

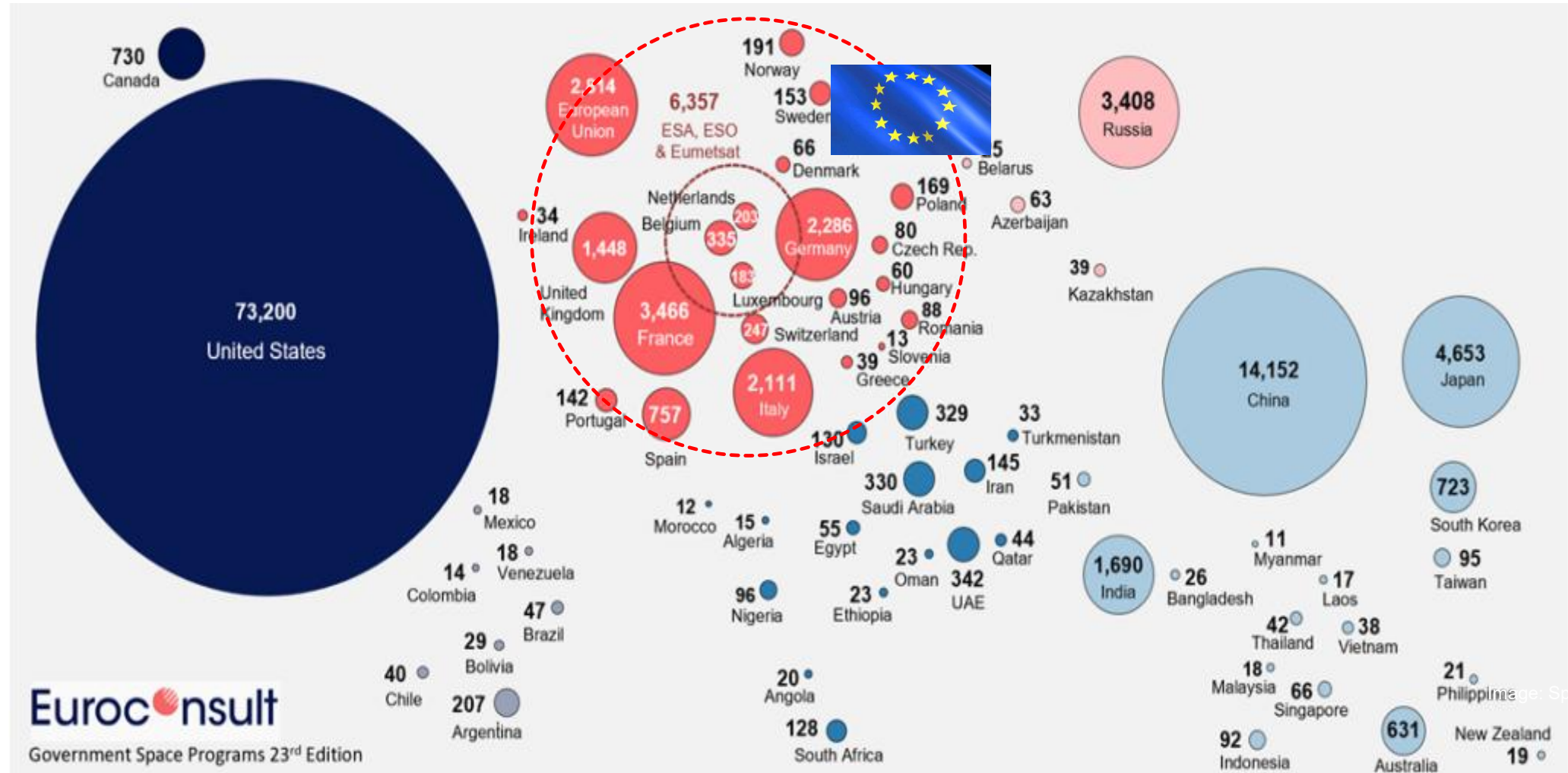
Hellenic Association of Space Industries

Hellenic Space Ecosystem **CAPABILITIES AND FUTURE CHALLENGES**



Athanasios Potsis, PhD
President

INTERNATIONAL INVESTMENTS



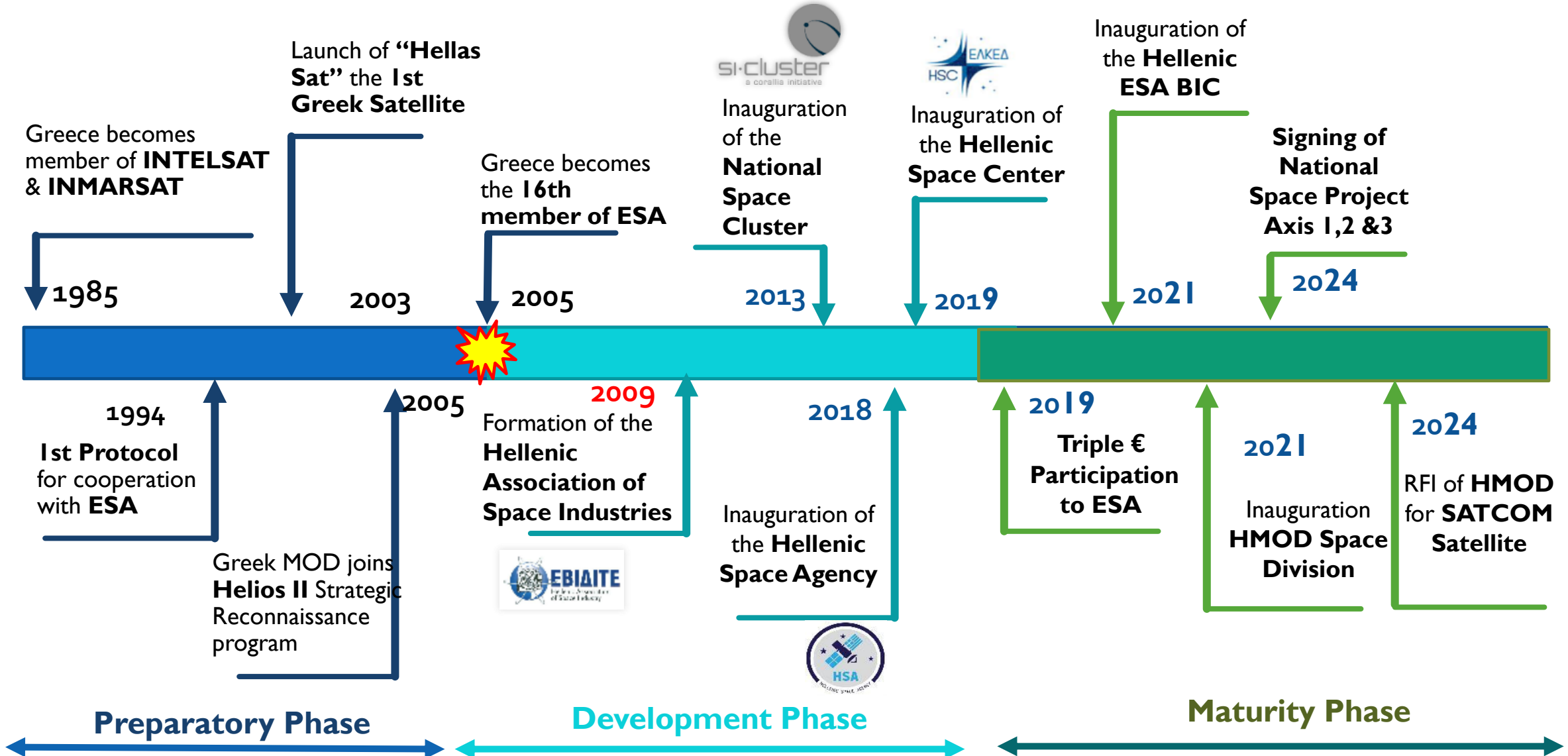
NEW SPACE



NEW SPACE ERA



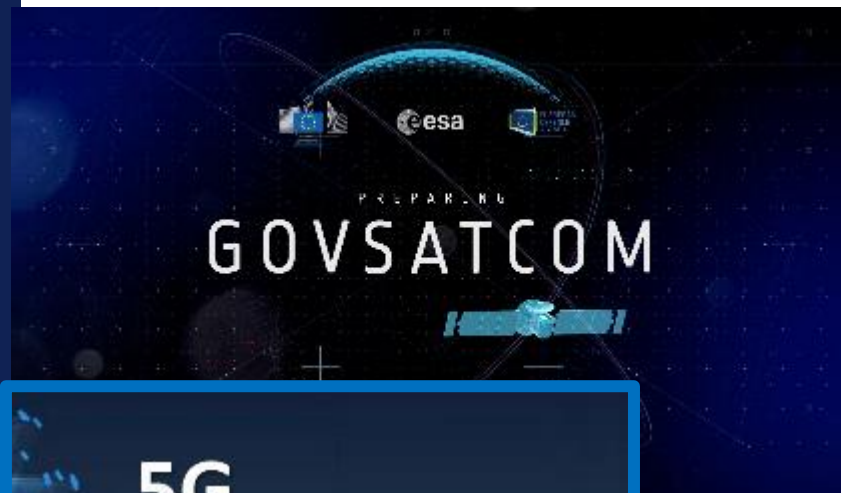
GREECE AND SPACE



EUROPEAN UNION INVESTMENTS ON SPACE GNSS & SECURITY



2000 to 2024 program
cost will exceed 22
billion euros



5G

Anything, Anytime Anywhere



1998 to 2024 program
cost estimated at 6.7
billion euros



EBIΔITE

Ένωση Ελληνικών Βιομηχανιών
Διαστημικής Τεχνολογίας & Εφαρμογών



si-cluster
a corallia cluster initiative

Who we are

Our Mission



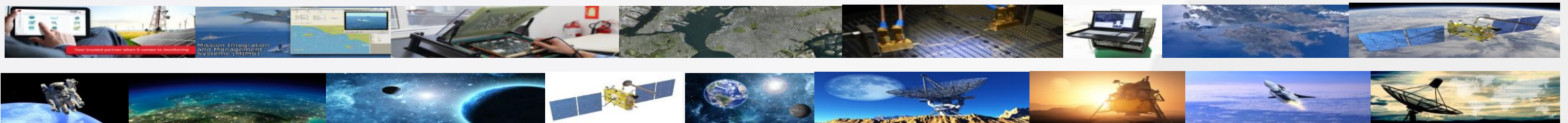
To place Greece amid the countries which develop **cutting-edge space technologies & applications**, capable of developing and attracting **high impact research, innovation and business activities** that benefit society.

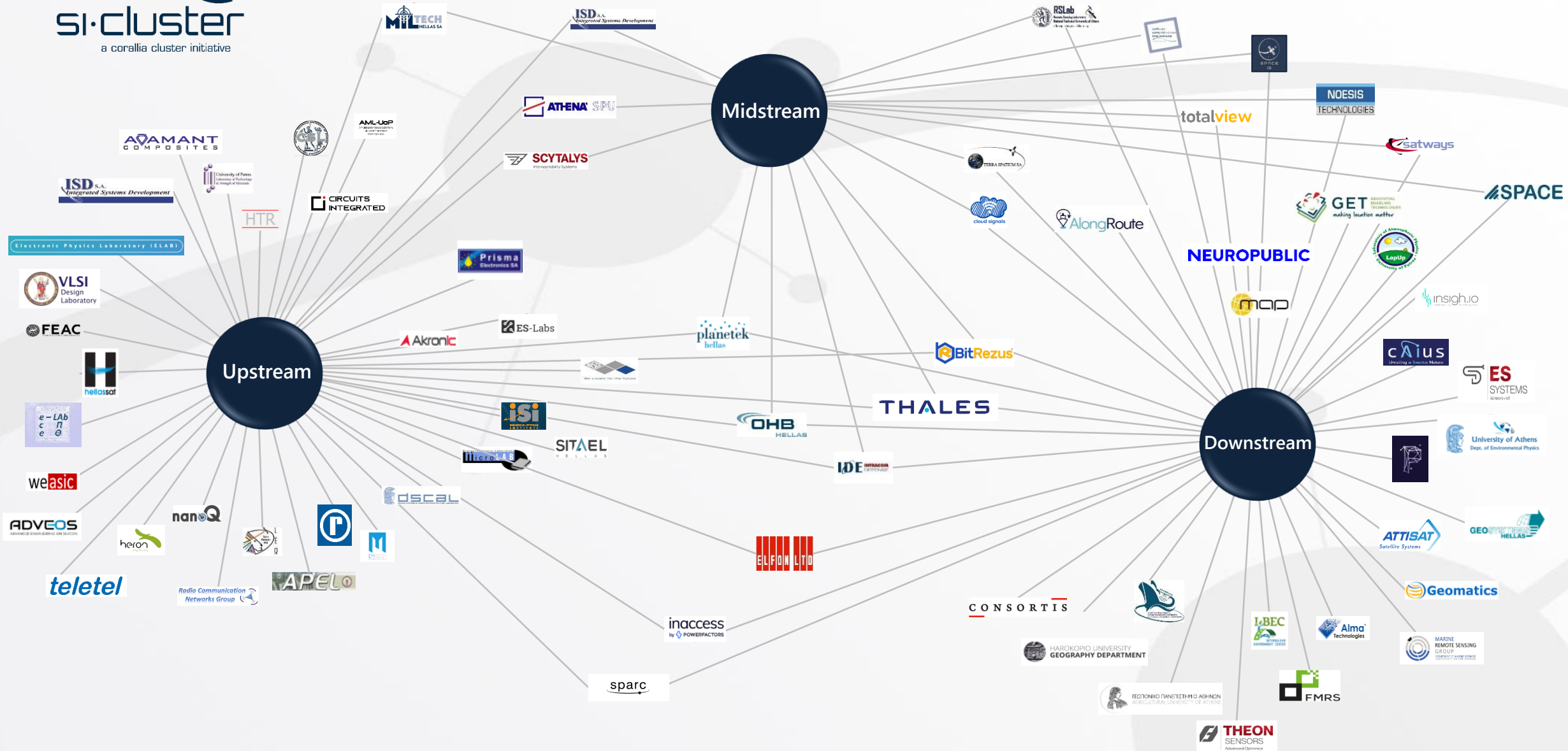
HELLENIC ASSOCIATION OF SPACE INDUSTRY



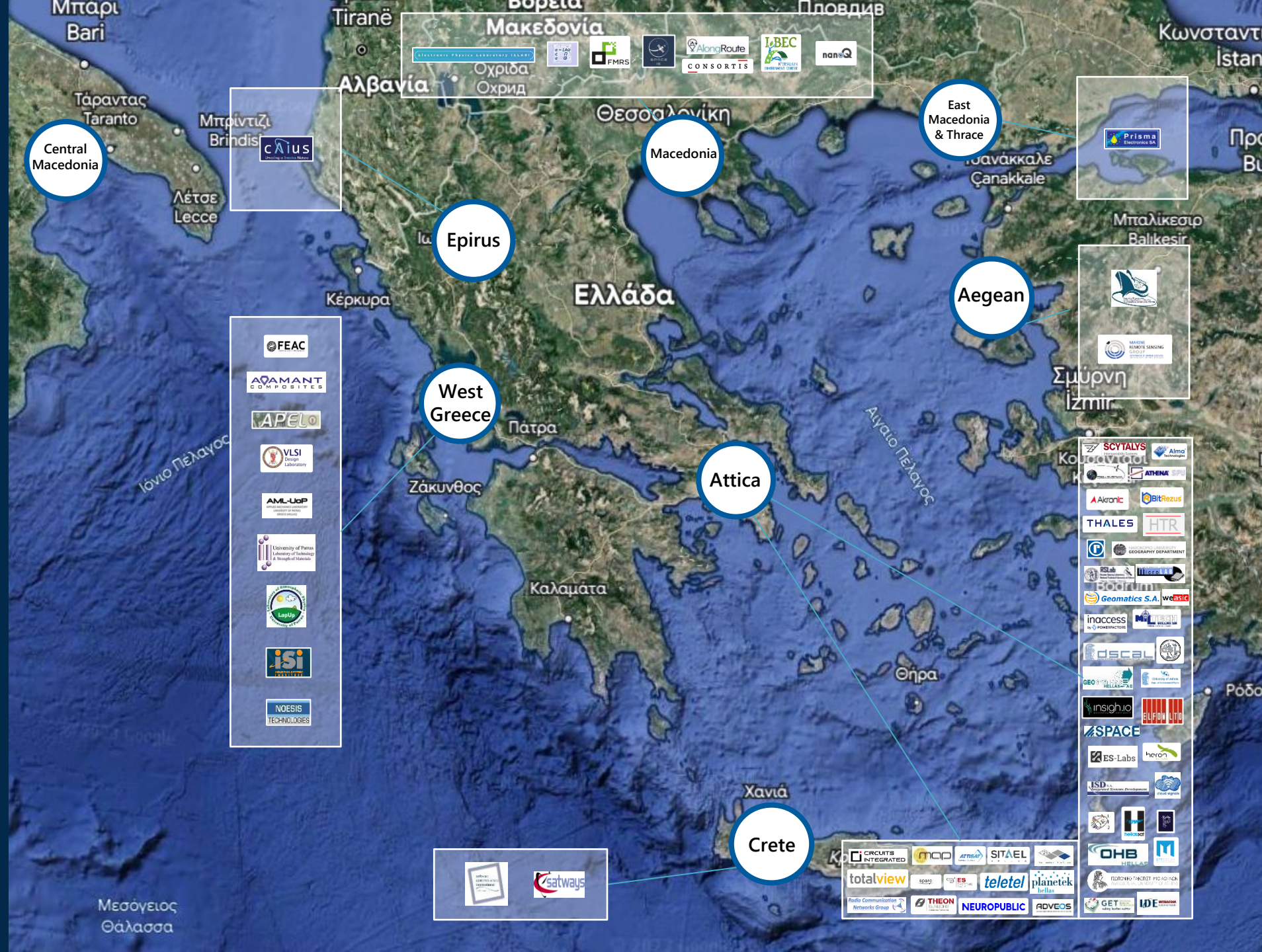
- Non-for profit organization approved by the Greek-laws
- 58 local SME companies with long standing experience and know how on space technology
- More than 2500 high level educated personnel
- More than 90% of ESA-Greek cooperation programs run by HASI members
- Permanente open call for new members
- Recent Members:
Hellenic Aerospace Industry – OTE – OHB HELLAS

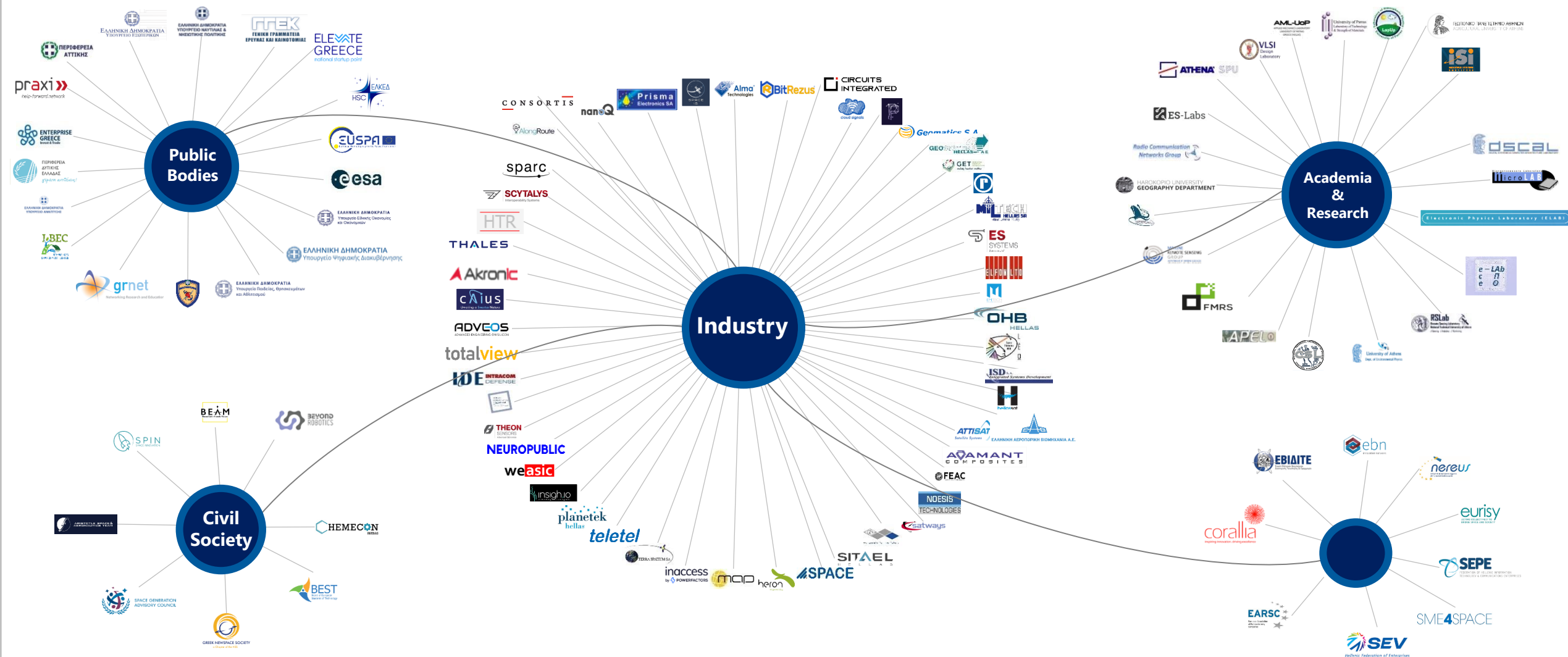






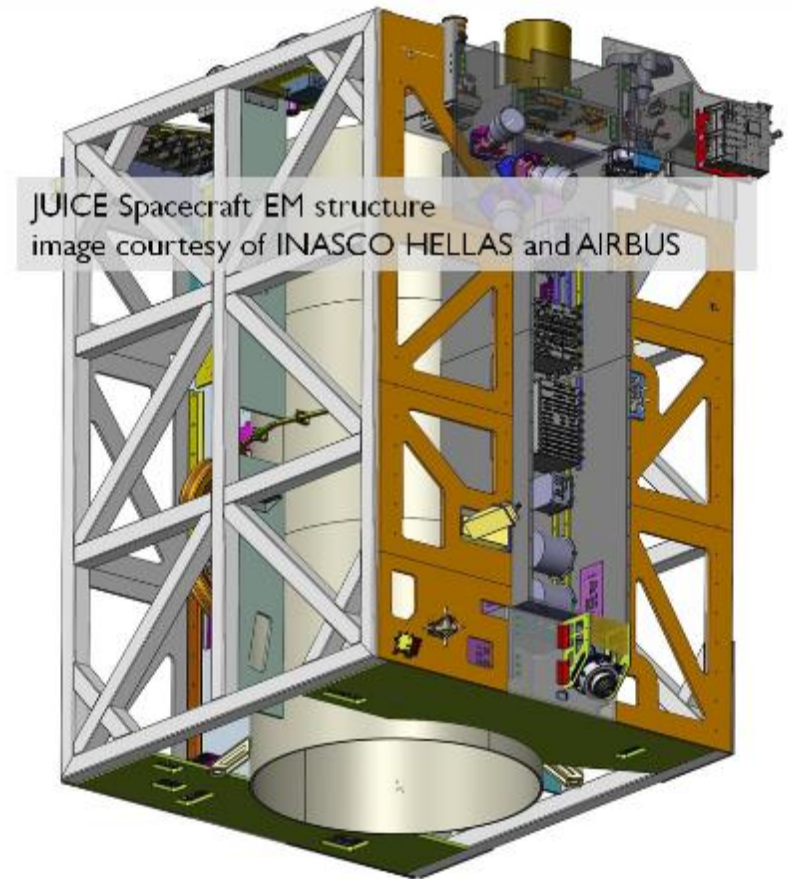
Regional Presence





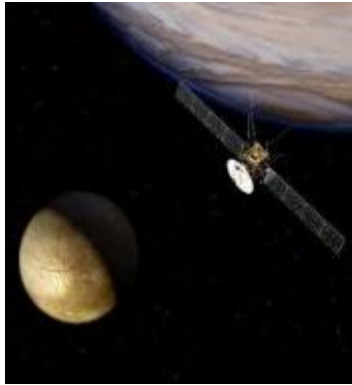
AREAS OF EXPERTISE

- ✓ **Sensors**
 - MEMs based sensors for aerospace applications
- ✓ **ASICS Designs**
 - Analogue and Digital ASICS for aerospace applications
- ✓ **Advanced Structures and Mechanisms**
 - Sandwich panels, Walls, enclosures, struts, fittings, brackets and joints
 - Spacecraft EM structures
 - Composites Material Engineering Support
- ✓ **Mechanical Ground Support Equipment and Transportation Containers**
- ✓ **Novel Materials and Processes**
 - Nano-enabled products (prepregs, adhesives, coatings etc)
 - Advanced Ceramics and Metals (Aluminium, Titanium)
- ✓ **Electrical Ground Support Equipment**
 - - AOCS, TM/TC, CDMU SCOE's
 - - SpW, MIL-STD-1553, CAN recorders
- ✓ **On board Software**
 - Development of AOCS, Central Software, Power Control etc.
 - ISVV, Software Validation, Engineering services
- ✓ **Electric Propulsion Systems**
 - PPU Design, manufacture, testing and certification for Low Power EP
- ✓ **Remote Sensing Applications**
 - Synthetic Aperture Radar (SAR) core signal processing
 - Optical images processing
 - Data Fusion for automatic classification

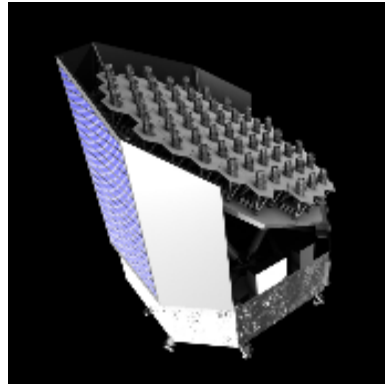


EU SPACE MISSIONS

JUICE MISSION



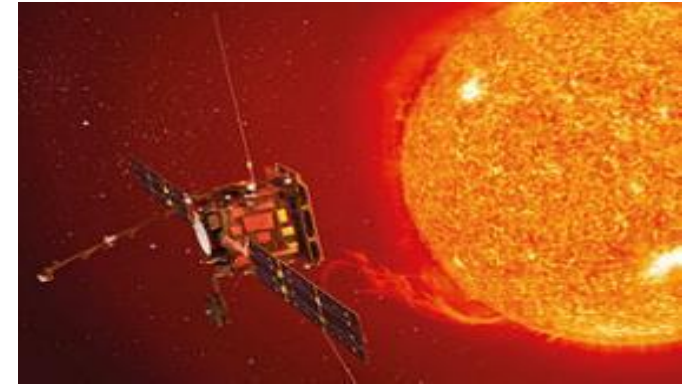
PLATO MISSION



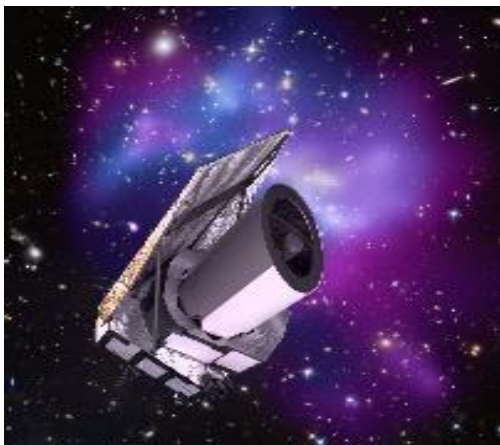
EXO MARS MISSION



SOLAR ORBITER MISSION



EUCLID MISSION



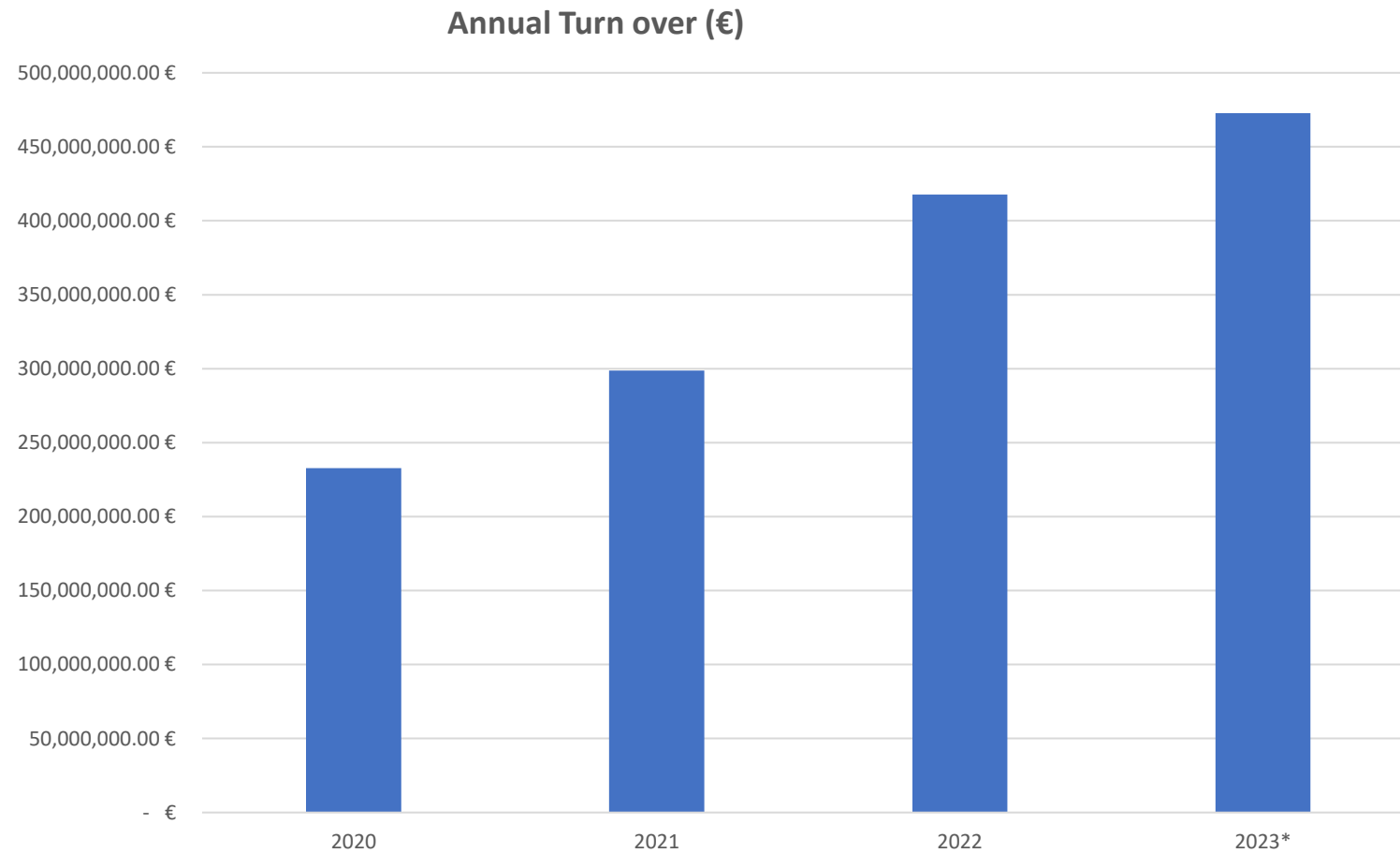
IASI- NG SPACE MISSION



TRUTHS MISSION



KEY GREEK SPACE MARKET FINANCIAL INPUTS



NATIONAL SMALLSAT PROGRAM (1/3)

- Utilizing EU Covid19 Recovery Funds, Greek Government decided to invest ~200MEuros on space related technologies focusing on the development of local capabilities on both upstream and downstream technologies.
- Recent catastrophic wildfires and floodings lead the Greek Government to focus the National SmallSat program more on Earth Observation Applications



NATIONAL SMALLSAT PROGRAM (2/3)

Greek National Space Program include the following four activities:

A: Axis 1.1 Thermal Space Segment – High-res Thermal Sats for civil protection, natural disasters, security & dual use applications (*20MEuros*)

B: Axis 1.2 SAR Space Segment – High-res SAR Sats for civil protection, natural disasters. Security & dual use apps (*33M Euros*)

C: Axis 2 Constellation of Satellites – Multiple sensors (Multispectral-Hyperspectral VNIR-SWIR, GNSS R, AIS VDES, IoT) (*60MEuros*)

D: Axis 3 Governmental HUB – GR added value services tailored to national needs (*17MEuros*)



NATIONAL SMALLSAT PROGRAM (3/3)

Greek National Smallsat Program Funded by RRF

- ✓ *Greek Cubesats in-orbit validation projects (15M Euros)*
- ✓ Hellenic Aerospace Industry Assembly, Integration and Testing Facilities *(5.1M Euros)*
- ✓ Tracking Radar Station (HSTR) *(9.9MEuros)*
- ✓ Greek Obs2Ogs – Greek Observatories to Optical Ground Stations *(8 MEuros)*

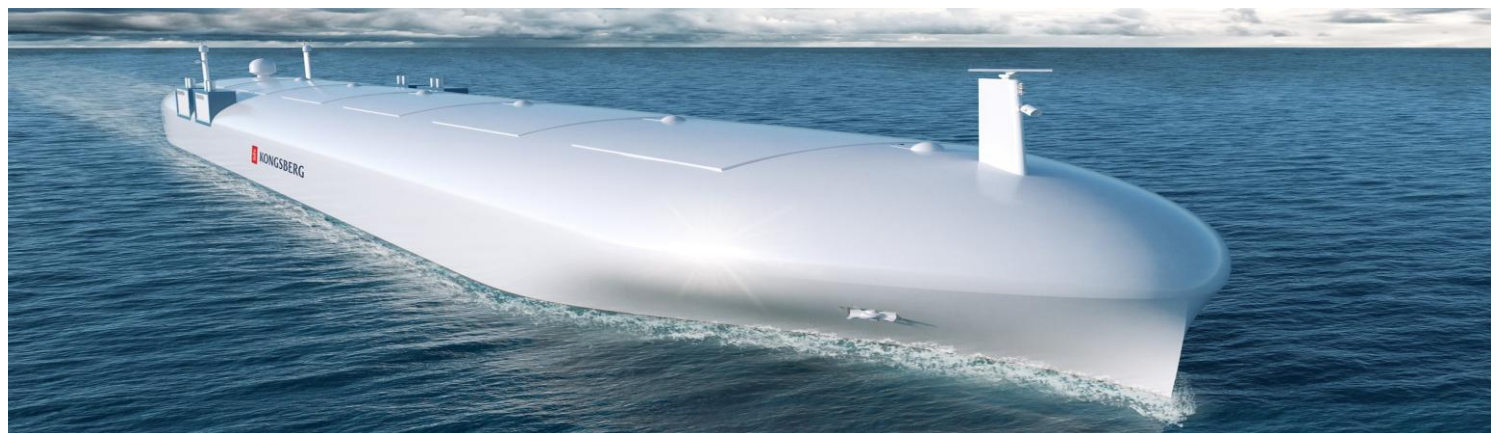


SPACE TECHNOLOGIES ON MARITIME

Greece as a Maritime Nation by tradition, operating one of the largest maritime fleets of the world, with a substantial role in the international sea trade, and on the overall European Union growth rate and strong impact on the international shipbuilding industry, has no option rather than trying to lead this new era on utilizing Space Technologies and Services for new maritime business.

TOP 10 SHIP OWNING NATIONS												
APR 2020												
Flag	GRAND TOTAL	BULKER	TANKER	CONTAINER	REEFER	SMALL DRY	UNC	LPG	VEHICLE CARRIER	OSV	OCV	MOOI
JAPAN	\$108,065	\$34,882	\$22,570	\$17,902	\$498	\$3,834	\$14,199	\$5,755	\$8,148	\$16	\$20	\$241
GREECE	\$100,446	\$28,417	\$41,334	\$7,283	\$135	\$193	\$19,796	\$2,889	\$298	\$61	\$40	-
CHINA	\$98,548	\$29,925	\$25,227	\$23,146	\$151	\$3,550	\$7,173	\$3,949	\$625	\$1,345	\$398	\$2,869
SINGAPORE	\$44,055	\$9,798	\$15,882	\$6,681	\$174	\$848	\$563	\$4,677	\$609	\$2,152	\$1,355	\$1,338
NORWAY	\$39,069	\$4,907	\$12,037	\$971	\$92	\$696	\$4,687	\$2,735	\$2,245	\$2,444	\$3,460	\$4,794
SOUTH KOREA	\$34,784	\$9,266	\$9,275	\$5,816	\$176	\$642	\$5,321	\$1,813	\$2,466	\$6	\$3	-
USA	\$33,000	\$4,594	\$12,549	\$3,763	\$103	\$205	\$1,791	\$201	\$452	\$4,002	\$1,560	\$3,708
GERMANY	\$27,987	\$4,877	\$2,722	\$15,470	\$60	\$2,920	\$449	\$1,163	\$202	\$66	\$8	-
UK	\$23,409	\$2,272	\$2,925	\$5,351	\$81	\$277	\$2,759	\$1,875	\$532	\$521	\$561	\$6,254
DENMARK	\$20,885	\$1,376	\$5,027	\$9,651	\$1	\$183	\$1,531	\$531	-	\$541	\$340	\$1,448

Source: VesselsValue as of April 2020



WHY TO INVEST IN SPACE INDUSTRY IN GREECE



- **Mature space industrial base**
- **Operating ESA Business Incubation Center in Athens**
- **Operating Space Cluster bringing together Industry and Academia**
- **Large pool of young highly educated workforce**
- **Fully developed Governmental plan managed by the Ministry of Digital Governance**
- **Space National and Industrial Strategy in place**
- **Increased participation to ESA Space Programs (> 85MEuros for the next 3 years)**
- **I2 Cube Sats Project under implementation**
- **200M Euros National Satellite Program under implementation**
- **Special investment incentives from the Greek Government**

..... and finally, it is fun to develop “space technology made in Greece”!!

HELLENIC ASSOCIATION OF SPACE INDUSTRIES

Your point of contact for industrial space activities in Greece



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- E-mail: Kordikori@epicos.com
- Web: www.hellenic-asi.org