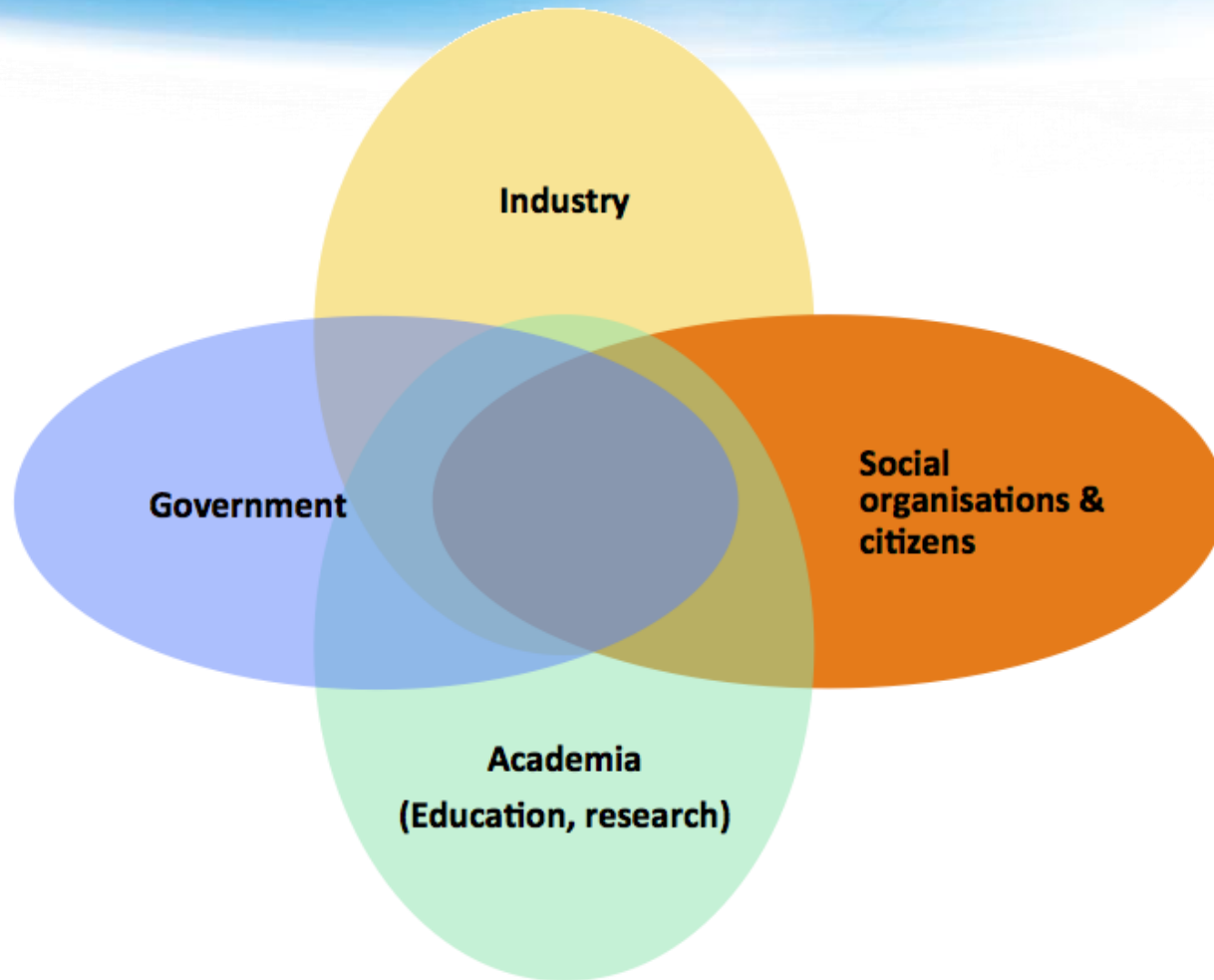
**Cyprus University of Technology
premises in Limassol (Phase 1,2,3)
(with supporting infrastructures in
Coastal Municipalities)**





Limassol- Cyprus

Quadruple Helix Innovation Model



Commitments, Sponsors and Supporters from academia, industry, government, society

>95 organizations, research centres, universities, networks

19 Cy Governmental Departments, municipalities





National Support and Commitment from 19 Governmental Departments

- **Government of Cyprus (through 15 million euros)**
- **President of the House of Representatives,**
- **Minister of Finance**
- **Minister of Transport, Communications and Works,**
- **Minister of Education and Culture,**
- **Minister of Foreign Affairs**
- **Deputy Minister of Shipping**
- **Commissioner of the Environment**
- **Commissioner of Agricultural Payments**
- **Cyprus Investment Promotion Agency**



National Support and Commitment from 19 Governmental Departments

 <p>Department of Lands & Surveys</p>	 <p>Geological Survey Department</p>	 <p>Agricultural Research Institute</p>	 <p>Department of Public Works</p>	 <p>Department of Forests</p>
 <p>Department of Fisheries and Marine Research</p>	 <p>CYPRUS DEPARTMENT OF METEOROLOGY</p>	 <p>Department of Water Development</p>	 <p>ρυθμιστική αρχή ενέργειας κύπρου cyprus energy regulatory authority</p>	 <p>Department of Labour Inspection – Air Quality Unit</p>
 <p>Department of Civil Defence</p>	 <p>Department of Antiquities</p>	 <p>Cyprus Agricultural Payments Organization</p>	 <p>Agricultural Research Institute</p>	 <p>DEPARTMENT OF ENVIRONMENT</p>
 <p>Cyprus Investment Promotion Agency</p>	 <p>Cyprus Port Authority</p>	 <p>CYPRUS TOURISM ORGANISATION www.visitcyprus.com</p>	 <p>Department of Urban Planning</p>	

National Support



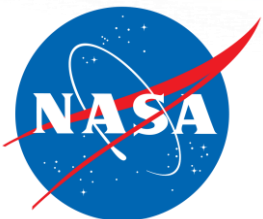
- **CYTA, the national telecommunication authority, provided also a significant commitment for hosting the ground satellite receiving antenna in their land for 15 years (10,000 sq.m land with LoC of 200K€).**



International Support



Ben-Gurion University
of the Negev



National Technical
University of Athens



NEUROPUBLIC
Information Systems & Technologies



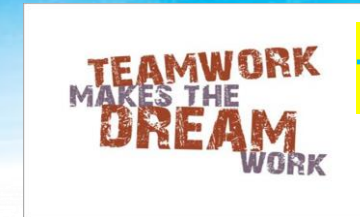
TROPOS
Leibniz Institute for
Tropospheric Research



We are looking forward to working together!

Joining forces

- Eratosthenes Centre of Excellence (Cyprus) is **open for collaboration with other universities, research centres and industrial partners!**
- **Looking forward to host and attract researchers from other countries**
- **Looking forward to host ERC, Marie Curie researchers!**
- **Follow our social media and posts for the job vacancies!**



Stay tuned @excelsior2020eu
www.excelsior2020.eu





CONTACT US

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EXCELLENCE &
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Acknowledgements

Call: **H2020-WIDESPREAD-2018-01**
Topic: **WIDESPREAD-01-2018-2019 Teaming Phase 2**
Project full title: **ERATOSTHENES: Excellence Research Centre for Earth Surveillance and Space-Based Monitoring of the Environment**
Project acronym: **EXCELSIOR**



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