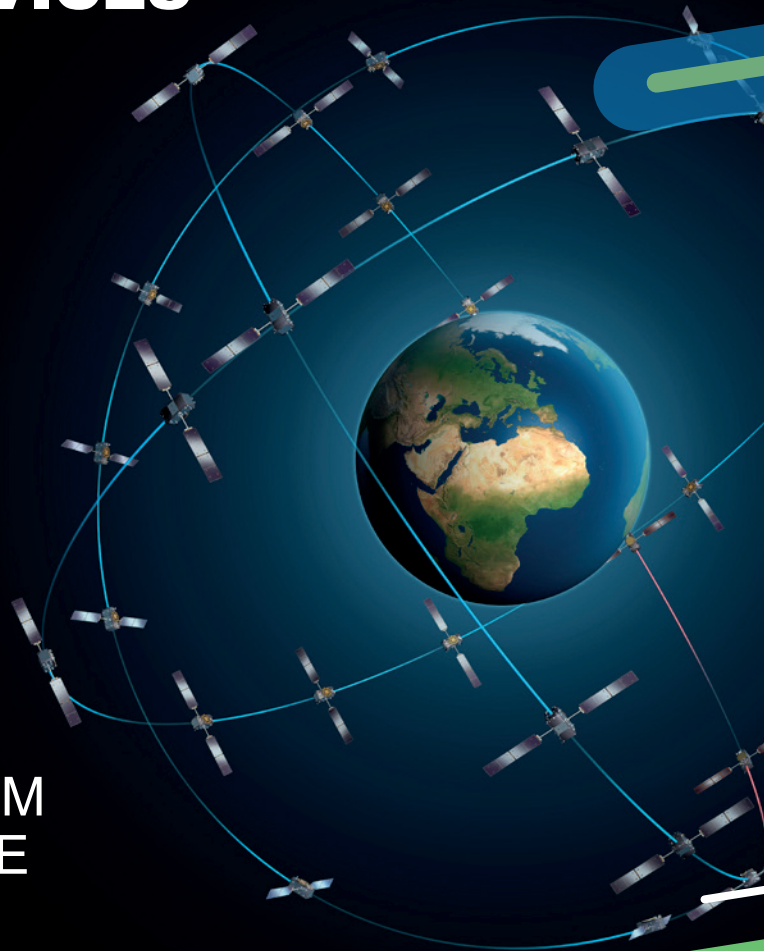




PROGRAMME OF THE
EUROPEAN UNION

EU SPACE **HORIZON 2020** **EGNSS MISSION** **AND SERVICES**

**INNOVATING
SERVICES FROM
SPACE FOR THE
BENEFIT OF
CITIZENS**





HORIZON 2020 EGNSS MISSION AND SERVICES

The **European Commission** is responsible for the definition of the **Evolution** of the European Satellite Navigation Systems (EGNSS): Galileo and EGNOS

The EU Research and Innovation programme for the period 2014-2020, **Horizon 2020**, included a Space component to foster a cost-effective competitive and innovative space industry and research community to develop and exploit space infrastructure. As Programme Manager, the Commission defined a stream to support the Evolution of the EGNSS Missions and Services (MAS)

Scope of MAS actions is twofold:

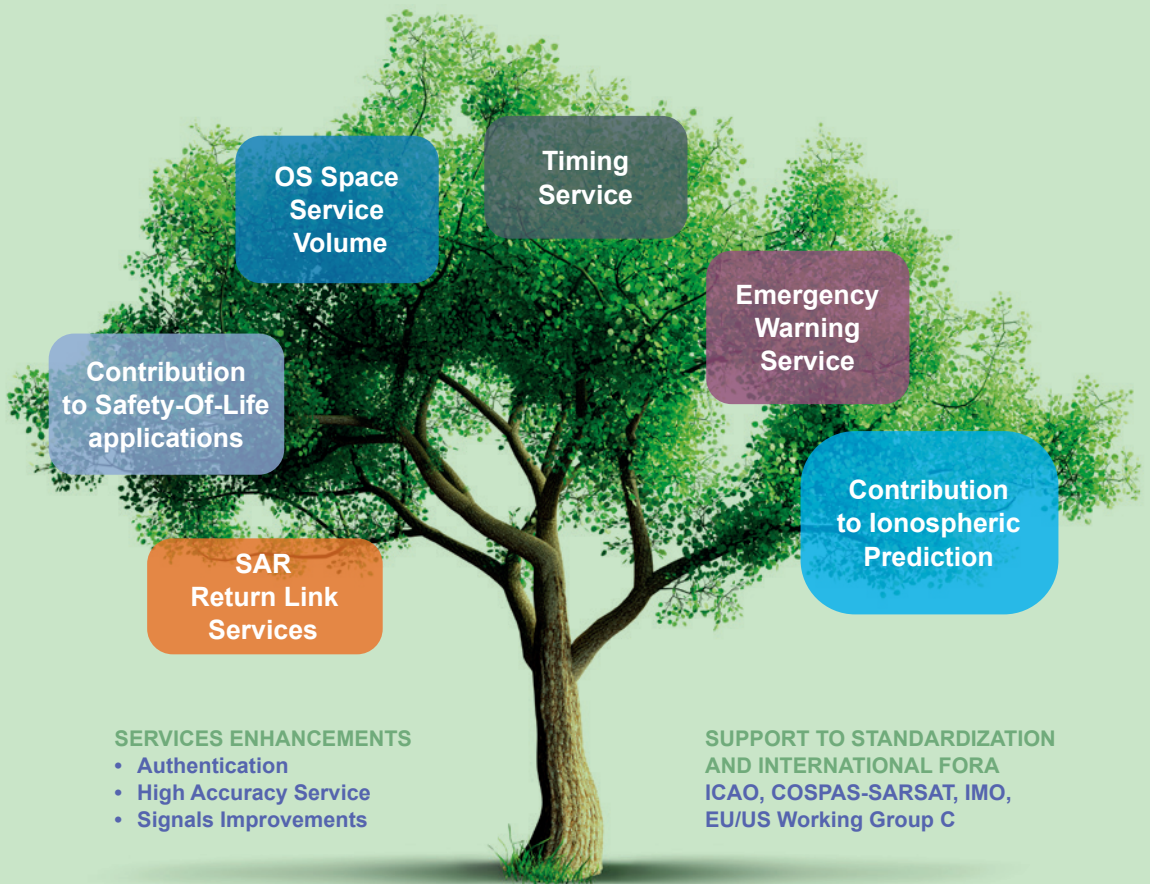
- Innovative Concepts: Definition of services with potential to be part of the Mission in the future EGNSS
- Evolutions of Services currently defined.

All Evolutions under MAS target social and economical benefits in daily life of EU citizens

IMPACT OF MAS PROJECTS GALILEO

For Galileo, the Horizon 2020 MAS projects have been instrumental for the definition of six new services, as well as to enhance the existing services in three key areas. All are now in the baseline of the Galileo Second Generation

*Horizon 2020 MAS blooming
on Galileo Second Generation*



Furthermore, the Horizon 2020 MAS projects have provided fundamental inputs to Standardisation activities and valuable material supporting the Programme in international fora

IMPACT OF MAS PROJECTS EGNOS

For EGNOS, projects have similarly supported the definition of five potential new services and the evolution of existing services

Horizon 2020 MAS on new and enhanced EGNOS Services

TOWARDS NEW EGNOS SERVICES

- EGNOS DFMC Service
- EGNOS Timing Service
- EGNOS Maritime Service
- Rail Safety Service
- Road Service

SERVICES ENHANCEMENTS

- EGNOS Authentication
- EDAS Services

SUPPORT TO STANDARDIZATION
AND INTERNATIONAL FORA
ICAO, COSPAS-SARSAT,
IMO, EU/US WORKING GROUP C

LESSONS LEARNT, **WAY AHEAD**

MAS has proved a very efficient R&D tool. With a fraction of the overall budget, these small size projects have served their purpose. Thanks to their outcomes, the European Commission has delivered on the definition of the Evolution of the European Satellite Navigation Systems. Selected innovative and improved Services will be provided from Space in the medium and long term for the benefit of Citizens

In some cases the expected benefits are deemed so relevant that implementation will be accelerated (like Emergency Warning Service or Timing Service for Galileo)

The success of MAS has led to the decision to its **continuation through HORIZON EUROPE**, the successor EU Research and Innovation programme. Stay tuned...

PROJECTS AND BENEFICIARIES

MAS Projects are directly managed by the Commission. Projects are funded at **100%**, launched as Call for Tenders, fostering open **competition**.

Numerous projects have been launched, with excellent participation from Industry – Large and SME – and Research Institutions

28 PROJECTS LAUNCHED



110 BENEFICIARIES

- Large European Space Industry
- SME
- University, Research institutes, Public Entities

All published projects received Tenders:

- For each project, 1 to 5 Tenders
- 3 to 4 beneficiaries per project

Horizon 2020 EGNSS MAS Projects List

- ▶ R&D for EGNSS Robust Timing Services
- ▶ IPS - Ionospheric Prediction Service
- ▶ FUNTIMES - Future Navigation and Timing Evolved Signals
- ▶ EDAS-N - EGNOS Data Access Service
- ▶ SEASOLAS - EGNOS V3 Maritime Safety Service
- ▶ EASE - EGNOS Aviation Services Evolution
- ▶ EGNOSHA - EGNOS High Accuracy Service Analysis
- ▶ EAST - EGNOS Authentication Security Testbed
- ▶ Galileo Regional Service
- ▶ ADAM - ARAIM Demonstrator
- ▶ GRALLE - Galileo Reliable Automatic Low Latent Emergency Warning Service
- ▶ GENESIS - Galileo Innovative Space Service Solutions
- ▶ GaReLiSE: SAR Galileo Return-Link Service Evolutions
- ▶ NACSET: Navigation Authentication through Commercial Service-Enhanced Terminals
- ▶ EGALITE: Timing Service Extension and Consolidation
- ▶ FUNTIMES 2: Future Navigation and Timing Evolved Signals -2
- ▶ DUFMAN: DUAl Frequency Multipath model for Aviation
- ▶ SUGUS: EGNOS and Galileo as a U-Space service
- ▶ SPARC: SBAS Authentication (follow-on EGNOS Authentication)
- ▶ EPICURE: R&D on EGNOS Service for Payment/Liability Critical Applications on Road sector
- ▶ PRS Service Evolution
- ▶ R&D on EGNOS Service for Payment/Liability Critical Applications on Road sector
- ▶ EGNSS-Based Rail Safety Services: 2 projects
- ▶ Galileo HAS/SAS Service concepts Definition and Demonstrator
- ▶ R&D on SAR Evolutions
- ▶ R&D Integrity for High Accuracy Service: 2 projects, ICHASE and ITHACA
- ▶ R&D ARAIM for sectors beyond Aviation



**Results from finished projects
are available at EC DG DEFIS website:
https://ec.europa.eu/defence-industry-space/horizon-2020_en**