

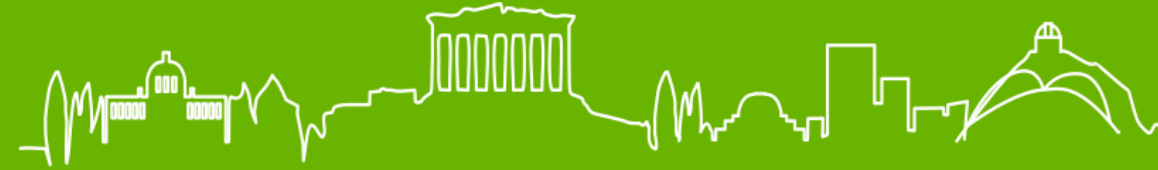


## “The Greek space ecosystem and in particular in downstream space technologies”

on behalf of HASI board,  
Vasiliki (Betty) Charalampopoulou



*Strategic Development Initiatives for National Economic Growth*

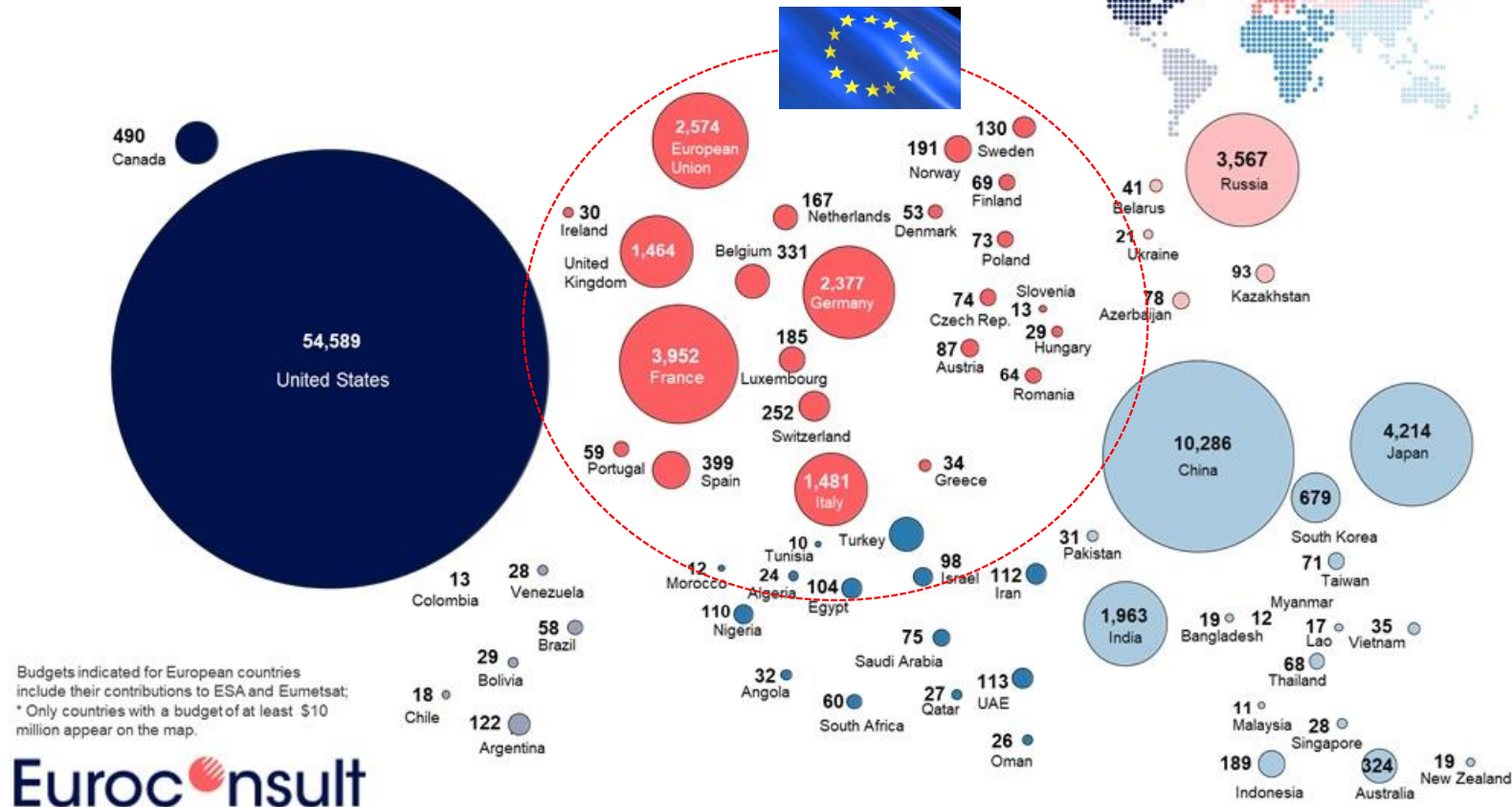


## International investments

### Moving from Space for Science to Space for Business



WORLD GOVERNMENT EXPENDITURES FOR SPACE PROGRAMS (2021)\* TOTAL \$92.4 BILLION



# EUROGEO WORKSHOP 2022



EN English



Home > Funding, Tenders > Find funding > EU funding programmes > Horizon Europe

Horizon Europe



5G

Anything, Anytime Anywhere

GOVSATCOM



2000 to 2024  
program cost will  
exceed 22 billion  
euros



1998 to 2020  
program cost  
estimated at 6.7  
billion euros

ATHENS 7-9 DECEMBER 2022





## Greece ..... Why to Invest on Space?



**Return On Investment (ROI)**  
Συντελεστής απόδοσης

**x 6**

**Employment Increase**  
Απασχόληση

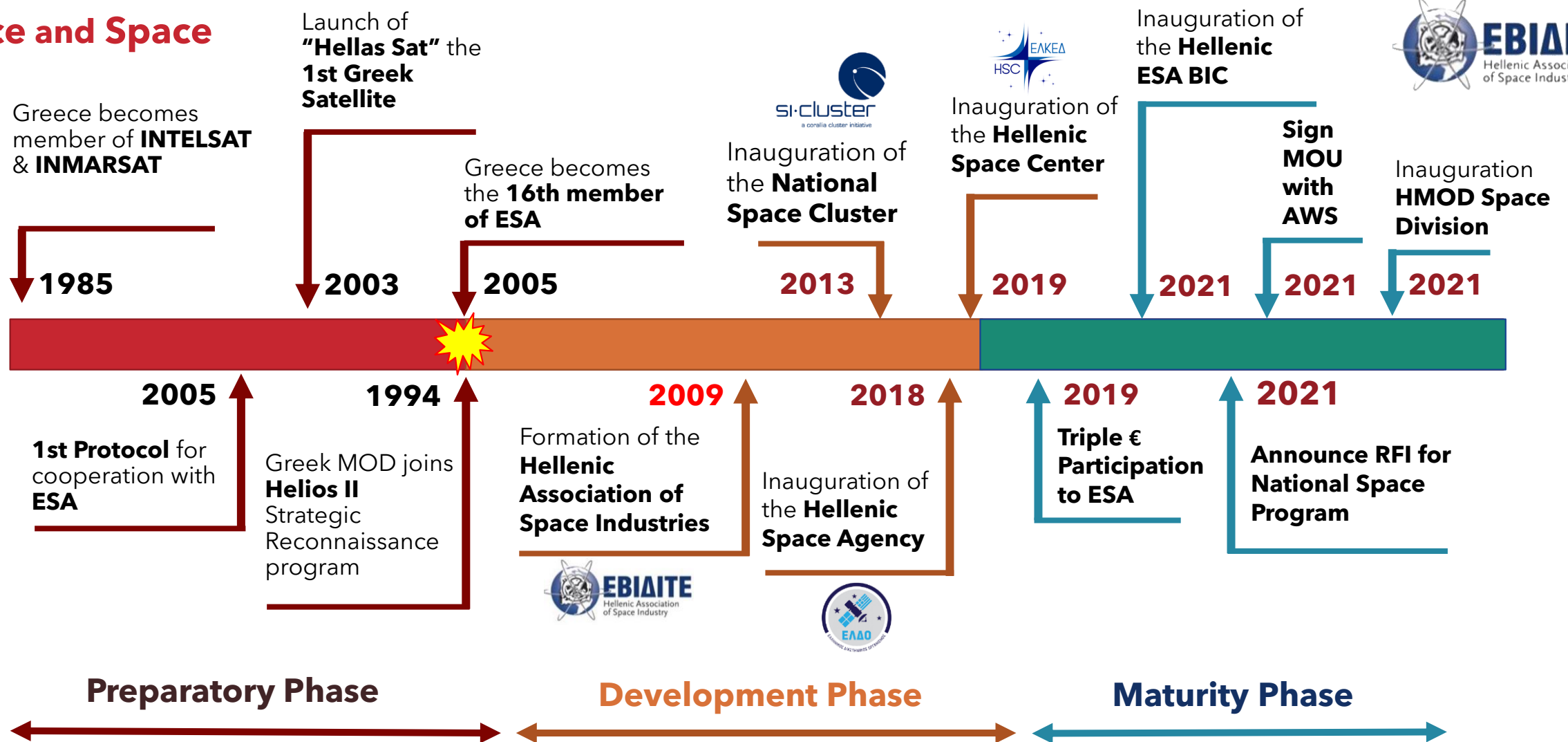
**+ 17%**



# EUROGEO WORKSHOP 2022



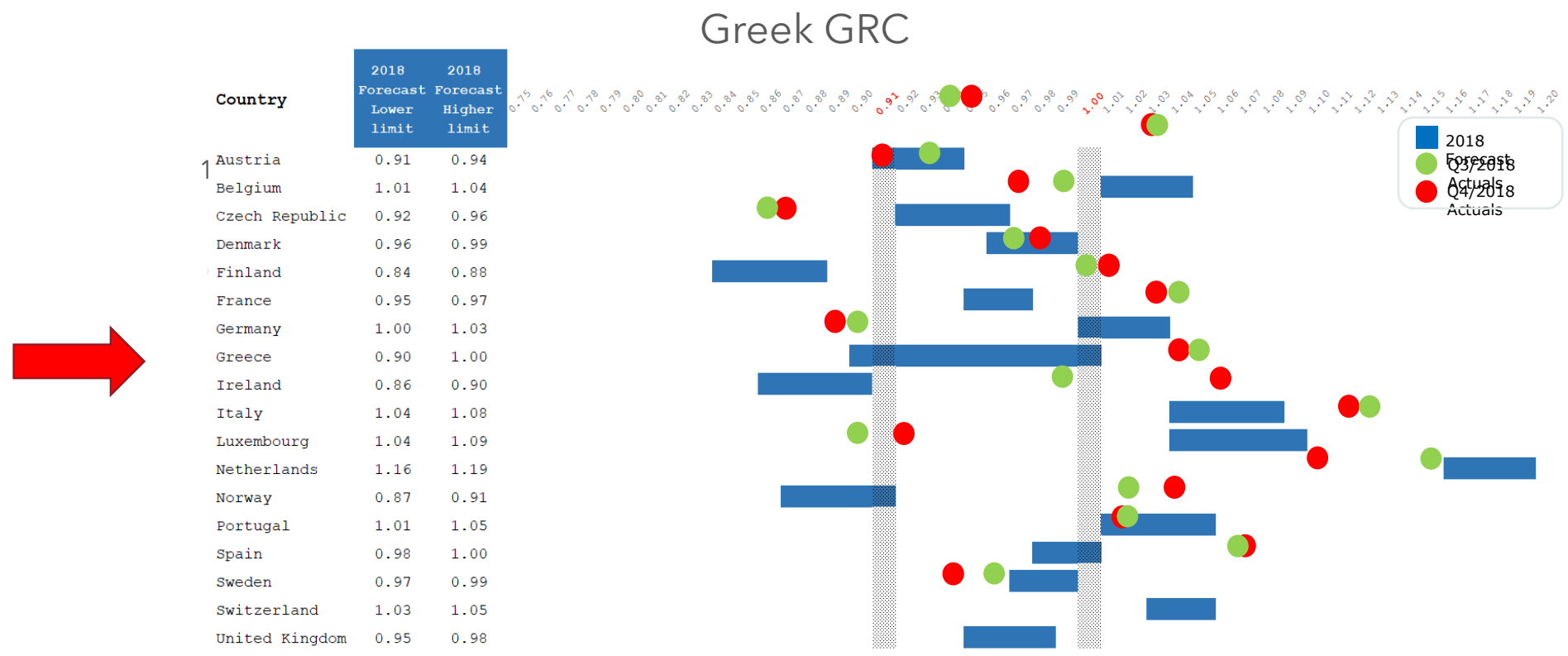
## Greece and Space



ATHENS 7-9 DECEMBER 2022



## Geographical Return Coefficient (GRC) in ESA Programs over the last 5 years



- This achievement during the period of financial crisis in Greece: Is due to a number of ESA call/tenders "Restricted to Greece"
- But it shows the existing capabilities of Greece Space Sector



## Strategy and Business Plan



## Greece and Space



ESA Participation



National Microsatellites Program



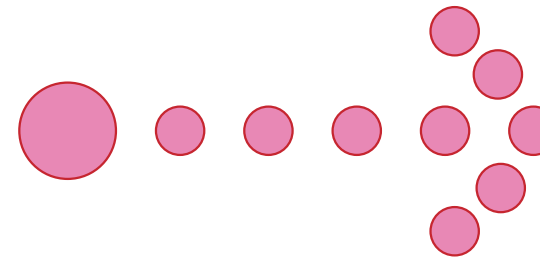
EU Space Programs



MOD Space Program



Local Content





HELLENIC REPUBLIC  
Ministry of Digital Governance

# Greek Space Ecosystem

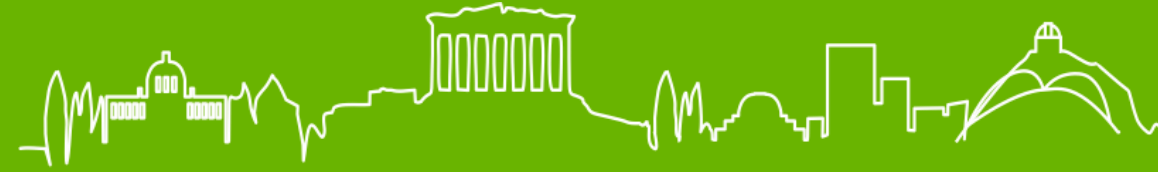


EBIAITE  
Hellenic Association of Space Industry

si-cluster  
a corallo cluster initiative



# EUROGEO WORKSHOP 2022



## HELLENIC ASSOCIATION OF SPACE INDUSTRY

- Non-for profit organization approved by the Greek-laws
- 45 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



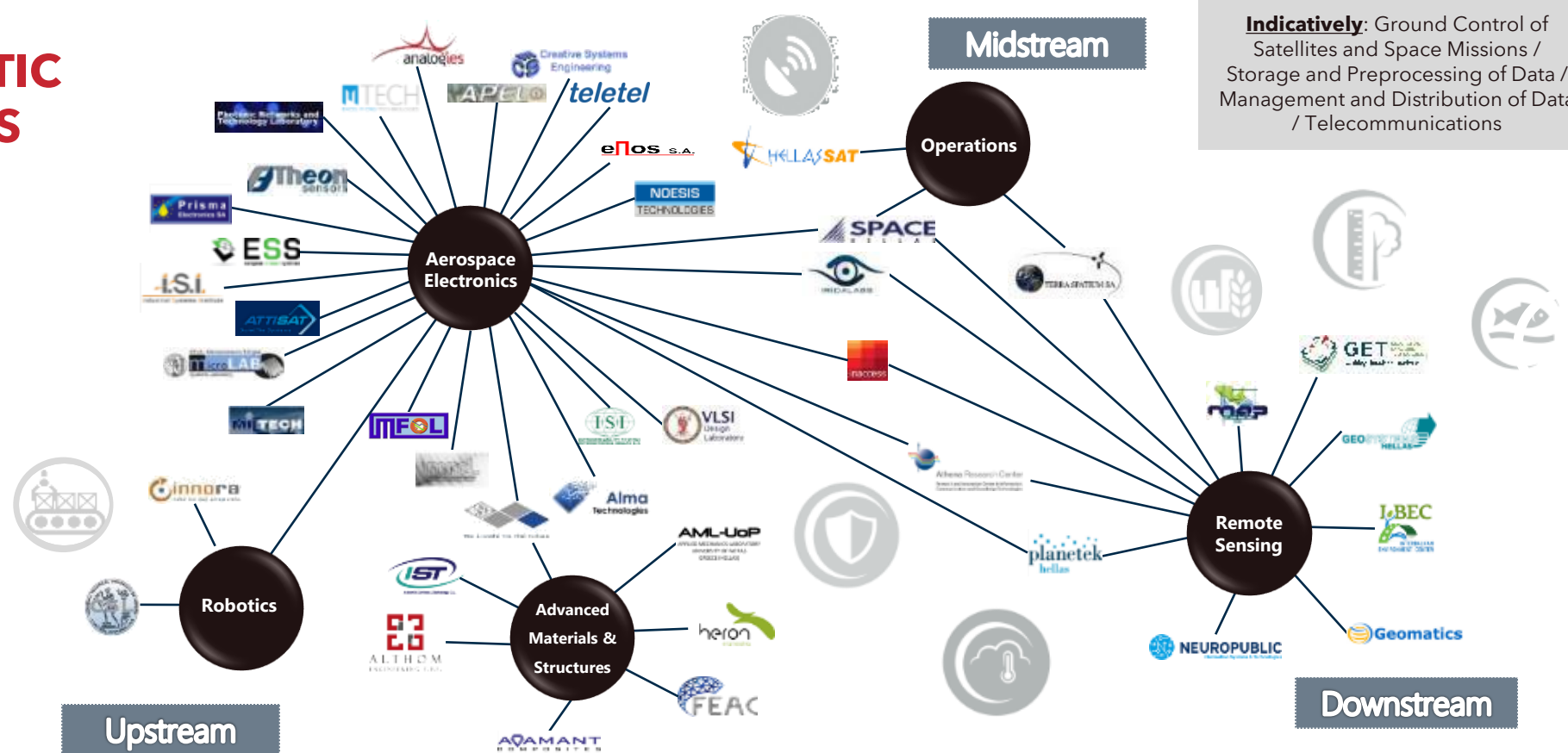
ATHENS 7-9 DECEMBER 2022



# EUROGEO WORKSHOP 2022



## THEMATIC FOCUS



**Indicatively:** Ground Control of Satellites and Space Missions / Storage and Preprocessing of Data / Management and Distribution of Data / Telecommunications



**Indicatively:** Design, Development and Manufacturing of Satellite Subsystems & Components (Structures, Mechanisms, Power Control, Telemetry Tracking & Control, Attitude & Orbital Control Systems, Communications, Thermal Control, On-Board Computers, etc.) / Payload Development (for Downstream Applications and Space Science) / Ground Control Equipment / Launchers / Life Support Equipment

**Indicatively:** Agriculture, Forestry & Fisheries / Biodiversity & Environmental Protection / Climate & Energy / Civil Protection & Humanitarian Aid, Security & Border Control / Public Health, Disease Control / Tourism / Transport & Safety / Urban & Regional Planning / Navigation / Air Traffic Control / Telecommunications / Space Science / Technology Transfer to Earth Applications

ATHENS 7-9 DECEMBER 2022





## Areas of expertise

### ✓ Sensors

- MEMs based sensors for aerospace applications

### ✓ ASICS Designs

- Analogue and Digital ASICS for aerospace applications

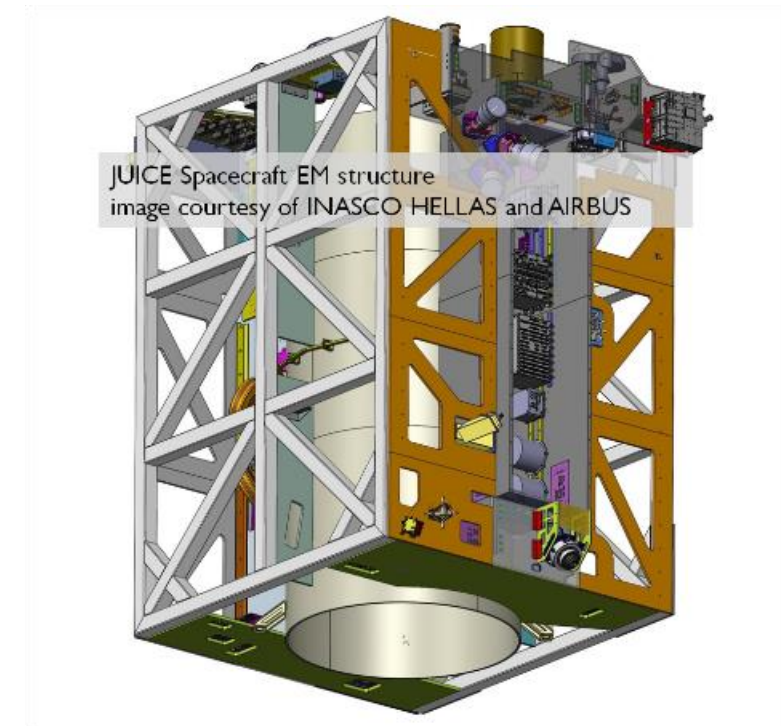
### ✓ Advanced Structures and Mechanisms

- 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<sub>s</sub>
- - SpW, MIL-STD-1553, CAN recorders

## ✓ **On board Software**

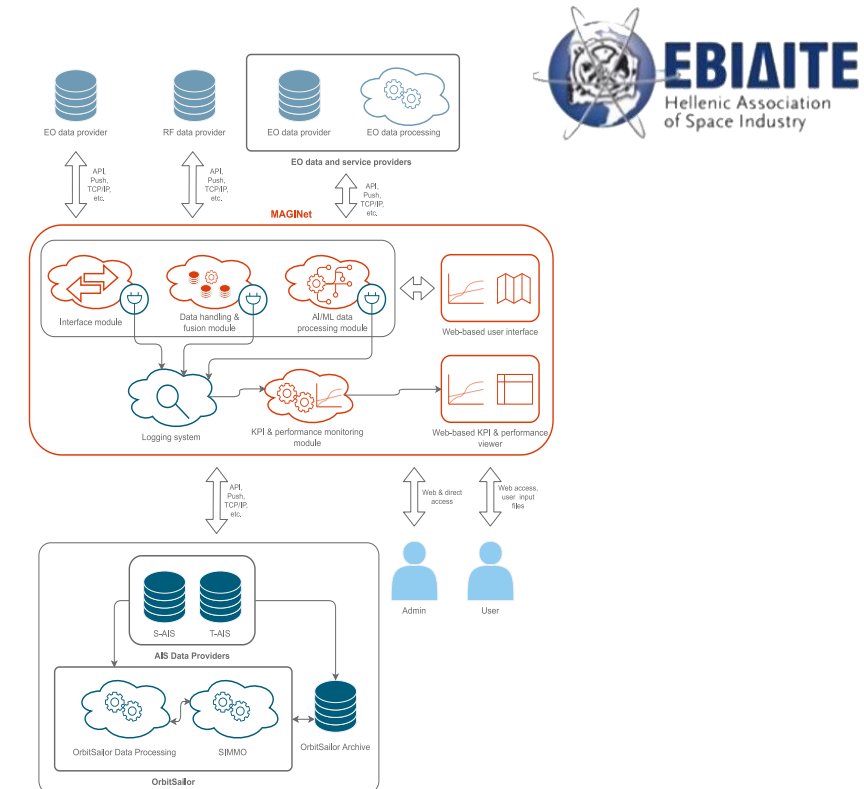
- Development of AOCS, Central Software, Power Control etc.
- ISVV, Software Validation, Engineering services

## ✓ **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

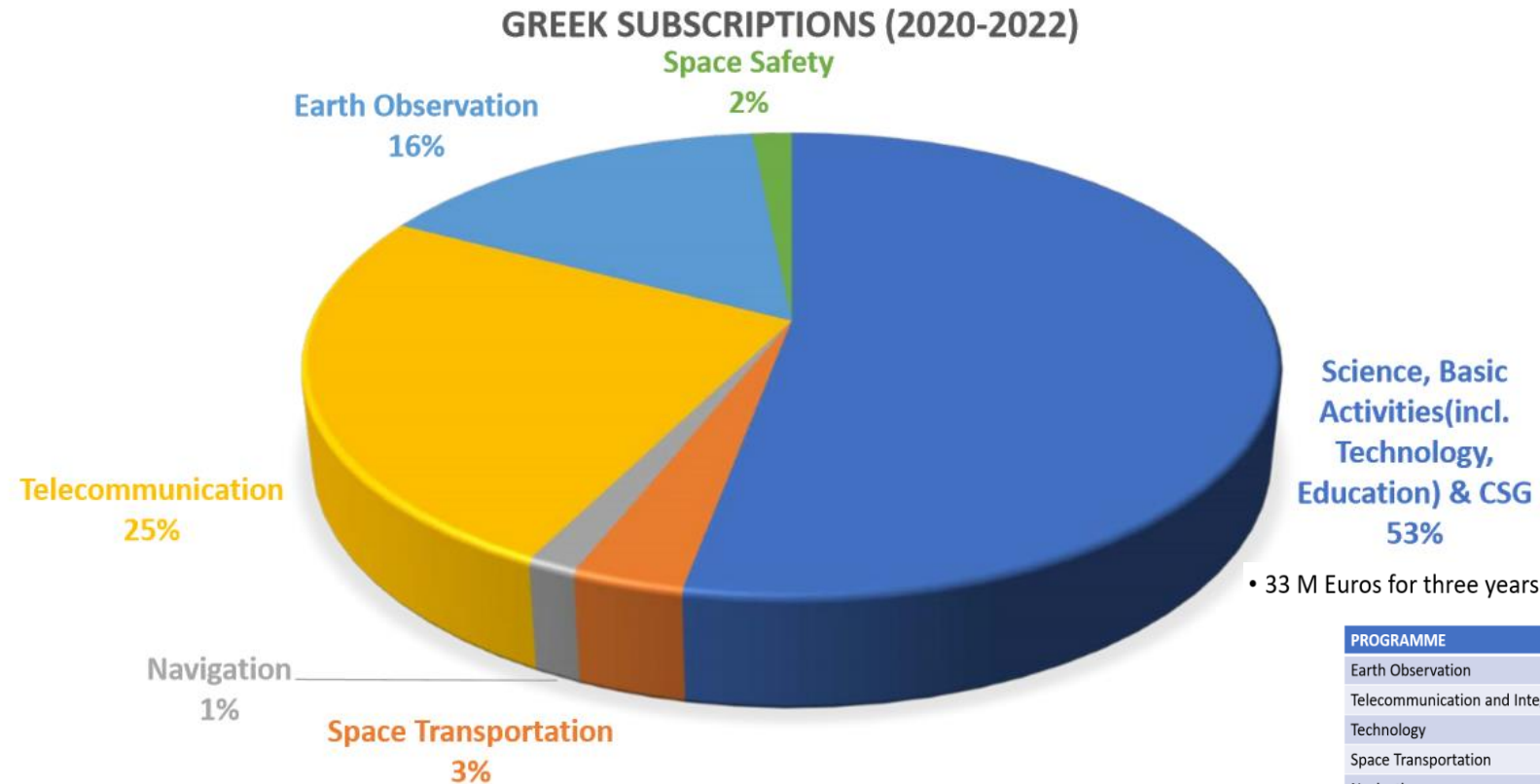


**MAGINet - GEOSPATIAL INFORMATION  
NETWORKING TECHNIQUES FOR  
MARITIME AWARENESS SERVICES  
GEOSYSTEMS HELLAS & LuxSpace**





- 63.6 M Euros for three years



- 33 M Euros for three years

PROGRAMME	M Euro
Earth Observation	10
Telecommunication and Integrated Applications	16
Technology	2.4
Space Transportation	2
Navigation	0.9
Safety and Security	1
Science and Exploration (Prodex)	0.4
Human Spaceflight and Robotic Exploration	0.3





## National Microsatellites Program

**RFI Launched on the 9<sup>th</sup> of September Deadline on the 15<sup>th</sup> of October 2021**

### Έργο ανάπτυξης μικροδορυφόρων

Το έργο αποτελεί σημαντικό βήμα στην υλοποίηση της στρατηγικής της χώρας για την αξιοποίηση των διαστημικών τεχνολογιών και εφαρμογών και την ενσωμάτωσή τους στην εθνική οικονομία.

Περιλαμβάνει την ανάπτυξη συστοιχίας μικροδορυφόρων που θα εξυπηρετούν εφαρμογές τηλεπικοινωνιών και γεωεπισκόπησης για χρήση σε τομείς, όπως οι κυβερνητικές δορυφορικές υπηρεσίες, η χαρτογραφία, η ναυτιλία, η γεωργία ακριβείας, η τοπογραφία και η πολεοδομία καθώς και άλλους τομείς της οικονομίας. Το έργο των μικροδορυφόρων σχεδιάζεται να χρησιμοποιήσει τις υποδομές Fiber in the sky – EuroQCI, με σκοπό την ολοκληρωμένη παροχή ασφαλών τηλεπικοινωνιακών υπηρεσιών.

Επιπροσθέτως, το έργο των μικροδορυφόρων θα υποστηρίξει εφαρμογές και υπηρεσίες για την έρευνα και διάσωση, την επιτήρηση των συνόρων, την εθνική ασφάλεια, την πολιτική προστασία και την προστασία του περιβάλλοντος. Η κατασκευή του συστήματος των μικροδορυφόρων (διαστημικό και επίγειο τμήμα) αναμένεται να αυξήσει τις ικανότητες της ελληνικής βιομηχανίας υψηλής τεχνολογίας.

Το έργο αναμένεται να αυξήσει τη διαθεσιμότητα, την ασφάλεια και την ανθεκτικότητα των κυβερνητικών δικτύων επικοινωνίας. Παράλληλα θα προσφέρει συνδέσεις υψηλής ταχύτητας σε απομακρυσμένες περιοχές λαμβάνοντας υπόψη το CSR 3 το 2020.

Επιπλέον, ο σχηματισμός ανάπτυξης των μικρο-δορυφόρων είναι μέρος της πρωτοβουλίας EU GovSatCom, EuroQCI και Connectivity που ανακοινώθηκε από την Ευρωπαϊκή Επιτροπή στις 15 Ιουλίου 2020.

**Greek Space Industry  
Ready for this Great Challenge  
For the Big Change**





## Greek CubeSats In-Orbit



News **ESA Tender Actions** Non ESA Tender Actions ESA Interacts Supporting Documentation

esa-star Publication

ESA Tender Actions

156

My Favourite Tenders

My Views

All Active ESA Tender Actions

▼ Open Competition

Intended **23 new** **1 updated**

Issued **16 updated**

All by Status **23 new** **27 updated**

► Restricted Competition

► Direct Negotiation

←

GREEK CUBESATS IN-ORBIT VALIDATION PROJECTS

★

1-11498

Intended	Issued	Tender Opening in Progress	Evaluation 1 – Tender Evaluation Board	Evaluation 2 – Recommendation & Endorsement	Awarded
Clarification Request Deadline	Closing Date Extension Request Deadline	Announcement Date	Last Update On	Update Reason	
N/A	N/A	05/08/2022	05/08/2022 14:49 GMT+3	New Tender Action	

The objectives of the "CubeSats In-Orbit Validation / Demonstration Project" are to: promote Greek SMEs and research/academia entities, opportunity to design, build, test, launch and operate at up to 12 CubeSats including RF and/or Optical and/or QKD payloads and associated ground segment, use as far as possible Hellenic Aerospace Industries (HAI) facilities for assembly, integration and testing, launch and operate the CubeSat(s) for 6 months. [Read less](#)

Directorate	Directorate Telecom Integrated Applica	Responsible	Stephane Sam Lascar
Establishment	ESTEC	Initiating Service	TIA-P
Open Date	N/A	IP Measure	N/A
Closing Date	N/A	Prog. Reference	E/0599-06A - GR NSSP – CubeSat
ECOS Required	No		
Classified	No		

esa-star Ver. 3.6 - Publication

Contact Us Help Terms & Conditions Privacy Notice



## 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.



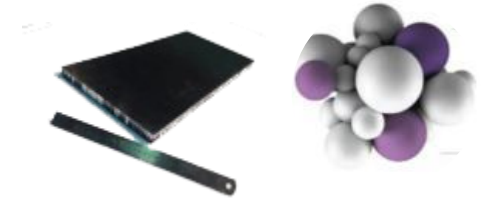
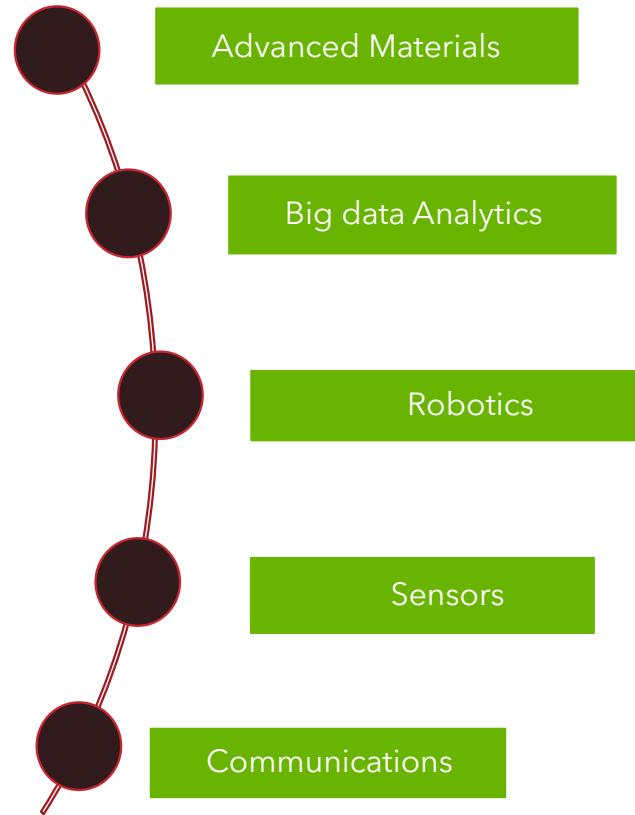


# EUROGEO WORKSHOP 2022



## SPACE TECHNOLOGIES ON MARITIME

### External Technological Developments



ATHENS 7-9 DECEMBER 2022





## Greece Space Investment Plan



### ➤ Five Main Priorities

1. **Initiate National Microsatellites Program**
2. **Support Space Division of HMOD**
3. **Increase Participation to ESA programs 2023-2025 (CM22)**
4. **Initiate G2G Non EU Strategic Industrial Cooperation on Space Technologies**
5. **Inaugurate Space for Maritime future Technologies Innovation Cluster**





# EUROGEO WORKSHOP 2022



## Increase Participation to ESA programs 2023-2025 (CM22)



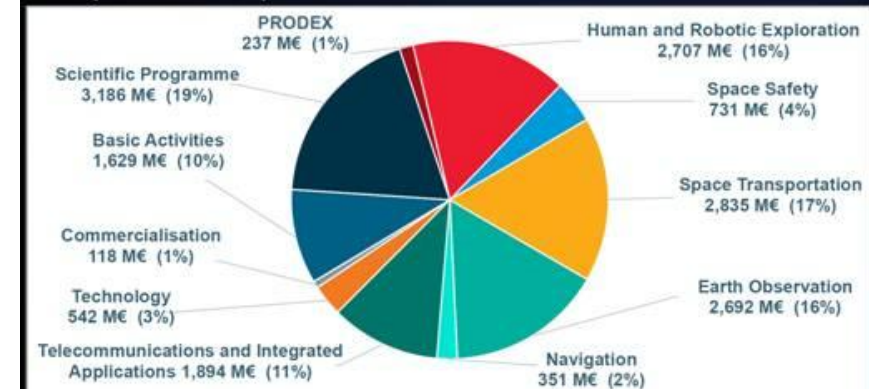
### Subscriptions per Contributor



Contributor	CM19		CM22	
	Subscriptions M€, 2019 economic conditions	Share per Contributor	Subscriptions M€, 2022 economic conditions	Share per Contributor
Austria	190	1.3%	229	1.4%
Belgium	816	5.6%	946	5.6%
Czech Republic	150	1.0%	146	0.9%
Denmark	128	0.9%	136	0.8%
Estonia	9	0.1%	26	0.2%
Finland	110	0.8%	148	0.9%
France	2,664	18.4%	3,202	18.9%
Germany	3,294	22.7%	3,512	20.8%
Greece	84	0.6%	87	0.5%
Hungary	97	0.7%	87	0.5%
Ireland	81	0.6%	96	0.6%
Italy	2,282	15.7%	3,083	18.2%
Luxembourg	129	0.9%	131	0.8%
Netherlands	345	2.4%	465	2.8%
Norway	284	2.0%	281	1.7%
Poland	166	1.1%	197	1.2%
Portugal	102	0.7%	114	0.7%
Romania	168	1.2%	122	0.7%
Spain	852	5.9%	932	5.5%
Sweden	244	1.7%	317	1.9%
Switzerland	542	3.7%	634	3.7%
United Kingdom	1,655	11.4%	1,892	11.2%
Latvia			3	0.0%
Lithuania			5	0.0%
Slovakia			12	0.1%
Slovenia	5	0.0%	20	0.1%
Canada	114	0.8%	98	0.6%
<b>Total</b>	<b>14,511</b>	<b>100.0%</b>	<b>16,923</b>	<b>100.0%</b>

### Total Subscriptions 16.9 B€

Mandatory Activities and CSG for 5 years



### Subscriptions by Ministerial Meeting



Domain	CM19	CM22
	M€, 2019 economic conditions	M€, 2022 economic conditions
Scientific Programme*	2,823	3,186
PRODEX*	244	237
Human and Robotic Exploration	1,972	2,707
Earth Observation	2,607	2,692
Telecommunications and Integrated Applications	1,590	1,894
Navigation	73	351
Space Safety	455	731
Space Transportation	2,758	2,835
Basic Activities*	1,407	1,629
Technology*	582	542
Commercialisation	-	118
<b>Total</b>	<b>14,511</b>	<b>16,923</b>

\* In current economic conditions

Inflation 2019 to 2022 = 3.8%

ATHENS 7-9 DECEMBER 2022





## Hellenic Association of Space Industries

**Your point of contact for industrial space activities in Greece**



- Tel: +30 210 6771975
- E-mail: [Kordikori@epicos.com](mailto:Kordikori@epicos.com)
- Web: [www.hellenic-asi.org](http://www.hellenic-asi.org)