

#EUSpace



EUSPA and future possibilities for Swedish Space Sector

Swedish Space Info Day, 01 June 2023

Kati Tahvonen, Market and Innovation Officer

Market, Downstream and Innovation Department



The road to EUSPA

2002



Galileo Joint Undertaking (GJU)

Managing the 1st phase of Galileo Development

2004



European GNSS Supervisory Authority

Supervising the development of EGNOS and Galileo

2010



European GNSS Agency (GSA)

Galileo and EGNOS service provision and uptake

2021



EU Agency for the Space Programme (EUSPA)

Galileo, EGNOS, Copernicus, GOVSATCOM

The road to EUSPA

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2021

New EU Space Regulation ((EU) 2021/696)



- To acknowledge the growing role of space in supporting EU priorities in terms of growth, competitiveness, sustainability, and security
- Setting the ground for the creation of EUSPA, officially launched on **12 May 2021**

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A new EU Space Programme

With the new regulation, space data and services are at the heart of a technological revolution

A new EU Space Programme

EU space activities **under one umbrella**



EGNOS

EGNOS “Makes navigation signals more accurate and trustable for Safety-critical applications”
Operational in **400+ airports** & helipads in 23 countries



Galileo

Global satellite navigation and positioning system (GNSS)
More than **3 billion Galileo receivers** worldwide



Copernicus

Earth Observation (EO) and monitoring based on satellite & non-space data
Nr.1 world provider of space data and information (>20TB/day)



GOVSATCOM

Secure satellite communications for EU governmental actors
Rapid support over crisis areas



Space Situational Awareness (SSA)

Space Surveillance and Tracking (SST)
Space Weather Events (SWE)
Near-Earth Objects (NEO)



Others

Access to Space
Research & Innovation
Entrepreneurship
Certification & standardisation
Capacity Building

Galileo Services

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Galileo Initial Services are provided to worldwide users since **December 2016**

| | |
|--|--|
| Open Service (OS) | Freely accessible service for positioning and timing* |
| Public Regulated Service (PRS) – Governmental Service | Encrypted service designed for greater robustness and higher availability – secure satellite communication |
| Search and Rescue Service (SAR) | Locates people in distress and acknowledges that the distress signal has been received |
| Under preparation | |
| High Accuracy Service (HAS) | Delivers high accuracy services, freely accessible |
| Commercial Service Authentication (CAS) | Delivers authentication services for commercial applications |

* OS Navigation Message Authentication (OSNMA) is currently under testing

What's new?

OSNMA

1st ever authentication **test signal** provided by a GNSS enabled now by Galileo worldwide

HAS

Live 24.01.2023

EUSPA facts and figures



Around planned 300 staff from the EU Member States by the end of 2023

Budget: Funding 2021-2027: ~€9.5B

EUSPA HQ

Prague, Czech Republic

GRC

Noordwijk, Netherlands

GSMC

Saint-Germain-en-Laye, France

EGNOS Center

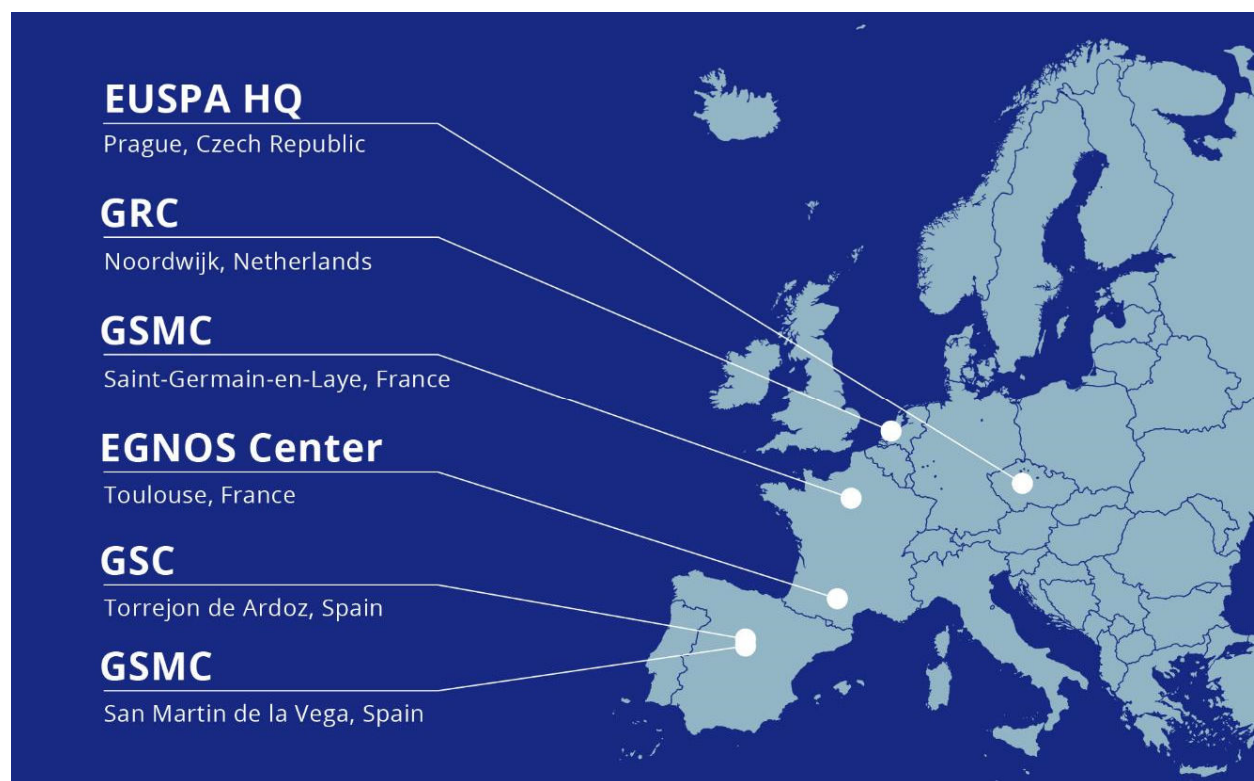
Toulouse, France

GSC

Torrejon de Ardoz, Spain

GSMC

San Martin de la Vega, Spain



EUSPA's mission

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Exploitation

- Management, operation, maintenance, improvement, evolution & protection of infrastructure
- Galileo and EGNOS services provision and 24/7 operations
- GOVSATCOM hub



Security

- Security Accreditation
- Operational security of Galileo and EGNOS
- Operation of the Galileo Security Monitoring Center (GSMC)

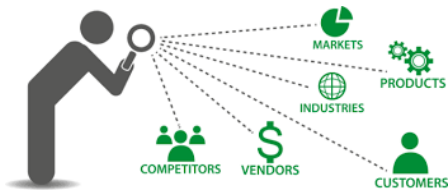


Market development, communications, user uptake, applications, innovation

- For Galileo, EGNOS, Copernicus, GOVSATCOM

The approach of EUSPA to market development

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Market & User Knowledge

- Market and technology monitoring and forecasting
- User and industry consultations
- User satisfaction monitoring

Demand Support

- Definition of roadmaps with key stakeholders
- Cooperation with receivers and apps developers
- Technical support to EC to ensure EGNSS use in regulated applications

Offer Creation

- Creation of new “made in Europe” products and services
- Start-up support

Market intelligence already available for GNSS and EO combined

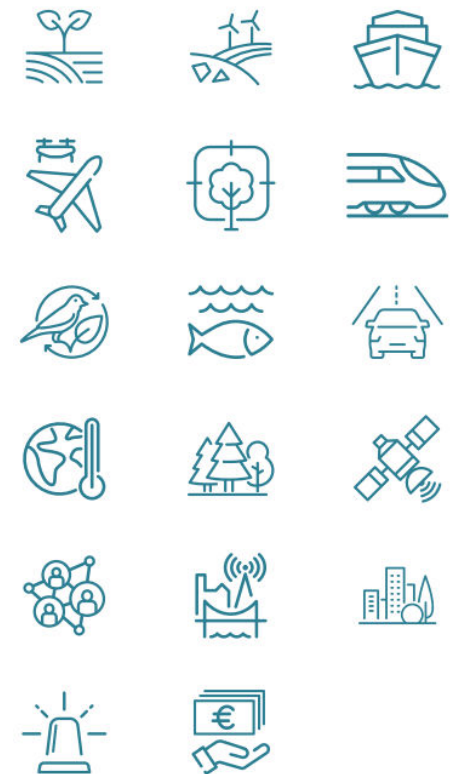
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Get your
free copy!

Technology (ENG)

“The global GNSS downstream market revenues from both devices and services will grow from almost €200 bn in 2021 to €500 bn in 2031 ”



17 different Market Segments for
GNSS services analysed

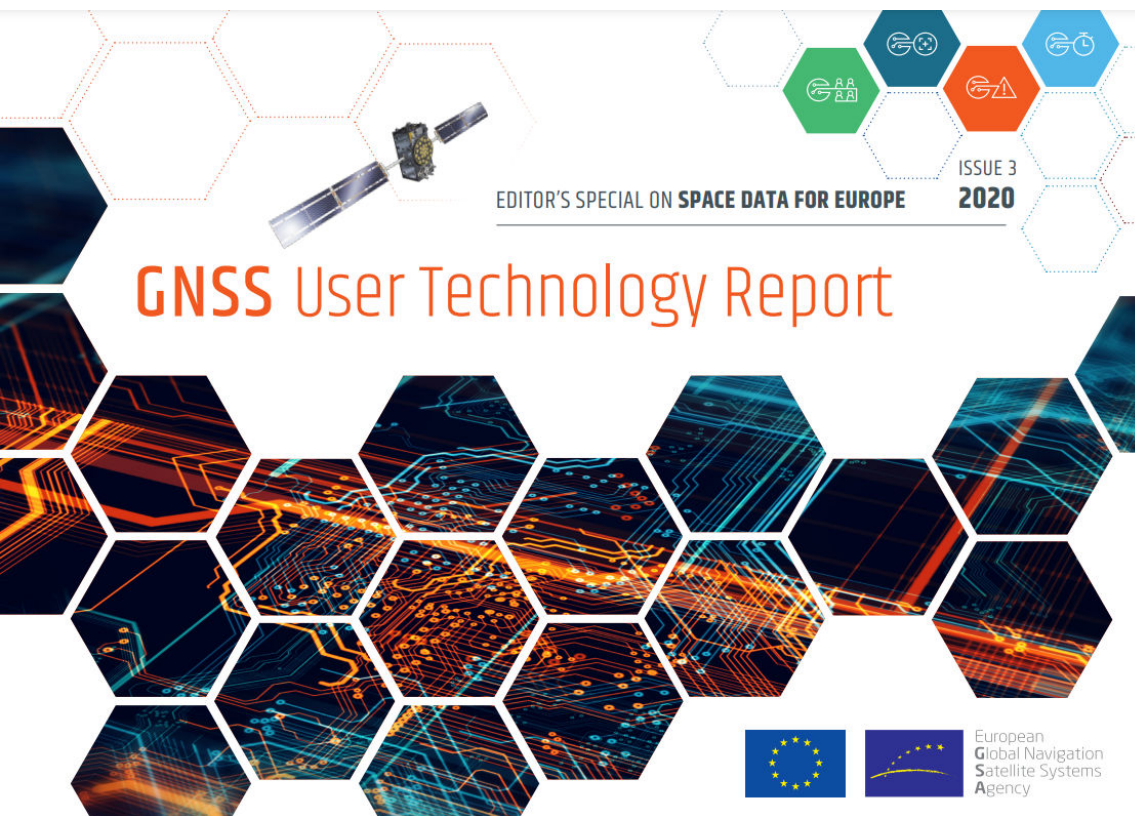
EDITOR'S SPECIAL
Innovative Solutions for Health

Available at EUSPA website:

https://www.euspa.europa.eu/sites/default/files/uploads/euspa_market_report_2022.pdf

GNSS Technology Report

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Emerging applications needs are driving the evolutions of GNSS



What can EUSPA offer for the Swedish Space Community?



Fundamental
Elements

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CASSINI Space Entrepreneurship Initiative 2021-2027

Supporting European "New Space" entrepreneurship



Support for start-ups under Cassini



| | |
|---|--|
| Develop your solution | Connect with investors |
| <ul style="list-style-type: none">• Cassini Hackathons• Cassini MyEUSpace• Cassini Business Accelerator• Horizon Europe• Fundamental Elements | <ul style="list-style-type: none">• Very early stage – EBAN, crowdfunding• EIC Accelerator• Venture capitals• European Investment Fund• European Investment Bank |
| Get advice | Find customers |
| <ul style="list-style-type: none">• Technical advice• Business advice• EUSPA Space Academy | <ul style="list-style-type: none">• Contacts with industry• Networking events• Dedicated promotion |

Statistics: EUSPA's Horizon Europe 1st call 2021

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Very **broad geographical outreach**
attracting talent from

40 participating countries

462 applications

(by 418 unique applicants)

23 countries receive funding
(about ¼ of the proposals)

Statistics from previous years

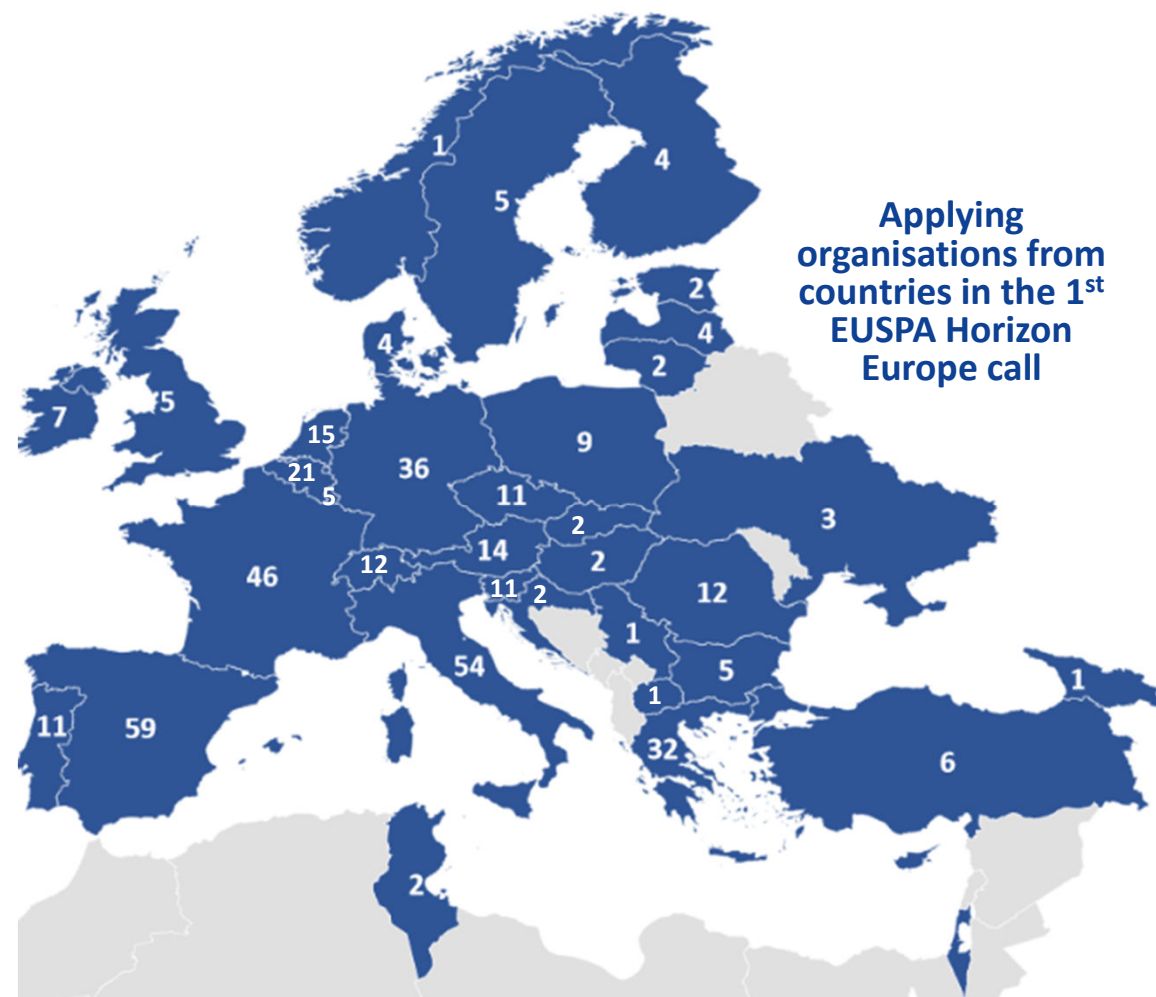
2020 H2020 5th call: **2** SE applicants

2019 H2020 4th call: **5** SE applicants

2018 H2020 3rd call: **1** SE applicants

2017 H2020 2nd call: **2** SE applicants

2016 H2020 1st call: **0** SE applicants



Note: The map does not include participation from Dominican Republic, Nigeria, Tanzania & South Africa

EUSPA Horizon Europe call of 2023 (3rd Call) (HORIZON-EUSPA-2023-SPACE-01)

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Opening: October 2023
Deadline: 20th February 2024

| Type of Action | Topic | budget (EUR mln) |
|----------------|--|------------------|
| IA | EGNSS - Transition toward a green, smart and more secure post-pandemic society | 3.5 |
| IA | EGNSS - Closing the gaps in mature, regulated and long lead markets | 8 |
| RIA | Copernicus-based applications for businesses and policy-making | 7 |
| IA | The Galileo PRS service for governmental authorised use cases | 9 |
| IA | Joint Test Activities for Galileo PRS service | 3 |
| RIA | Designing space-based downstream applications with international partners | 6 |
| IA | EU GOVSATCOM for a safer and more secure EU | 10 |
| | | 46.50 |

Innovation action (IA)

Activities to produce plans and arrangements or **designs for new**, altered or **improved products**, processes or services.

Research and innovation action (RIA)

Activities to **establish new knowledge** or to **explore the feasibility** of a new or improved technology, product, process, service or solution.



3,5
mEUR

Innovation Action

HORIZON-EUSPA-2023-SPACE-01-41

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EGNSS - Transition towards a green, smart and more secure post-pandemic society

TRL 7-9

The action aims to:

- Stimulate the development and use of commercial downstream solutions based on **synergies** between the EU space programme components and digital technology
- Foster the development of space technologies that improve the **quality of life** in Europe: efficient mobility, energy efficiency and environmental friendliness, green digital transition of the construction industry
- Exploit digitalisation and the **adaptation of business processes** in the post-pandemic environment in order to improve prospects of businesses
- Proposals can also target **personal solutions** such as personal assistance, healthcare, support to the elderly and city dashboards
- They can address the challenge of higher reliance on existing infrastructure, the increased use of remote resources and the associated **cyber-threats**

For the full description of the topics please see the Horizon Europe 7. Work Programme 2023-2024¹⁵



HORIZON-EUSPA-2023-SPACE-01-42

EGNSS - Closing the gaps in mature, regulated and long lead markets

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TRL 7-9

Broadening the reach of EGNSS by supporting its **adoption in long lead markets** including rail, maritime inland waterways, fisheries and aquaculture, road and automotive, and aviation.

- Development of industry-accepted **certification and standardization schemes** that exploit the use of EGNSS and its differentiators, as well as addressing certification bottlenecks
- **Rail safety critical applications** that support the rail network efficiency converging towards a pan-European EGNSS-based solution adoption

- **Road** and automotive market
- **EGNSS-supported operations** in coastal, harbour and **maritime** areas, including for energy production
- **Aviation**
 - **Integrations** of Dual Frequency Multi-constellation (DFMC) SBAS & Copernicus
 - **Drones' urban air mobility**, e.g. urban air deliveries through EGNSS supported by EO data
- Proposals could explore **synergies with Copernicus and/or GOVSATCOM**, addressing the certification and regulatory aspects that their use might bring

For the full description of the topics please see the Horizon Europe 7. Work Programme 2023-2024

HORIZON-EUSPA-2023-SPACE-01-43

Copernicus-based applications for businesses and policy-making

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TRL 2

7
mEUR



- Enhance existing applications or develop new applications and products relying on Copernicus data and services
- **Support policy making and implementation** such as for the Green Deal, Destination Earth or the Horizon Europe missions
- Increase the **integration and uptake of Copernicus** data, services and applications in the European economy, in particular the European data economy
- **Emergency** service: anticipatory actions, emergency management and recovery
- **Security** service: support resilience to major pan-European crises
- **Marine** service: biodiversity, spatial planning, fisheries, coastal to shore services and blue carbon farming
- **Climate change** service: forecast and preparedness to counteract extreme climate events, data integration
- **Land** service: land use and/or natural resources planning, as well as citizen awareness and reporting
- **Atmosphere** monitoring service: air quality, wildfires monitoring and greenhouse gases

For the full description of the topics please see the Horizon Europe 7. Work Programme 2023-2024

17

Research &
Innovation Action



HORIZON-EUSPA-2023-SPACE-01-46

Designing space-based downstream applications with international partners

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TRL 3-4

- **Use of EGNSS and sharing of expertise** with public and/or private entities to introduce EU-space based solutions
- The **use of Copernicus** data, to develop jointly algorithms, services and/or products
- The **combined use of EGNSS and Copernicus** to develop innovative downstream applications
- **Create business-oriented partnerships** between European industry and international partners
- Exploit **integration of EO data with positioning data and ICT** (e.g. cloud computing) from international partner countries
- Proposals dealing with EGNSS are encouraged to **involve relevant organisations on the European side** (e.g. EASA, ESSP, EMSA)
- Participation of a partner from a country that has signed a Copernicus Cooperation Arrangement is required for Copernicus-based applications

Legal entities established in countries that have signed an administrative cooperation arrangement on Copernicus data access and Earth observation data exchange are exceptionally eligible for Union funding: United States, Australia, Ukraine, Chile, Colombia, Serbia, African Union member states, India and Brazil

For the full description of the topics please see the Horizon Europe 7. Work Programme 2023-2024



HORIZON-EUSPA-2023-SPACE-01-61

EU GOVSATCOM for a safer and more secure EU

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TRL 7-9

- **Development of use cases** in the area of surveillance, crisis management and key infrastructure;
- Development and/or improvement of **GOVSATCOM demonstration terminals** enabling end-to-end validation of the first services provided by the GOVSATCOM HUB
- Identify **GOVSATCOM tools** required for the development of the GOVSATCOM terminals
- Demonstrate the access of users to an early EU GOVSATCOM service, showcasing the benefits and **fostering user uptake**

Proposals should select a GOVSATCOM use case and support the adaptation of existing SATCOM terminals to carry out the demonstration and ensure engagement of users:

- ❖ **Disaster response or Emergency services** / ambulances (for Civil Protection)
- ❖ **Rail traffic management** to improve the limitations linked to geographical barriers (e.g. valleys, cities)
- ❖ Telemedicine for **humanitarian aid**

For the full description of the topics please see the Horizon Europe 7. Work Programme 2023-2024

EUSPA website – portfolio of projects

The screenshot shows the EUSPA website's 'H2020 Projects' page. The header includes the EUSPA logo and navigation links: HOME, SUBSCRIBE, LINKS, CONTACT, RSS, Twitter, Facebook, LinkedIn, YouTube, and EU. The main navigation bar lists: EUROPEAN SPACE, ABOUT, OPPORTUNITIES, EUSPACE APPLICATIONS, NEWSROOM, and MEDIA LIBRARY. A search icon is on the right.

The page features a 'Linking space to user needs' banner with icons for various applications. Below this, a breadcrumb trail reads: Home > EUSpace applications > Project Portfolio > H2020 Projects.

On the left, a sidebar menu includes: Industry and value chain, Segment pages, Project Portfolio (with sub-items: H2020 Projects, FP7 - FP6 Projects, EGNOS Mission & Services), GNSS Raw Measurements, and EUSpace Users.

The main content area is titled 'H2020 Projects' and features a banner for 'HORIZON 2020'. Below the banner, text states: 'Horizon 2020 is the European Union's programme for research and innovation aiming at securing Europe's global competitiveness. The European Union Agency for the Space Programme (EUSPA), former GSA, under a Delegation Agreement with the European Commission manages the projects coming from the calls for Applications in Satellite Navigation, part of the programme's Space Theme.'

A row of icons represents various applications: aviation, maritime, agriculture, surveying, mapping, timing, and synchronization. Below this, text states: 'The projects will develop innovation to demonstrate a clear advantage of using Galileo and EGNOS and concrete applications in the GNSS segments of location-based services (LBS), road, aviation, rail, maritime, agriculture, surveying and mapping, and timing and synchronisation.'

The 'Aviation' section is highlighted with a blue icon. Below it, a table lists projects:

| | |
|-----------|--|
| 5 Lives | Search, Challenge, Fight, Care, Rescue for Lives |
| BEYOND | Building EGNSS capacity on EU neighboring multimodal domains |
| BLUEGNSS | Promoting EGNSS Operational Adoption in BLUEMED FAB [H2020 - 2nd Call] |
| CaBIAvi | Capacity building for aviation stakeholders, inside and outside the EU |
| e-Airport | Increase airport capacity, safety and security using European GNSS |
| GMCA | GNSS Monitoring for Critical Applications |
| SKYOPENER | Establishing new foundations for the use of Remotely-Piloted Aircraft Systems for civilian applications:[H2020 - 2nd Call] |
| UKRAINE | Ukraine Replication, Awareness and Innovation based on EGNSS |
| GRIMASSE | General aviation Rescue capacity improvement for the worldwide Adoption of a Safe Solution based on European GNSS [H2020 - 3rd Call] |
| GAUSS | Galileo-EGNOS as an Asset for UTM Safety and Security [H2020 - 3rd Call] |
| DELOREAN | Drones and Egnss for Low airSpacE urban mobility |

A 'Back to top' link is at the bottom left.

Search Projects

Search the EUSpace project portfolio

Keyword search

Partners

- Any -

Project type

- Any -

Country

- Any -

Project calls

- Any -

- Any -
 H2020 5th call
 H2020 EGNSS Mission & Services
H2020 - Galileo 4th Call
 H2020 - Galileo 3rd Call
 H2020 - Galileo 2nd Call
 H2020 - Galileo 1st Call
 FP7 3rd Call
 FP7 2nd Call
 FP7 1st Call
 FP6 3rd Call
 FP6 2nd Call
 FP6 1st Call

Market application

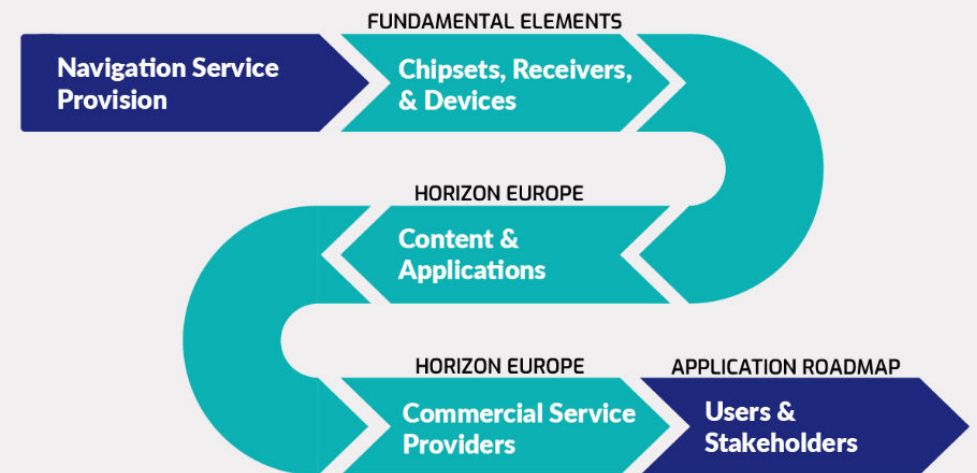
Choose some options

Fundamental Elements



- Budget 2021-2027: EUR 43 million
- Objectives:
 - Facilitating the **adoption** of the European **GNSS** Systems, building on their innovative services and differentiators;
 - Improving the **competitiveness of EU industry**;
 - **Addressing user needs** in priority market segments;
 - Maximising benefits to European citizens.

Downstream Value Chain



Fundamental Elements - EGNSS user technology



| Type of Action | Topic | Budget (M EUR) | Indicative No. projects | Status/Planning |
|----------------|---|----------------|-------------------------|--|
| Grant | OSNMA implementation for consumer solutions | 1,0 | 2 | Projects awarded |
| Grant | HAS implementation in Agriculture & Geomatics | 2,5 | 2 | Evaluation under finalisation |
| Grant | Artificial Intelligence, Machine Learning | 3,0 | 3 | Under evaluation |
| Grant | New SAR beacons | 4,0 | 3 | Call for proposals published: DL 30 June 2023 |
| Grant | Emergency Warning Satellite Service - Galileo Devices | 1,0 | 2 | Call for proposals published: DL 31 July 2023 |
| Grant | Connectivity: Enabling next generation NAV/COM Hybrid Terminal | 3,0 | 4 | Call for proposals published: DL 15 September 2023 |
| TOTAL budget: | | 14,5 | | |



<https://www.euspa.europa.eu/opportunities/grants>

Connectivity

Publication: June 2023

Objectives

- Optimisation of Galileo use in connected devices, focusing on innovative concepts using **cloud processing, hybridisation of GNSS with 5G and other dedicated networks** as well as implementation of new Galileo features proposed for low power tracking
- Development of chipsets and receivers as well as hybrid solutions to address specific challenges of **low power tracking in connected devices**

Foreseen results

- **Commercial receiver/terminal** or hybrid solution optimising the **Galileo use in low power tracking use cases**

Up to **4 projects** to be awarded
Maximum budget: **3.0M€**

User Consultation Platform (UCP)



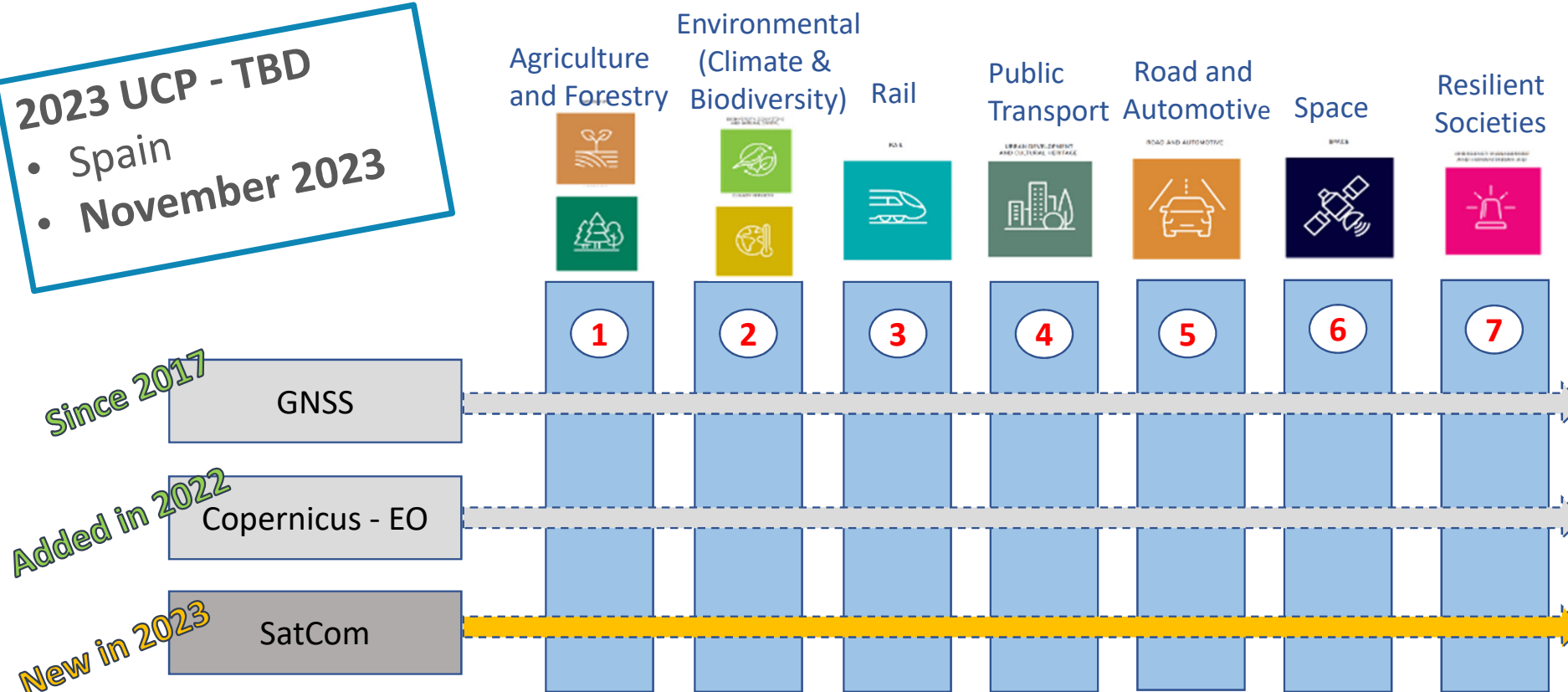
User Consultation Platform (UCP) 2023 – under preparation

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2023 UCP - TBD

- Spain
- November 2023





CASSINI
Hackathons & Mentoring

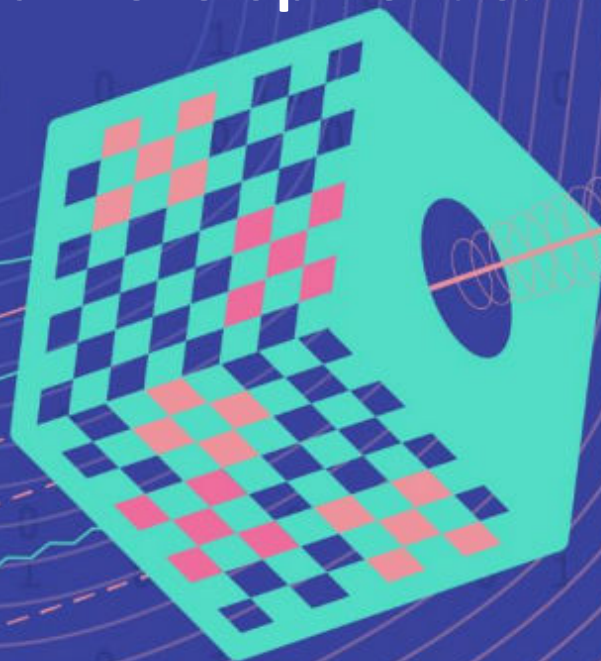
The 6th CASSINI Hackathon, 3-4 November 2023

Space for International Development & Humanitarian Aid

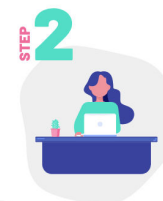
Supporting sustainable infrastructure development

Strengthening food security & access to clean water

Understanding and forecasting forced migration



Choose your location



Register before deadline



Join the Big Ideas Campaign



Form a team



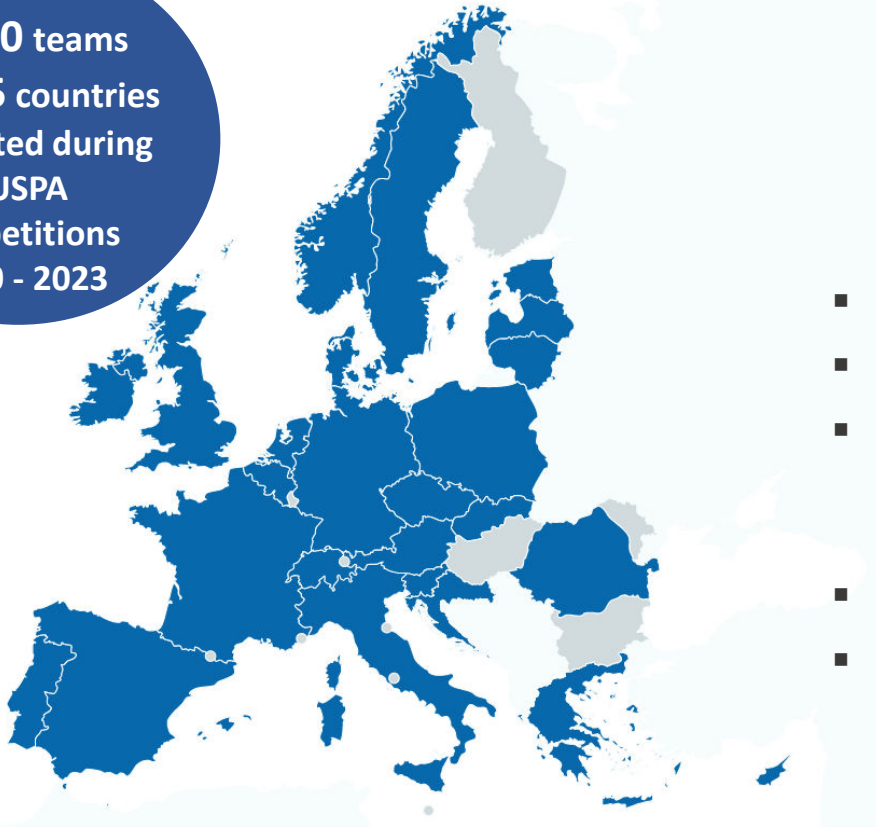
Hack your way to success during the hackathon

The alumni network of EUSPA hackathons and competitions reaches 1000 innovators and start-ups

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>300 teams
from 25 countries
supported during
EUSPA
competitions
2020 - 2023



- Total number of applications during 2020 - 2023: **>1000**
- Applications received from **all EU countries**
- Additionally, the EUSPA network comprises of startups engaged in several hackathons, events and development programme
- State-of-the-art technologies with strong business concept
- Various application areas addressing **EU Green Deal, smart cities, sustainable mobility, optimization of the food chain, crisis & emergency response, cyber security**

CASSINI - Matchmaking Initiative

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Matchmaking Themes for 2023

- 5) Smart Logistics & Transportation
- 6) Smart Cities & Urban Mobility
- 7) Managing and protecting Earth's resources from Space
- 8) Next-gen spacecraft manufacturing and operation

The next matchmaking events

- 10 – 11 October EBAN congress in Brussels
- 13 – 16 November WebSummit in Lisbon



<https://www.cassini.eu/matchmaking/topics#newtopics>²⁸

Space Academy

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explore.
learn.
build.

EUSPA
Space Academy

explore.
learn.
build.

Start now!

Elevate
your
business
ideas

Online & Free
Flexible
& Customisable
Anytime
& Anywhere
Office hours,
Mentoring
& Workshop
sessions

- Training modules (Galileo, EGNOS, Copernicus + entrepreneurship)
- 1-to-1 mentoring sessions
- Thematic workshops

<https://www.euspa.europa.eu/spaceacademy/>

EUSPA contributes to the EU Agenda



Stronger Europe

Strategic autonomy and non-dependence of Europe in space

Green Deal

EU-space-based applications for transport, agriculture, energy, smart cities...

Digital

Security of EU space, uninterrupted high capacity connectivity everywhere, IoT

Resilience

Innovative downstream space sector

What is coming
up?

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your #EUSpace update

<https://www.euspa.europa.eu/subscribe-our-newsletter>



Linking space to user needs

Get in touch with us

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The European Union Agency for the Space Programme is hiring!

Apply today and help shape the future of #EUSpace!