

Fundamental Elements programme & funding opportunities



FE-2 is an EU R&D funding mechanism supporting the development of new EGNSS-enabled chipsets, receivers and antennas, and enabling users' technology main drivers:



Continue to be **driven by user needs** and **oriented for a commercial use**:

- ✓ Priorities on specific segments driven by market needs, consultation with Users, with MS, with Industry/Academia
- ✓ Clear-cut from prototype receiver developments needed to leverage new services



Operational **implementation of current differentiators**:

- ✓ E.g. OS-NMA and HAS, multi frequency



Prepare for commercial implementation of **new differentiators**:

- ✓ Early Warning Service, CAS, ARAIM, ...



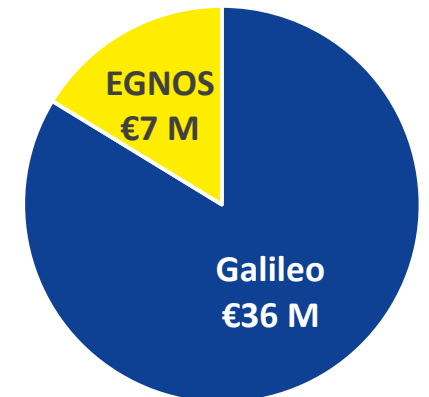
Develop **emerging, disruptive technologies** (e.g. leveraging ML/AI, etc.)



Explore **synergies with other space systems** on user technology:

- ✓ E.g. Copernicus, SatCom


Allocated FE2 budget
€43* million
2021-2027



* Indicative budget

Projects successfully completed

With 50 grants and **procurements** launched,
39 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



Aviation, Maritime

MEOSAR Beacons

- PHOENIX
- TAUCETI
- COBALT

ARAIM Receiver

- DARP
- GLAD
- GEODESY

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



Transversal Technologies

E-GNSS receivers technologies

- GREAT

HAS User Algorithm and Terminal


- **HAUT**

GNSS User Terminal

- ARGOS
- OSNMA+

Antenna for Galileo

- GAMMA
- MAGICA



Consumer Solutions

Receiver technologies for high-precision in mass-market

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



Agriculture

High-end receivers and antennas

- FANTASTIC



Critical Infrastructures

Timing & Synchronization

- GEARS
- GIANO



Space

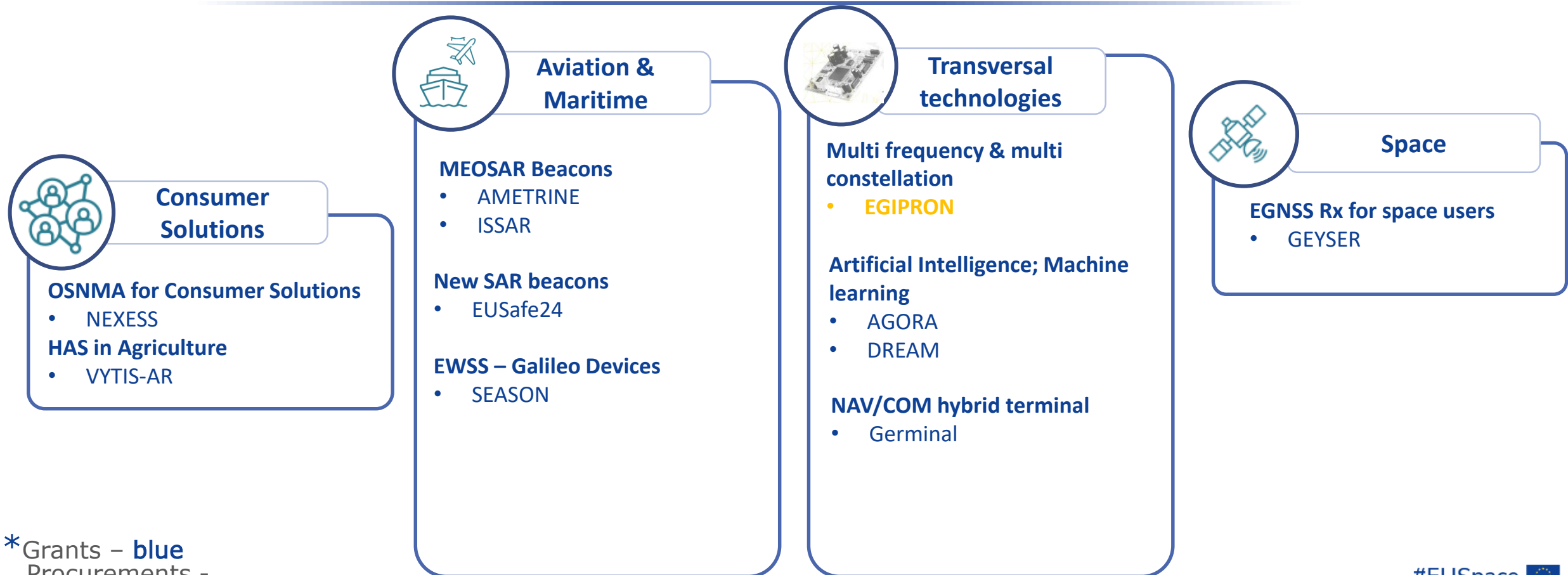
EGNSS Rx for space users

- NEWSPAPER

#EUSpace 

On-going projects

11 on-going grants and **procurements** *
(4 projects from FE1 & 7 projects from FE2)



*Grants – blue
Procurements – orange



Fundamental
Elements

Closed call: Galileo HAS enabled Maritime receiver



Closed for submission

Up to 2 projects to be awarded
Maximum budget: 2.5M€

Deadline for submission: 27 September 2024



Objectives

- Development of positioning/navigation solution with **Galileo HAS** including Chipset/receiver, using SiS E6 and/or IDD and potential integration of other sensors
- **Testing in real environment**, including performance assessment in the operational case, representative duration and set up, with real users
- Active contribution to relevant standards
- Documentation of added value and benchmark with other solutions (e.g. PPP, RTK, PPP-RTK, NRTK)

Foreseen results

- GNSS positioning/navigation close-to-market solution, integrating Galileo HAS receiver, suitable to be embedded within the vessel navigation equipment

Open call: Galileo Timing receivers implementing CEN/CENELEC standards

Deadline for submission: 28 October 2024

Up to **2 projects** to be
awarded
Maximum budget: **3.0M€**



Objectives

- Implementation of the functional requirements defined in the Standards and achievement of the performance defined in the Standards
- The receiver shall be able to process cryptographic data coming from **Galileo Open Service Navigation Message Authentication (OSNMA)** following the published Galileo OSNMA Signal-in-Space Interface Control Document and the published Galileo OSNMA Receivers guidelines
- Execution of the Tests according to the Standards and assessment of the results against the Pass/Fail criteria, operational demonstration and calibration of the operational set up.

Foreseen results

- Galileo dual frequency Timing receiver, fulfilling the requirements defined in the CEN/CENELEC Standard (CEN/CENELEC reference is prEN 16605)