S5LECT project

7 October 2026

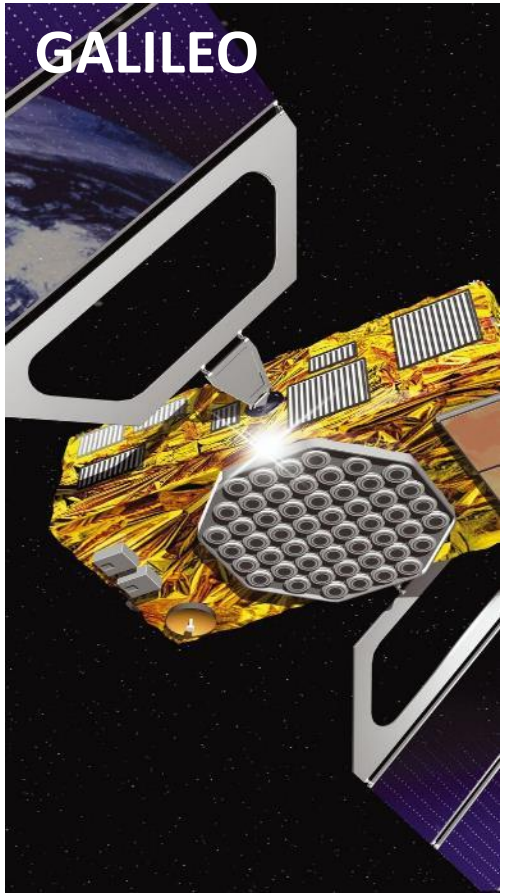
Giuditta Montesanti - European Commission

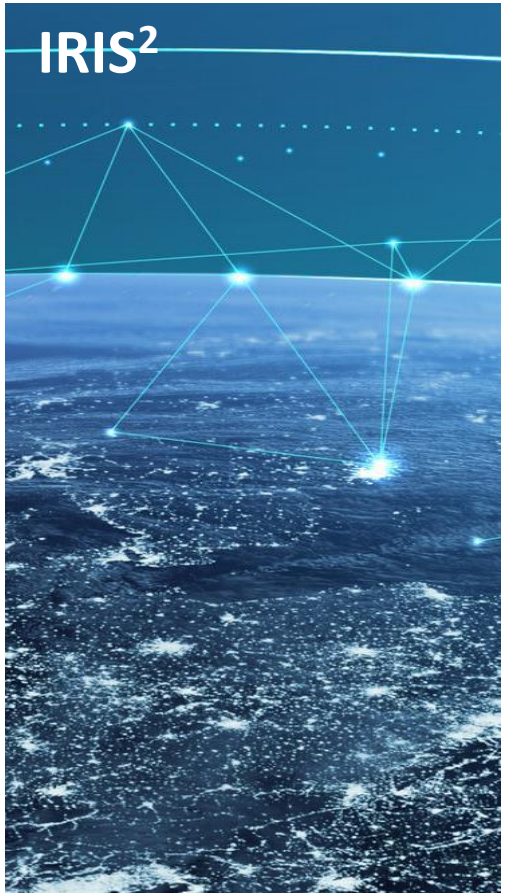
Introduction

The new EU flagship space programme

IRIS² (Infrastructure for Resilience, Interconnectivity and Security by Satellite) is the **new flagship space programme of the European Union**:







European Commission

Introduction

The IRIS² vision

Multi-orbit broadband global coverage

LEO & MEO, low latency high throughput.
Combined with GOVSATCOM (GEO)

Security by design

State-of-the-art cryptographic mechanisms, cyber and RF threats resilient, assets located in EU, security accreditation.

Open standards and interoperability

Lowering terminal costs through use of COTS, enabling application specific terminal development, interoperability with terrestrial systems

Innovation

System must integrate innovative/disruptive technologies and services, participation of SMEs, new entrants

Dual-use nature

System must meet both the needs of the civilian and military needs.



GEO: Geostationary Earth Orbit
GOVSATCOM: Governmental Satellite Communications
LEO: Low Earth Orbit
MEO: Medium Earth Orbit
QKD: Quantum Key Distribution
SME: Small and Medium Enterprise

Introduction

IRIS² public sector setup

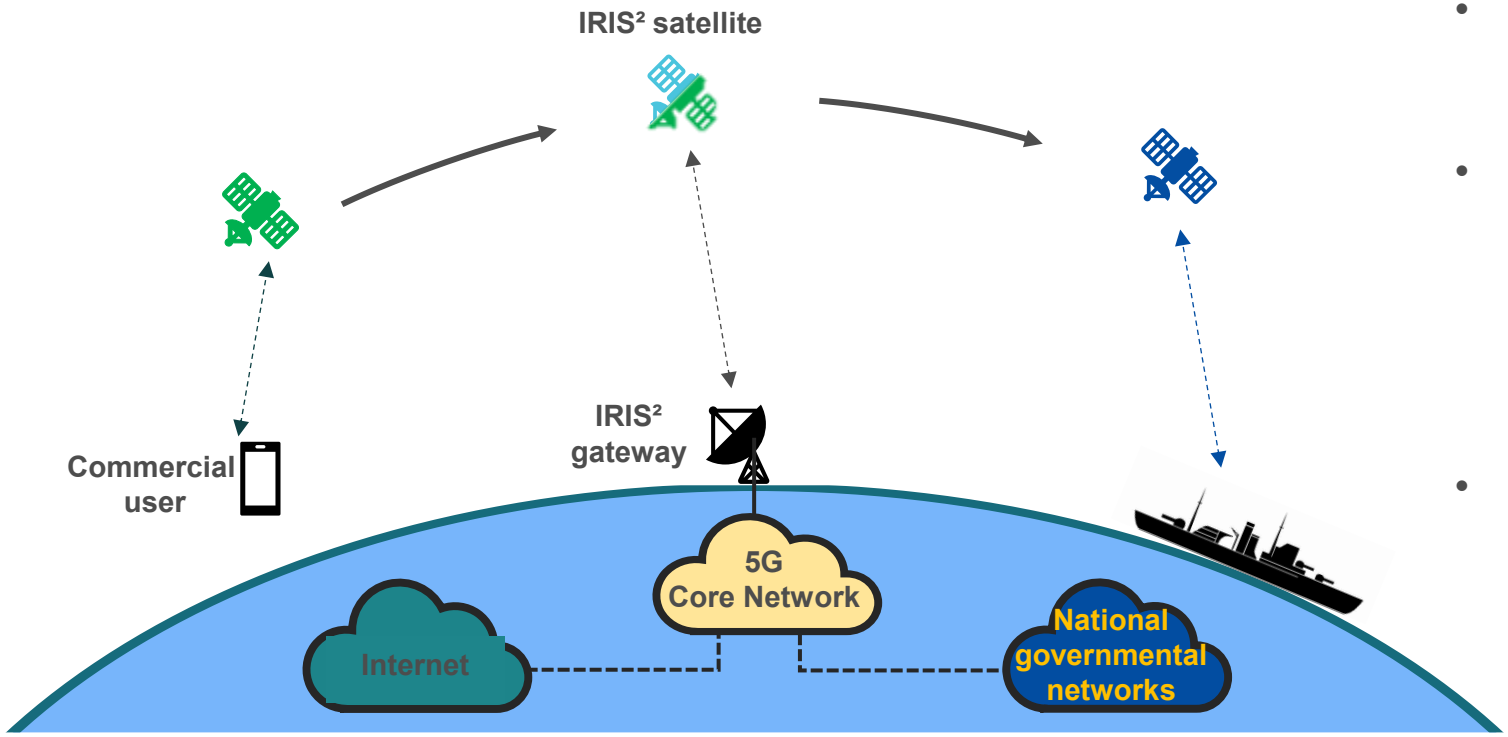
- The **European Commission** has the **overall responsibility** for the **implementation** of the **Union Secure Connectivity Programme – IRIS²**
- The **European Space Agency (ESA)** is the **Qualification and Validation Authority** of the **IRIS² governmental infrastructure**
- The **European Union Agency for the Space Programme (EUSPA)** is in charge of the **security accreditation** and **provision of governmental services**

Concession contract

esa

European Commission

Why a public-private partnership?
Synergies and maximised usage of assets-in-space

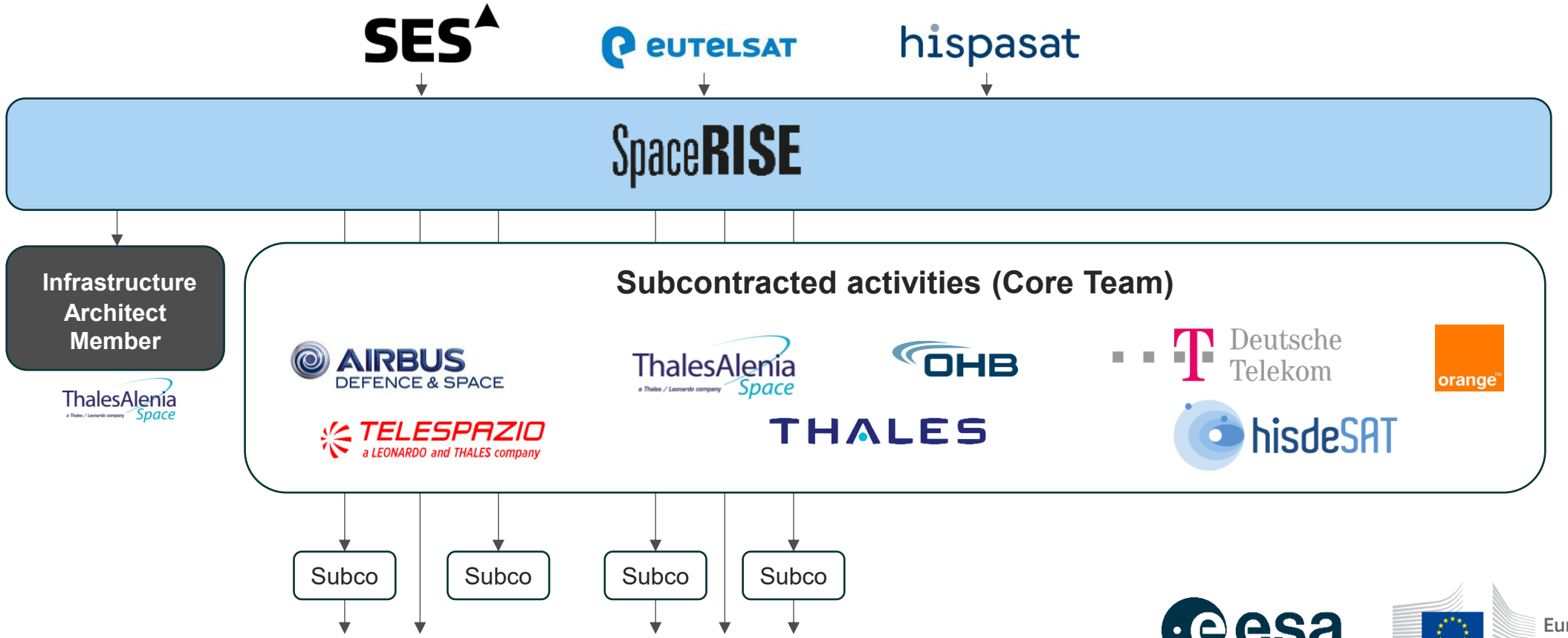


- The offer **addresses in a balanced manner the public and private sector needs**.
- The offer **maximises infrastructure and operations synergies** to the extent that, with its contribution, the Union would not be able to acquire similar features in a standalone, purely governmental constellation.
- The **sharing of the development and one-off costs** between public and private partners constitutes the main driver of such cost optimisation.

Introduction

IRIS² industrial setup

The **Contract signature** for the **IRIS² concession agreement** (PPP) took place on **16 December 2024**

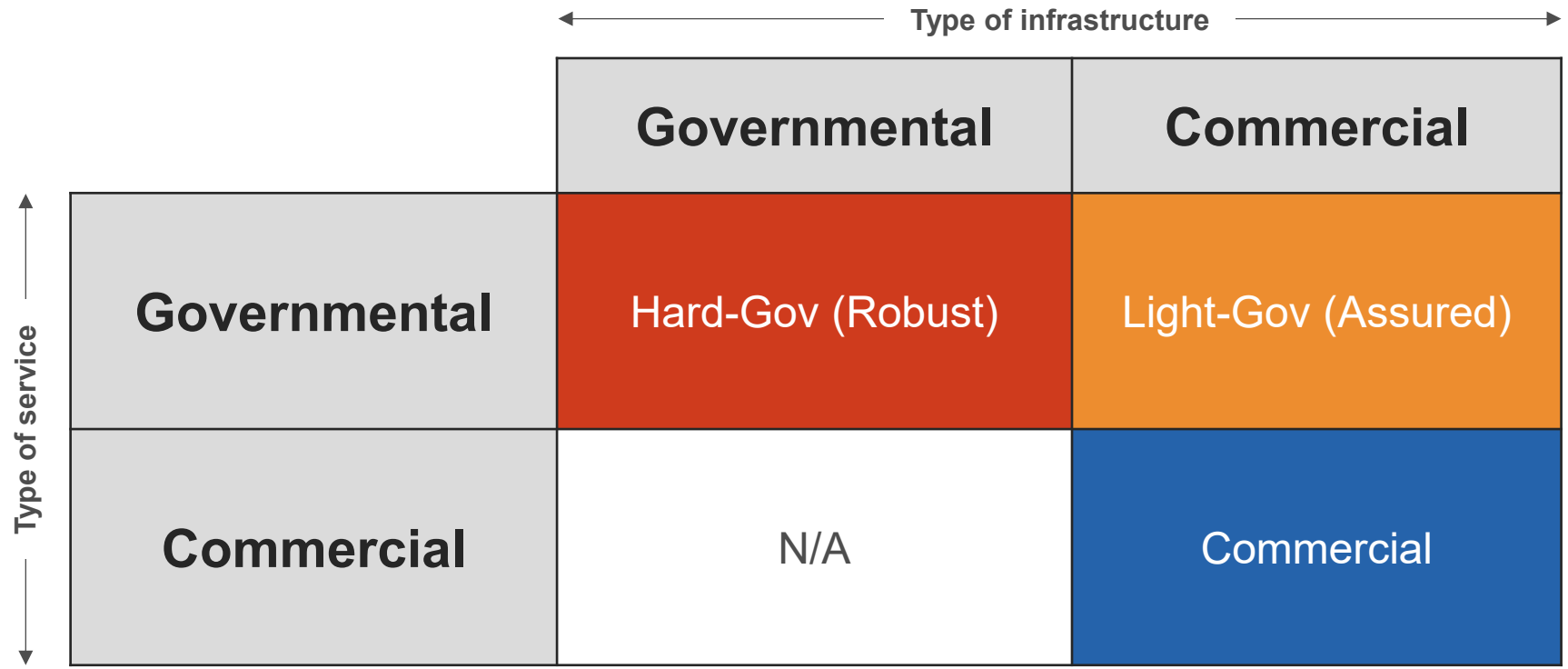


SpaceRISE: Consortium for a Resilient, Interconnected and Secure Europe
Subco: subcontractor

Services

IRIS² overview

Service portfolio terminology



N/A: Not applicable

Service portfolio

- IRIS² targets **governmental** and **commercial** use cases: compliant with the Secure Connectivity Regulation (EU) 2023/588 and Commission Implementing decision (EU) 2023/1053









Governmental use cases

Commercial use cases

- Hardgov
- Lightgov
- Potential (e.g., UHF, IoT)
- Commercial service

Robust Services

1. **Robust Worldwide Low-Latency**
2. **Robust Space Data Relay**

Assured Services

3. **Assured Worldwide Low-Latency**
4. **Assured Worldwide Narrowband**

Commercial Services

Commercial satellite services

(e.g., residential broadband, transportation, B2B satellite trunking, etc.)

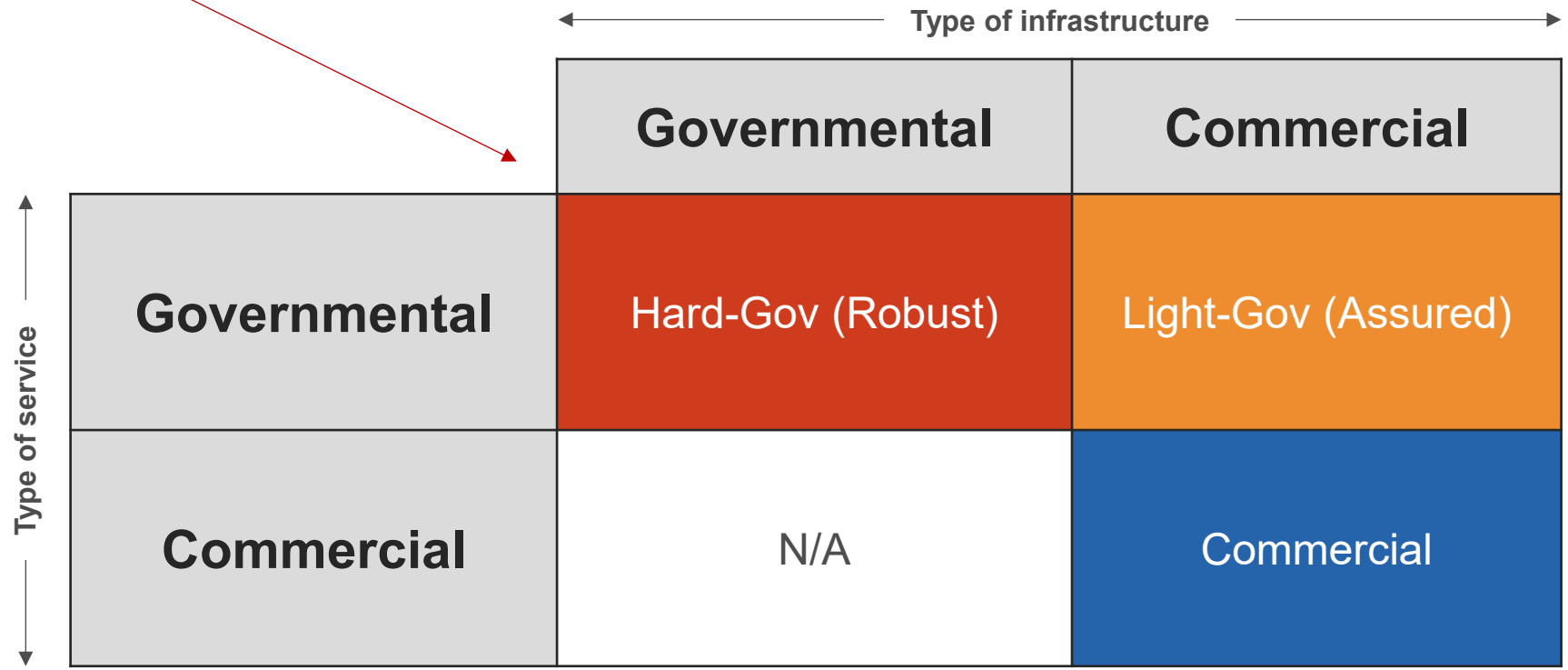
IRIS² overview

Service portfolio terminology

e.g. Not-safety related communication

e.g. Connectivity for passengers

e.g. Rail traffic management



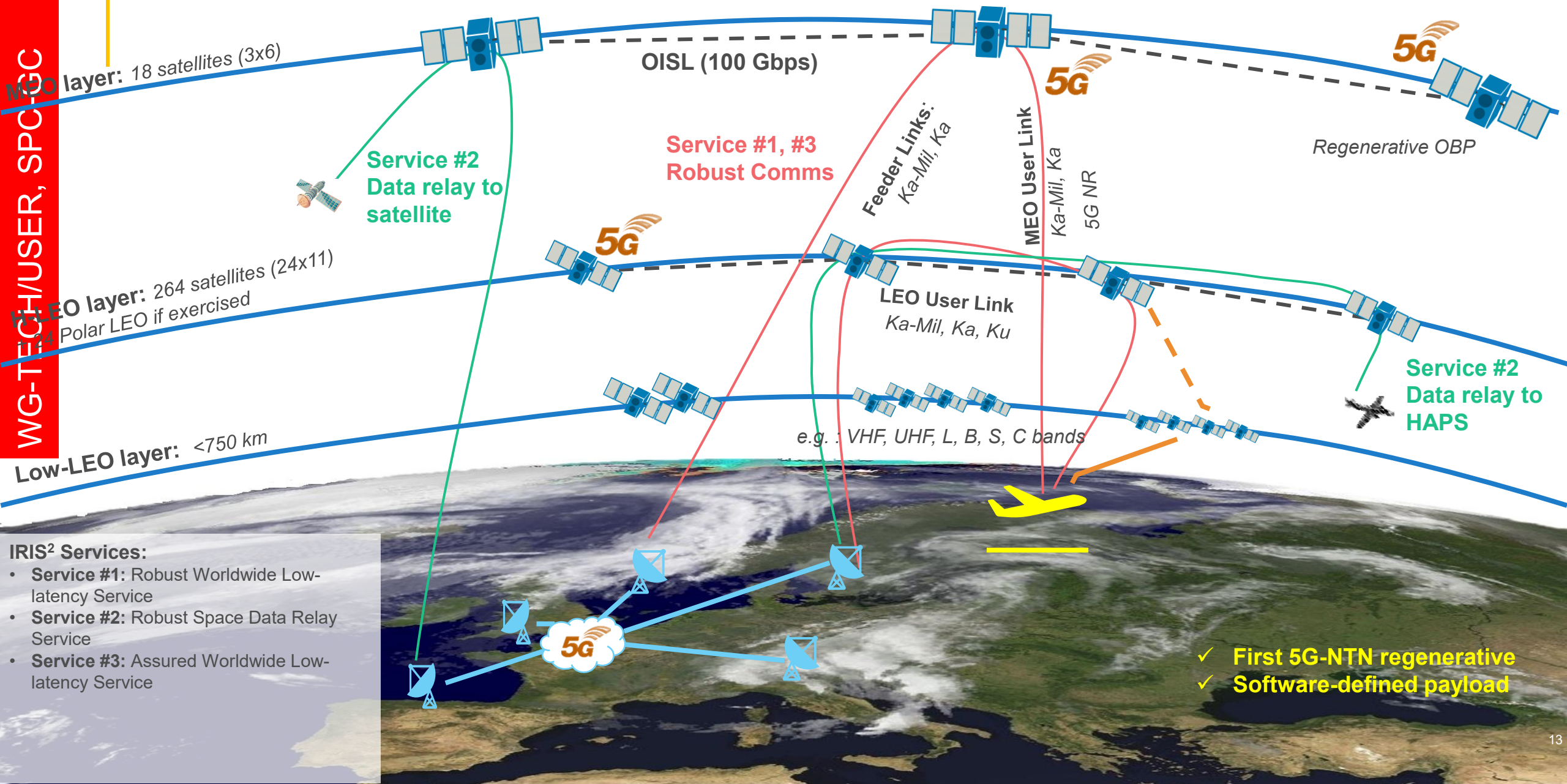
N/A: Not applicable

Infrastructure

esa

European Commission

IRIS² system architecture



IRIS² Services:

- **Service #1:** Robust Worldwide Low-latency Service
- **Service #2:** Robust Space Data Relay Service
- **Service #3:** Assured Worldwide Low-latency Service

✓ First 5G-NTN regenerative
✓ Software-defined payload

IRIS² technical overview

Multi-orbital design architecture

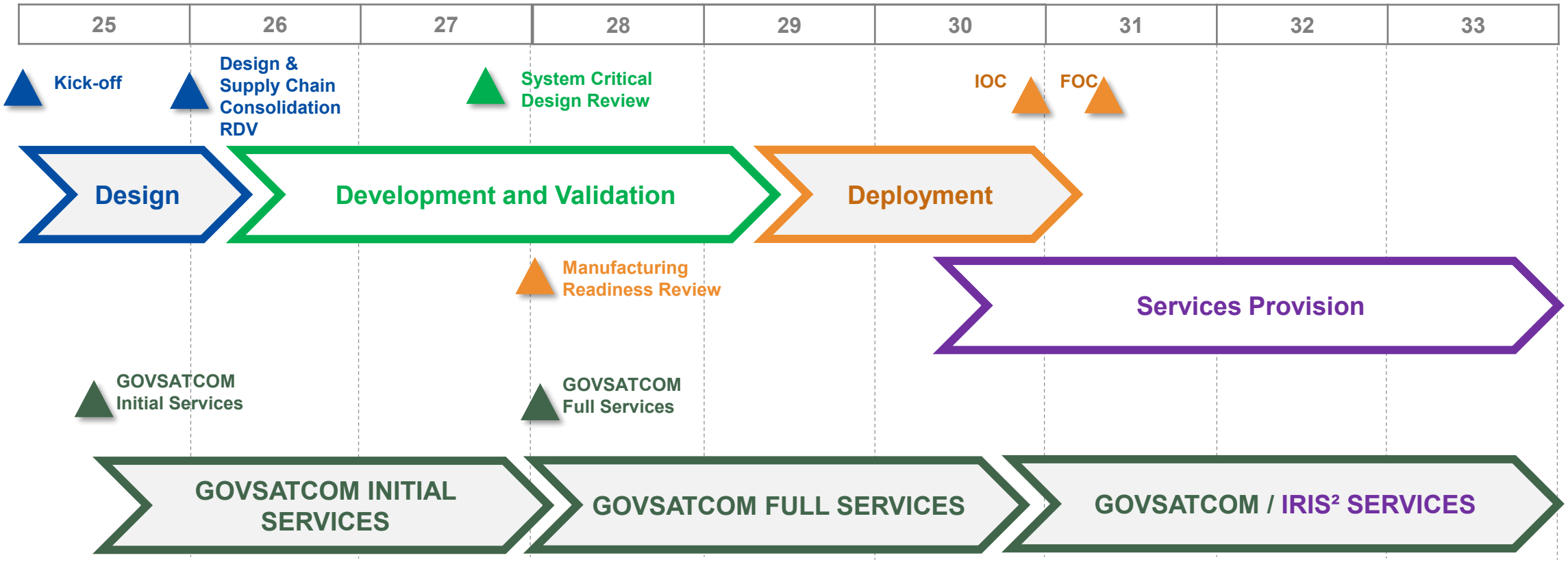
	IRIS² design architecture		
Space segment			
Constellation	**18** MEO	**264** LEO-High	**10+** LEO-Low
Payload	5G regenerative + transparent	5G regenerative + transparent	Hosted Payloads (e.g. ATM)
Multiband	**Ka-Mil (Hardgov)** **Ka (Lightgov, Commercial)**	**Ka-Mil (Hardgov)** **Ku, Ka (Lightgov, Commercial)**	e.g. : VHF, UHF, L, B, C bands
Network	5G **5G mesh**		
Ground segment	5G **5G Core Network**		
User segment	Multi-purpose FPA | Multi-waveform | Multi-orbit		

FPA: Flat-Panel Antenna
SDR: Space Data Relay
UHF: Ultra-High Frequency

Hardgov: Services reserved for governments

Timeline

Overall timeline ahead



Take aways

Take aways

- The new **IRIS² constellation** will offer **hard-gov services** relevant for **rail traffic management**
  - It will also offer **light-gov** and **commercial services useful for rail applications**

- The Commission welcomes testing of **SATCOM capabilities for the rail sector**