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Linking space to user needs

# New Space Downstream opportunities II

Space Downstream Day, 5<sup>th</sup> December 2025

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# Deep dive in Fundamental Elements Programme: Status and what's new

# What is Fundamental Elements Programme?

EUSPA's R&D funding mechanism supporting the development of Galileo- and EGNOS-enabled downstream applications and technologies, accelerating their uptake in commercial markets.



Fundamental Elements supports the full innovation chain:

From prototype solutions → to pre-commercial validation

From emerging technologies → to operational deployment

From early adopters → to sustainable market growth



Fundamental Elements enables:

Industrialization of Galileo differentiators (OSNMA, HAS, multi-frequency, etc.)

Development of competitive European products

Strengthening EU industrial capacity in key market segments

Faster transition from R&D to real products in the hands of users

# The Added Value of Fundamental Elements...

... drives real commercial impact, not research for research's sake.



## User-driven, market-oriented

Solutions are shaped around verified user needs



## Accelerates market adoption of current differentiators

OSNMA, HAS, multi-frequency, etc



## Prepares for commercial implementation of new differentiators

EWSS, SAS, ARAIM



## Strengthens European competitiveness

ML/AI, Advanced processing and system concepts



## Promotes cross-programme synergies

Copernicus, SatCom etc.

Allocated EC budget  
for FE2  
€43 million  
2021-2027

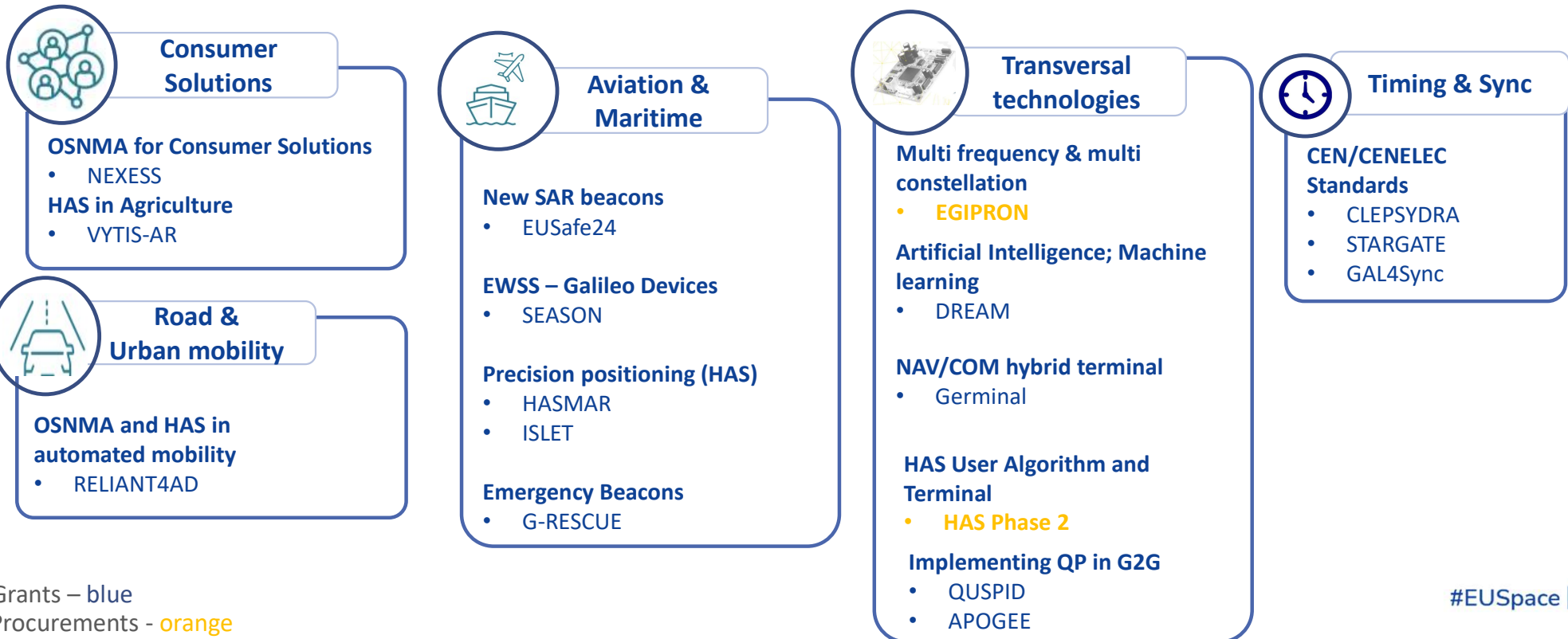
## More info at:

<https://www.euspa.europa.eu/opportunities/fundamental-elements>



# On-going FE projects

17 on-going grants and **procurements** (1 projects from FE1 & 16 projects from FE2)\*



# FE Ongoing Projects (part 1)

	Ongoing Projects	Envisaged project's outcomes	Coordinator	Market Segmet
OSNMA	NEXESS	Capable low-power GNSS receiver for IoT and secure services	Qualinx	Consumer Solutions
	Germinal	Hybrid Terminal capable to support TN and NTN communication together with GNSS	GMV	Transversal
	RELIANT4AD	Advanced User Terminal for Authentication and Resilience in Autonomous Driving	Thales FR	Automotive
HAS	Vytis-AR	Enabled universal GNSS receiver for precision agriculture	NtLab	Agriculture
	DREAM	Driving aids powered by E-GNSS AI and ML leveraging on HAS	ANavS	Transversal
	HAUT Phase 2	Galileo HAS Phase 2 Reference User Algorithm and User Terminal	Spaceopal	Transversal
	HASMAR	Maritime receiver DPS i4	Kongsberg	Maritime
	ISLET	Maritime receiver to be embedded within the vessel navigation equipment	GMV	Maritime
EWSS	SEASON	Integration of Galileo Emergency Warning Service in a new AIS/VDES equipment	Thales IT	Maritime

# FE Ongoing Projects (part 2)

	Ongoing Projects	Envisaged project's outcomes	Coordinator	Market Segmet
SAR	EUSafe24	Integration of Galileo Remote Beacon Activation Service in an Emergency Positioning Radio Beacon	Netwave System	Maritime
	G-RESCUE	Next-generation 406 MHz beacons with Two-way Communication and Remote Beacon Activation for enhanced Search and Rescue	EPM Electronics	Maritime
Timing & Sync	CLEPSYDRA	Galileo Timing receiver fulfilling CEN/CENELEC standards	Thales IT	Infrastructure
	GAL4TSync	Galileo Timing receiver fulfilling CEN/CENELEC standards	Rectangle	Infrastructure
	STARGATE	Galileo Timing receiver fulfilling CEN/CENELEC standards	Safran	Infrastructure
Quasi Pilot	QUSPID	GNSS Rx on the latest generation TeseoVI chipset (STA8600A) from STMicroelectronics	FDC	Transversal
	APOGEE	G2G user receiver test bed demonstrating new Quasi-Pilot signal capabilities.	Thales IT	Transversal
Multi freq/ Const	EGIPRONE	European Global Interference PROtection Network	Qascom	Transversal



# NEXESS



Ongoing  
project

Fundamental  
Elements  
Success Story



**Product Type:** OSNMA support in ultra low power, reconfigurable GNSS chip

**Success story:** Secure and resilient end use of mass market GNSS receivers enabled by OSNMA



**Qualinx GNSS SoC**



### Project Output:

- Galileo decoder with OSNMA support
- Authentication of satellite signals
- Authenticated ECS and Timing data is used for navigation.

### Project Status:

- In final stage to test authenticated signals on Qualinx silicon.

### Target Customers:

- Companies manufacturing battery-operated, and space constrained devices, such as wearables, trackers, mobiles, IoT etc.

### Plans for future:

- Integrate OSNMA into the current Qualinx product portfolio, as well as future products in roadmap

**EU funding:** 511K EUR

**Duration:** 28 months


**PARTNERS:** 

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# FE Projects finished



43 projects are successfully completed\*



### Road & Urban mobility

**E-GNSS engine**

- ESCAPE

**OSNMA user terminal**

- **PATROL**

**Autonomous driving/navigation**

- ACCURATE
- ERASMO

**Receiver for localisation in train signaling**


- TRENI
- GALITS



### Agriculture

**High-end receivers and antennas**

- FANTASTIC



### Aviation, Maritime

**MEOSAR Beacons**

- PHOENIX
- TAUCETI
- COBALT
- ISSAR
- AMETRINE

**ARAIM Receiver**

- DARP
- GLAD

**SBAS guidelines for SOLAC and non-SOLAS applications**

- MAREC

**Shipborne receiver (E1/E5)**

- ASGARD
- Blue Box Porbeagle VMS
- SEGRA

**DFMC and SBAS Receivers**

- **EDG2E**
- **MUGG**

**Drone-borne receiver**

- DEGREE
- GEODESY



### Transversal Technologies

**E-GNSS receivers technologies**

- GREAT

**HAS User Algorithm and Terminal**

- **HAUT**

**GNSS User Terminal**

- ARGOS
- OSNMA+

**Antenna for Galileo**

- GAMMA
- MAGICA

**AI, ML**


- AGORA



### Critical Infrastructures

**Timing & Synchronization**


- GEARS
- GIANO



### Consumer Solutions

**Receiver technologies for high-precision in mass-market**


- UNION
- BANSHEE
- APOLLO
- eMAPS
- Galileo of Things
- OSCAR
- PROLONG
- REMOT
- H-GEAR
- PHOENIX



### Space

**EGNSS Rx for space users**

- NEWSPAPER
- GEYSER

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\*Grants – blue  
Procurements – orange

# FE concluded projects: Service



## SERVICE EXAMPLES of receivers developed (not exhaustive list)

OSNMA



HAS



ARAIM



SAR/RLS



Timing & Sync



SBAS



# FE concluded projects: Market Segment



Market Segment

EXAMPLES of receivers developed (not exhaustive list)

Aviation and Drones



Maritime



Agriculture



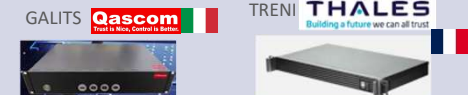
Transversal



Automotive



Rail



Consumer Solution



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# TAUCETI



Fundamental  
Elements  
Success Story



**Product Type:** Beacon (Survival ELT) with RLS function  
**Product name:** KANNAD ULTIMA-S ELT  
**Success story:** Commercialized since 2023



*Coordinator: "The development of this project allowed us to improve our knowledge on new standards on aviation products."*

## Project output:

- The world first Survival ELT (ELT-S) distress beacons with Galileo RLS
- Three frequency Survival ELT 406 MHz, 121.5 MHz and 243 MHz, TAC from Cospas-Sarsat

## Post-project status:

- The Ultima-S ELT has been selected by Airbus & Boeing Manufacturers to equip their new aircraft programs.
- The Ultima-S ELT has been selected by multiple airlines to equip their fleet.

## Target customers:

- Aviation manufacturers (OEM), Aviation companies, Retailers, Repair stations

## Plans for future:

- Version with second generation of Cospas-Sarsat in the 2030s

**EU funding:** 988K EUR

**Duration:** 39 months

**Partners:**



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# ESCAPE



Fundamental  
Elements  
Success Story



## Product Type: Positioning module with Galileo-based integrity algorithm

## Success Story: First autonomous vehicle powered by Galileo

### Project output:

- Galileo based navigation unit for autonomous vehicle - level 3 of automatization
- Multi-frequency and multi-constellation GNSS receiver, ensuring precision, integrity and robustness

### Post-project status:

- **First customer BMW since 2019**
- Positioning software advanced algorithms adapted to meet BMW's performance/safety requirements

**EU funding:** 3,3M EUR

**Duration:** 39 months

### PARTNERS:

Ficosa (Spain)  
Renault (France)  
STM (Italy)  
IFSTTAR (France)  
GMV (Spain)





# PHOENIX

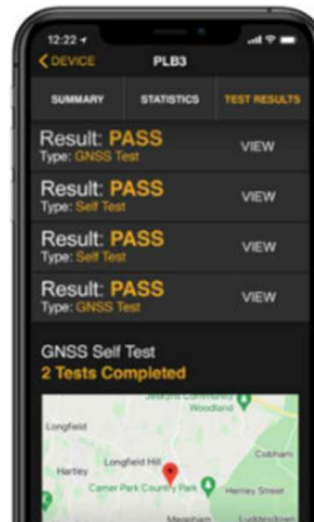


Fundamental  
Elements  
Success Story



**Product:**  
**Name:**  
**Success story:**

**Personal Locator Beacon (PLB)  
Ocean Signal rescueME PLB3  
Commercialized in 2022**



**Project output:**

- First PLB to integrate AIS, RLS, GNSS, and NFC in a single device
- 406 MHz (Cospas-Sarsat), 121.5 MHz homing

**Post-Project Status:**

- Target Markets: Recreational and professional mariners, offshore workers, and adventurers
- DAME design award 2022

**EU funding:** 313K EUR

**Duration:** 56 months

**PARTNERS:**



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# FE: New funding opportunities

Funding opportunities -> EUSPA FE webpage.

New calls -> published throughout the year.

Information webinars -> to guide applicants.




Regularly check the FE webpage to stay updated on newly published opportunities and upcoming webinars



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# OPEN CALL: Galileo HAS enabled Space receiver

## Objective



Development of a **GNSS receiver for LEO satellites in the 50 — 500 kg** class and space applications with Precise Point Positioning capability based on Galileo's E6 High Accuracy Service, which provides real-time positioning accuracy at least in a range of few decimetres.



**There are two alternative sub-objectives -> the applicant(s) shall select one to pursue:**

- (1) The development, integration, testing and demonstration of hardware components and/or software/firmware algorithms **to develop technologies for GNSS receivers** that can benefit from the GALILEO HAS service for assets in space which can **be made available to the market within next five years.**
- (2) The development, integration, testing and demonstration of hardware components and/or software/firmware algorithms **to develop technologies for GNSS receivers** that can benefit from the GALILEO HAS service for assets in space forward looking **and technology driven solutions for the long term (future needs beyond 2030).**

# OPEN CALL: Galileo HAS enabled Space receiver



Indicative number of projects: up to 2

Maximum budget: **2M EUR**

Duration: **24 Months**

Deadline: **30/01/2026**



## More info at:

<https://www.euspa.europa.eu/opportunities/procurement-grants/grants/galileo-has-enabled-space-receiver>



# OPEN CALL: Robust and professional receiver leveraging on Galileo



## Objective



- 1) The development (minimum TRL 7) of an **innovative, robust, cost-effective, space-based capability** – in the form of **GNSS receivers, units, platforms, chipsets, etc.** – integrating the **necessary Galileo services** together with **additional receiver-based techniques**.
- 2) Identify standardisation needs and gaps needed for the uptake of the developed solution.

# OPEN CALL: Robust and professional receiver leveraging on Galileo



Indicative number of projects: up to 3

Maximum budget: **3M EUR**

Duration: **24 Months**

Deadline: **30/01/2026**

## More info at:

<https://www.euspa.europa.eu/opportunities/procurement-grants/grants/robust-and-professional-receiver-leveraging-galileo>



# Technological Areas (1/2)

Robust and professional receiver leveraging on Galileo



Target application(s) are expected to build on **Galileo-based technology**, complemented with other techniques, capable of addressing one or more of the following technological areas:



- **Creating a 3D rendering for digital investigations** following transport accidents, in support of post-disaster damage assessment, insurance cases or similar use. -> to promptly collect data from the field and recreate an accurate **digital twin** of the scenario.
- **Collecting and processing data from remotely operated and/or autonomous platforms** to achieve better situational awareness in crisis areas, to oversight environmental disaster scenes, and/or map, geo-locate and assess the presence of target objects (e.g. **unexploded ordnance** to be cleared before building construction, or similar).

# Technological Areas (2/2)



- **Facilitating the supervision of transport of special goods** cataloguing, authenticating and determining at all times the precise location, indoor and outdoor -> goods could include, for instance, cultural heritage assets and/or protected animal/plant species.
- **Supporting routine operations and monitoring of public infrastructure** (stadiums, pipelines, factories, large events), by e.g. navigating and managing the necessary assets/personnel, geo-fencing the field of operations and providing/collecting relevant data with the aim to maintain accurate and reliable situational awareness. -> **synergy between Galileo HAS, authentication techniques and the upcoming Emergency Warning Satellite Service (EWSS)**, combining the situational picture with early warning data in case of identified risks, including in situations of limited ground communications.

Robust and professional receiver leveraging on Galileo



# Type of grants: Lump sums

Form of funding: Lump sums contribution

Approximation of  
underlying actual costs

Divided per work package  
per beneficiary

Very detailed budget table

# Payment arrangements

Max. co-financing rate -> 70% of eligible costs

No. of payments: 2

1. Pre-financing payment
2. Payment of the balance

1. Pre-financing payment: 70% of the grant amount

2. Payment of the balance:

- at the end of the project
- for work packages completed and accepted by EUSPA
- payments do not depend on the costs actually incurred
- if work package not completed by the end of the project the lump sum share is paid partially, in line with the accepted degree of completion.
- the payment of the balance clears 100% of the pre-financing

# Other opportunities for downstream

# Make It With Space

## Upcoming procurement !

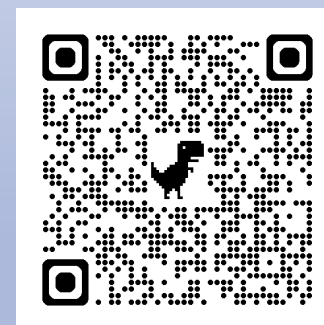
- A procurement for the provision of services to EUSPA related to the European downstream market solutions based on space data, products and services.
- Meet **new users' demand** using space services and data (Galileo and its differentiators, EGNOS and Copernicus).

Ref. EUSPA-OP-07-25

Indicative budget:  
**19 million EUR**

### More info at:

<https://www.euspa.europa.eu/opportunities/procurement-grants/procurements/make-it-space-procurement>





Linking space to user needs

Get in touch with us

[www.euspa.europa.eu](http://www.euspa.europa.eu)

