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# EU SPACE WEEK 2023

7 - 9 November - Sevilla, Spain

## EU Space Programme Components Status and future services for users

**Stefan Schneider EUSPA**



European  
Commission



# A new EU Space Programme

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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

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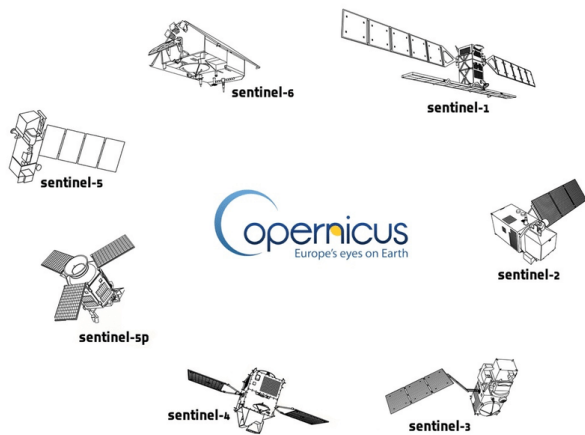
# Copernicus

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# Copernicus components

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## IN SITU



## SERVICES



# Copernicus services

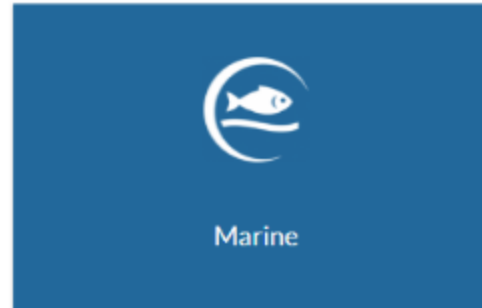


<https://atmosphere.copernicus.eu/>



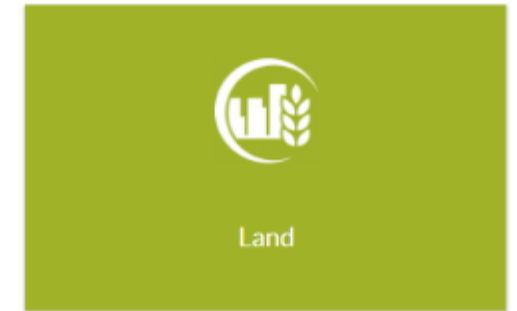
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**ECMWF**

<https://marine.copernicus.eu/>



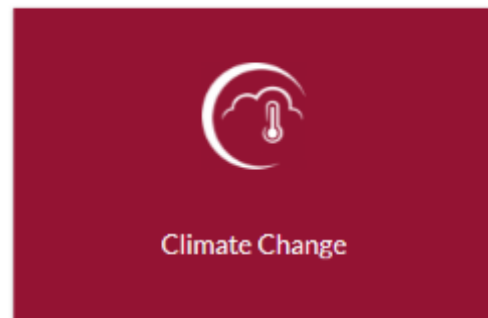
**MERCATOR OCEAN**  
INTERNATIONAL

<https://land.copernicus.eu/en>



**European Environment Agency**  
Joint Research Centre  
**JRC**

<https://climate.copernicus.eu/>



IMPLEMENTED BY  
**ECMWF**

<https://www.copernicus.eu/en/copernicus-services/security>

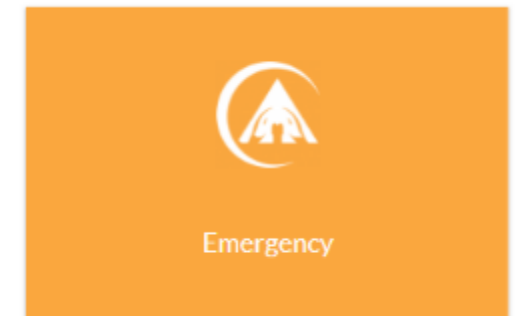


**SatCen**  
European Union Satellite Centre

**FRONTEX**  
EUROPEAN BORDER AND COAST GUARD AGENCY

**EMSA**  
European Maritime Safety Agency

<https://emergency.copernicus.eu/>



Joint Research Centre  
**JRC**

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# GALILEO and EGNOS

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# Galileo and EGNOS Services



**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

## High Accuracy Service (HAS)

Delivers high accuracy services, freely accessible

## Under preparation

## Commercial Service Authentication (CS)

Delivers authentication services for commercial applications



**EGNOS services** are provided to users since **October 2009**

## Open Service (OS)

Improving GNSS accuracy, intended mainly for high-volume satellite navigation applications for use by consumers

## Safety of Life Service (SoL)

Providing a high level of integrity for users for whom safety is essential (e.g. civil aviation, in accordance with ICAO standards)

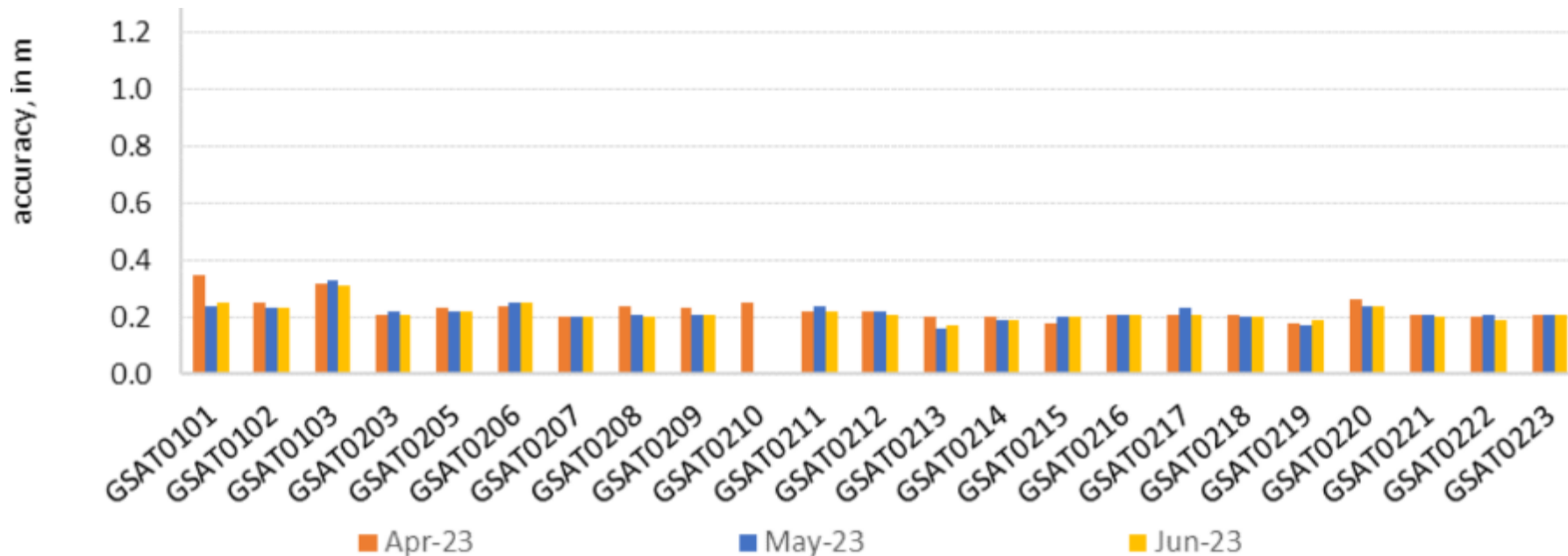
## Data Access Service (EDAS)

Offering EGNOS data with greater added value through internet, intended mainly for professional or commercial use

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

# Galileo Open Service

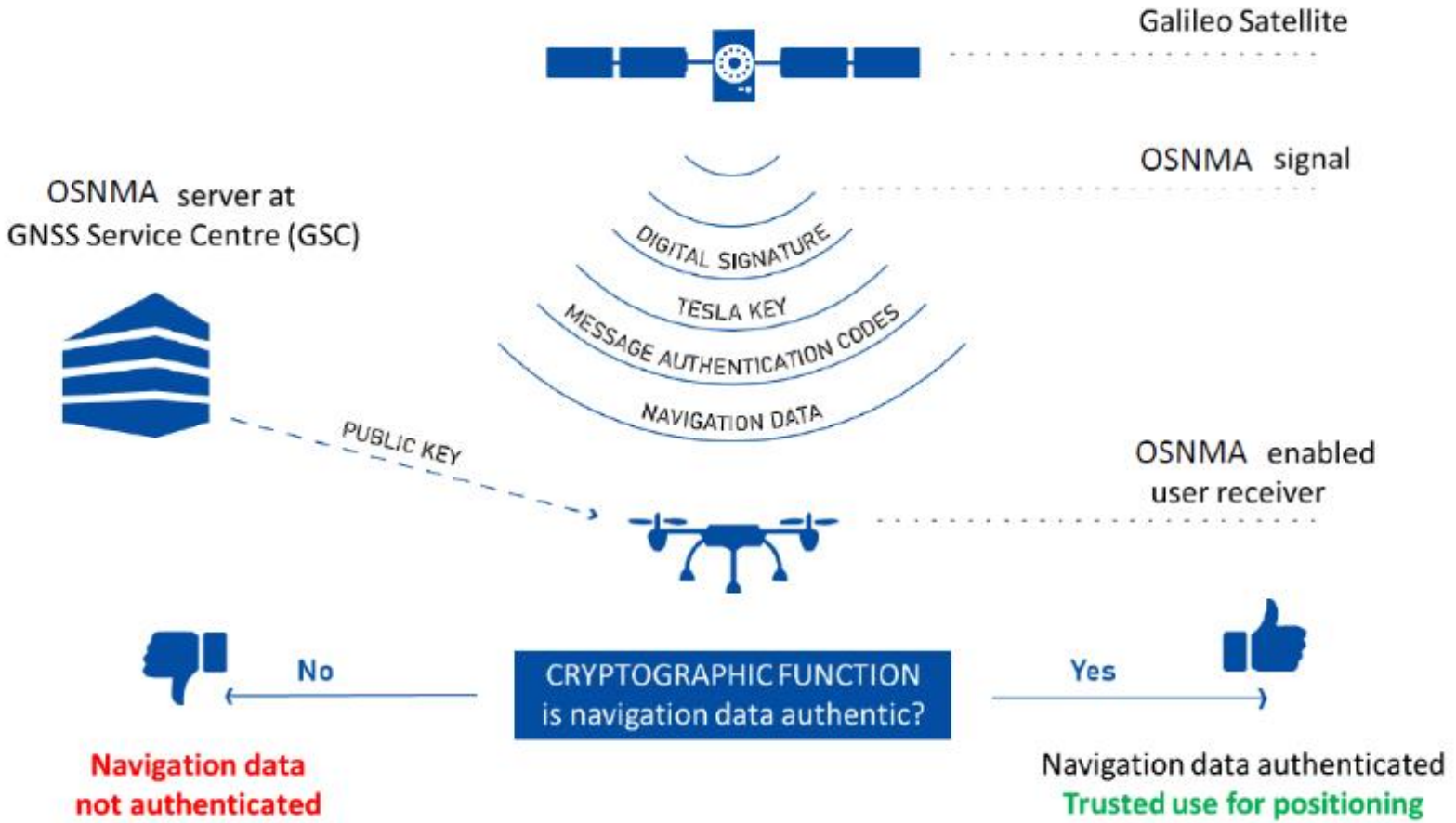
- Galileo entered Initial Operational Capability (IOC) phase in 2016. Since then, anyone with a Galileo-enabled device is able to use its signals providing free of charge outstanding seamless performance worldwide, in terms of ranging, positioning and timing.
- The Open Service ranging performance ranks first among all GNSS service providers.





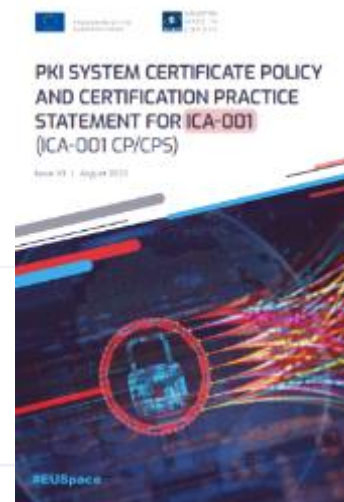
# Galileo OSNMA

## Scope



# OSNMA status and roadmap

- OSNMA SiS ICD (final format) and Receiver Guidelines published in Dec'2022
- Transmission of SiS as per OSNMA SiS ICD (final format) since August 2023
- Operational cryptographic data to be published by end 2023
- Initial Service Declaration (Service Definition Document publication and signal switch to 'operational' mode) foreseen by Q1'24



# What is the Galileo HAS

Galileo HAS provides precise corrections for satellite orbit, clock and signal biases

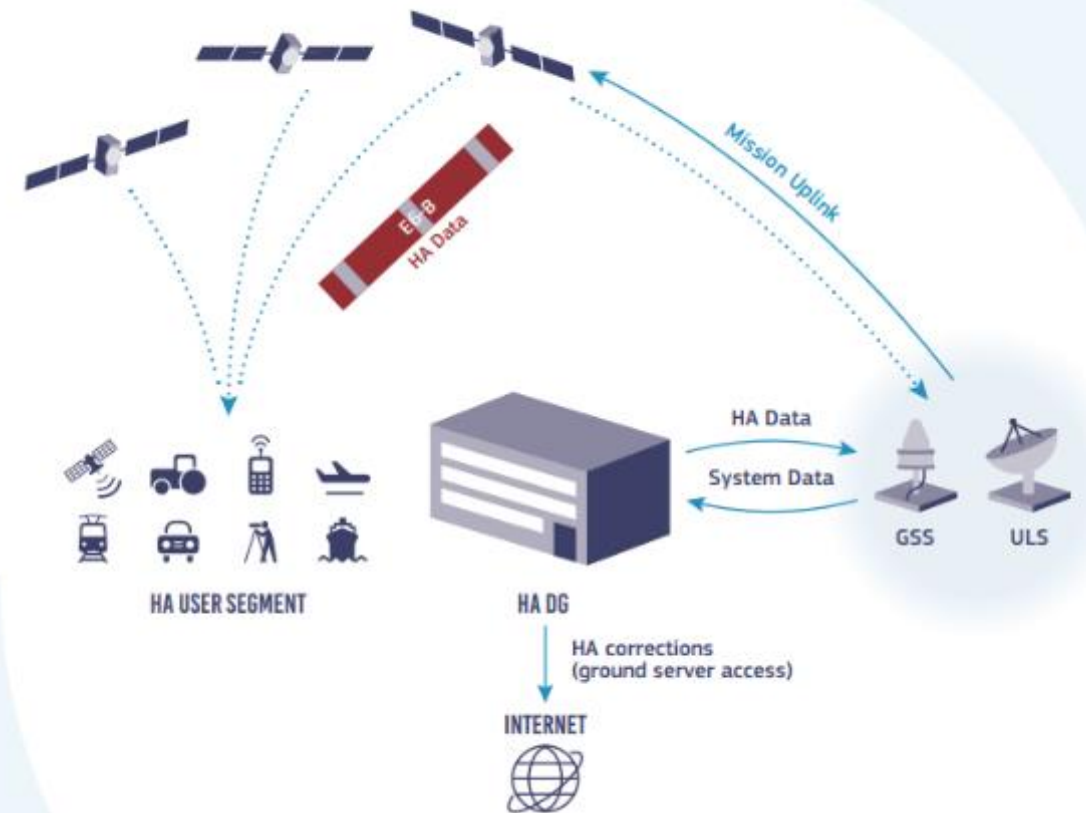
Galileo HAS corrections distributed via

Galileo satellites, E6-B signal (1278.75 MHz)

Internet

Typical accuracy in the decimetre level (after convergence), with Precise Point Positioning (PPP) receivers

(Almost\*) global coverage and free



*\*global coverage of corrections but no global performance commitment yet*

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# Secure Satcom

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# IRIS<sup>2</sup>

## Infrastructure for Resilience, Interconnectivity and Security by Satellite

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Regulation 2023/588 in force since 20 March 2023

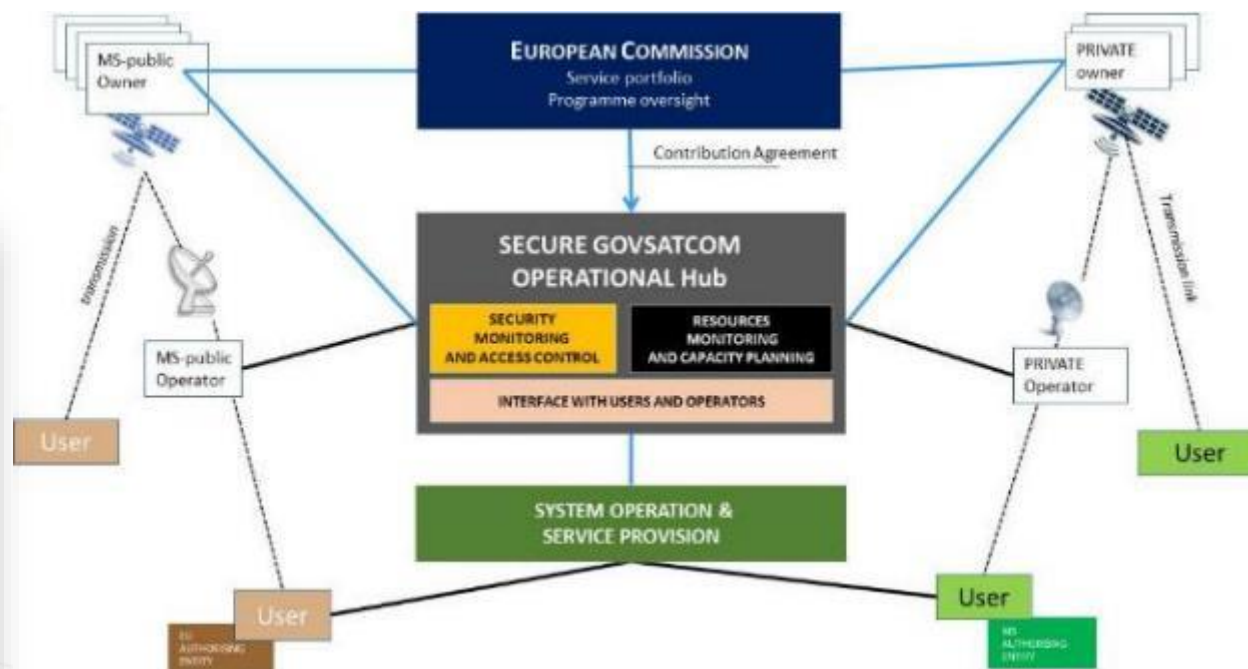
Signature of the Regulation by EP President and Swedish Presidency



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# Governmental Satellite Communications



CRISIS MANAGEMENT



SURVEILLANCE



KEY INFRASTRUCTURE



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# Space Surveillance and Tracking (SST)

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# Space Surveillance and Tracking (SST) Front Desk

- EUSPA manages and operates the **EU Space Surveillance and Tracking (SST) Front Desk**
- The Agency cooperates with the **SST Partnership** to provide **space safety services**:
  - **Collision Avoidance (CA)**: risk assessment of collision between spacecraft or between spacecraft and space debris
  - **Re-entry Analysis (RE)**: risk assessment of uncontrolled re-entry of artificial space objects into the Earth's atmosphere
  - **Fragmentation Analysis (FG)**: detection and characterization of in-orbit fragmentations, break-ups or collisions





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Users

200

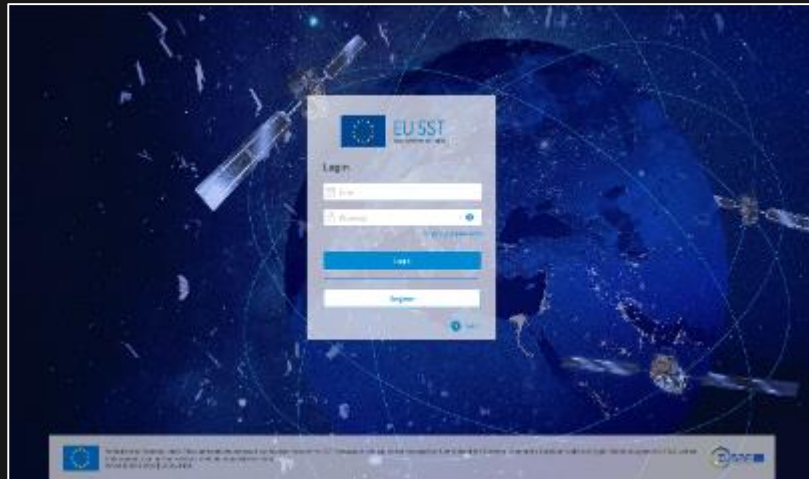
ORGS



402

Satellites

# Space Surveillance and Tracking (SST) Front Desk



- Services and Coordination Platform  
[portal.eusst.eu](https://portal.eusst.eu)
- Performance Reporting



- SST Helpdesk  
[sst.helpdesk@euspa.europa.eu](mailto:sst.helpdesk@euspa.europa.eu)
- SST Taskforce



- User Consultation Platform  
**7<sup>th</sup> Nov 2023 afternoon**
- Communication



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