

EUGENE: An EGNSS Service Provision Model for UAS

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PROJECT INTRODUCTION

- **EUGENE:** European GNSS Service for Unmanned Aviation (DEFIS/2021/OP/0007), framed by the **EC/EUSPA EGNSS Service Roadmap** for the Unmanned Aviation.
- **Objective:** to accelerate the use of EGNSS (Galileo+EGNOS) in drones by proposing a balanced **Service Provision Model (EGNSS for UAS)**, facilitating both the operational use of EGNSS by UAS operators and the approval by NCAs (**SORA OSO#13 compliance**).
 - Focus on Specific Category: medium risk ops (**SAIL III & IV**).
 - WP1000 (**Service Requirements Analysis**), WP2000 (**Service Provision Model**), WP3000 (**Cost-Benefit Analysis**), WP4000 (**Implementation Plan**).
- **Duration:** 9 months.

PROJECT CONSORTIUM



25/01/2022

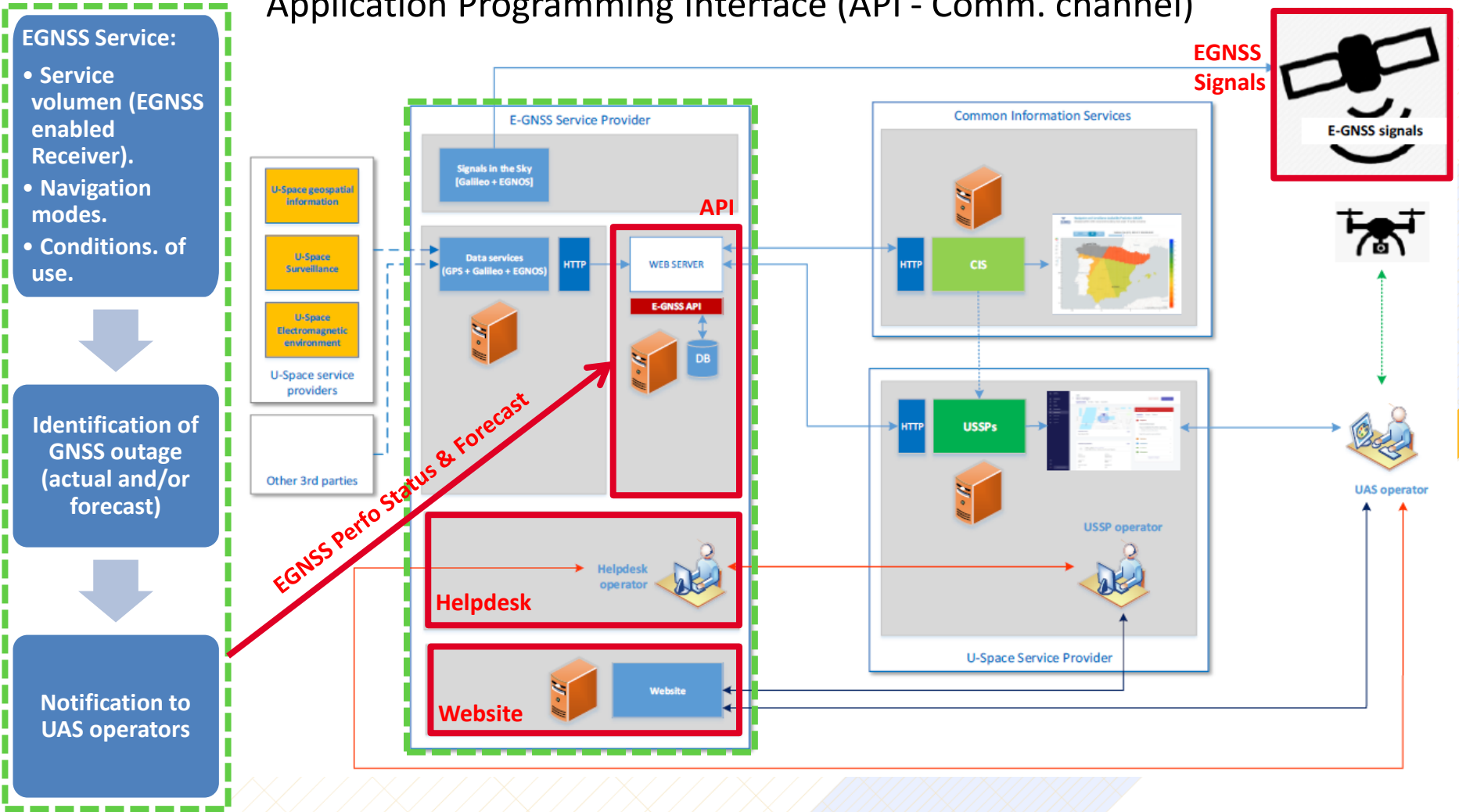
9 months

25/10/2022

EGNSS FOR UAS – SERVICE ARCHITECTURE

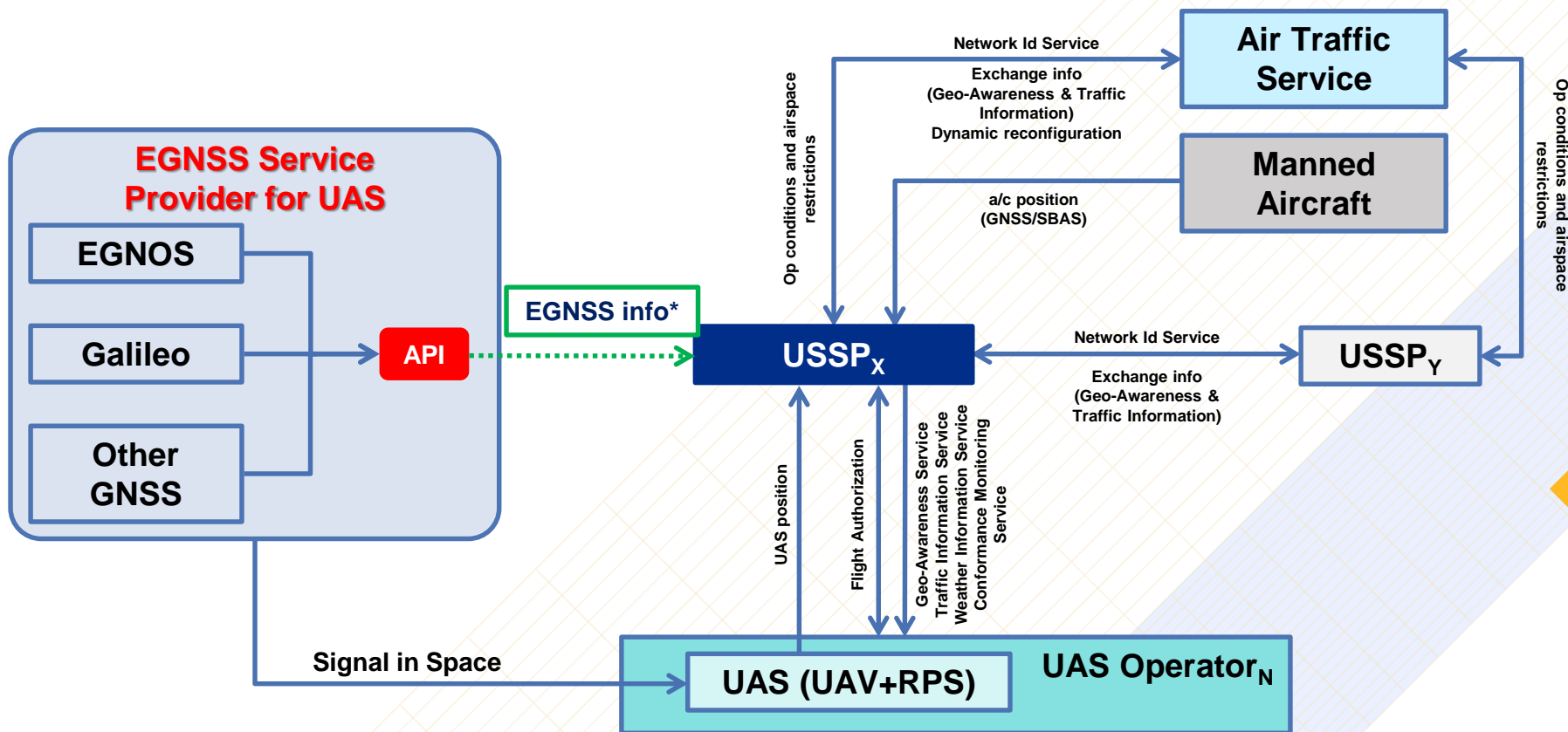
Unique EGNSS Service Provider for UAS:

EGNSS Signal in Space (Galileo+EGNOS) + Service Provision Layer + EGNSS Application Programming Interface (API - Comm. channel)



HIGH LEVEL SERVICE PROVISION MODEL

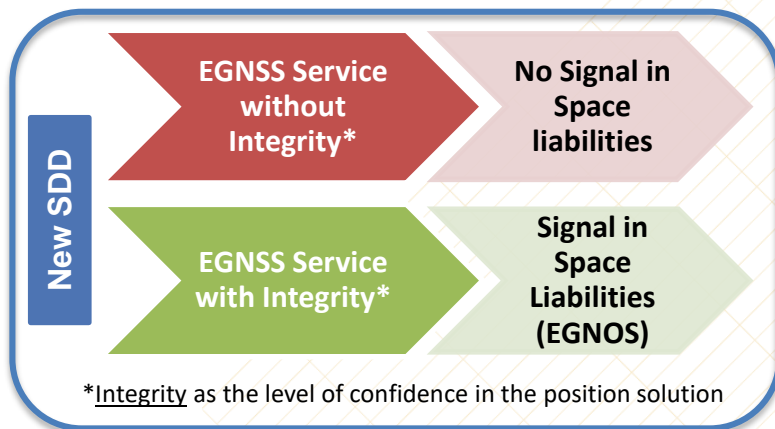
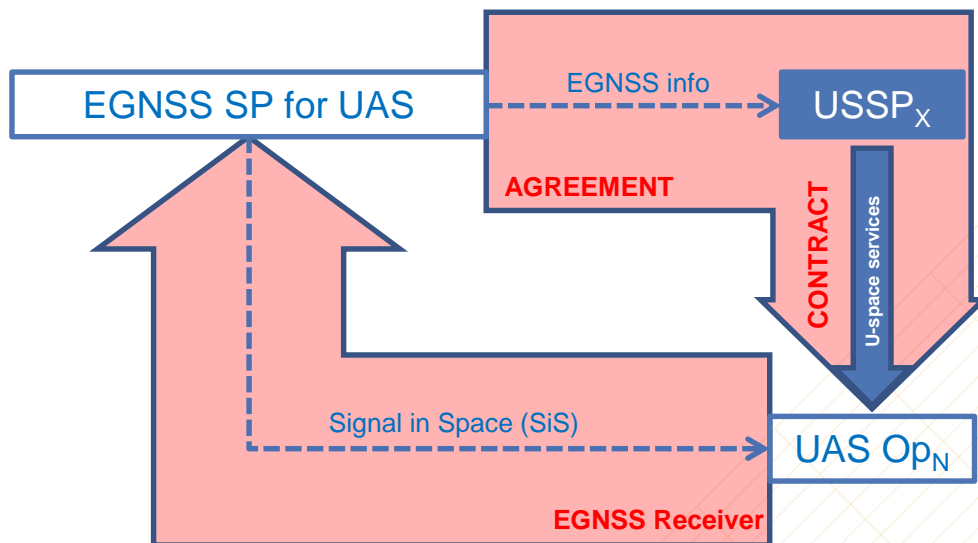
EGNSS Service Provision model within U-Space airspace:



***EGNSS info:** EGNSS performance statistics, Service Volume, Service Health status, Forecast info&alerts, affected U-space volume and, when available and TBC, RFI info&alerts, RFI affected U-space volume.

HIGH LEVEL SERVICE PROVISION MODEL

The Service Provision Scheme proposes the **Liability Scheme** (responsibility sharing), especially important for safety & liability critical applications (medium & high risk operations):



Liability layer	Justification
New SDD (Service Definition Document)	Required at EC programme to describe new EGNSS Service for UAS.
Agreement between E-GNSS Service Provider for UAS and USSP	Required per U-Space Regulation to define liabilities between service providers and USSPs.
Contract between USSP and UAS operator	Required per U-Space Regulation to describe provided services to UAS operators by USSP.
EGNSS Receiver	SC-LUAS / SORA compliance. EGNSS "approved" Receiver (under analysis within WP1400).

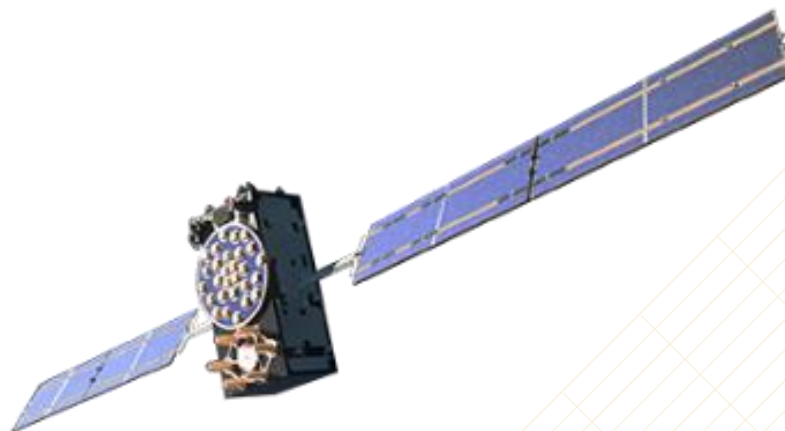
HIGH LEVEL SERVICE PROVISION MODEL



OSO#13 “External services supporting UAS operations are adequate for the operation” - compliance for SAIL III (Med. Robustness) & IV (High Robustness):

OSO#13	Integrity: Adequate Level of performance + Communication UAS Op – Service Provider + Roles&Responsibilities						
	Assurance - Medium Robustness				Assurance - High Robustness		
	Supporting evidence that the required level of performance can be achieved:	SLA or any official commitment between the service provider and the applicant (including quality, availability, responsibilities):		Means to monitor externally provided services :	Performance of the service is achieved through demonstrations :	Competent third party validates the level of integrity:	
Compliance EVIDENCE	EGNSS API forecast (Reference/Access in New SDD)	EGNSS Service for UAS (defined in New SDD)	Agreement (EGNSS SP and USSP)	Contract (UAS Op and USSP)	EGNSS “approved” Receiver	EGNSS Service for UAS (defined in New SDD)	EGNSS Service Provider for UAS (oversight of the new Service TBD)
Within U-Space airspace	✓	✓	✓	✓	MoC for SC L-UAS (SAIL III TBC) / ETSO certification (SAIL IV TBC)	✓	✓
Outside U-Space airspace	✓	✓	N/A	N/A		✓	✓

UAS Ops OSO#13 compliance: New Service Definition Document (SDD) + EGNSS “approved” Receiver + Contract with USSP (if operating in U-space).



THANKS FOR YOUR ATTENTION!

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