



Atelier des Fréquence

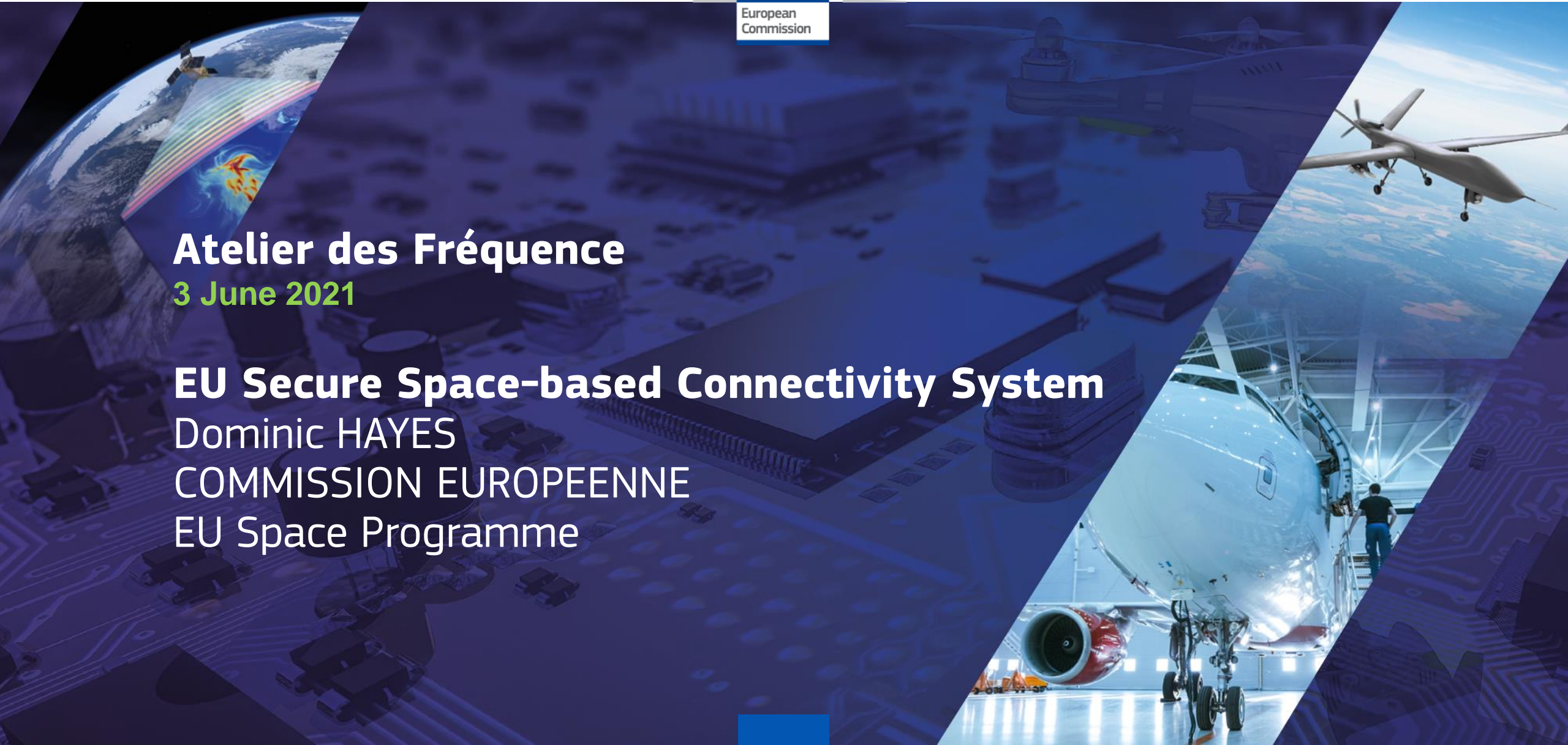
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EU Secure Space-based Connectivity System

Dominic HAYES

COMMISSION EUROPEENNE

EU Space Programme



EU Secure Space-based Connectivity System

‘Europe must launch a third major space project: a connectivity project through a constellation in low orbit making it possible to put an end to coverage dead zones in Europe.’

Ensure European strategic autonomy, resilience and technological sovereignty

Strengthen Europe's ability to be a global leader

Fuel an innovative and competitive European industrial ecosystem



Support a Secure EU

SECURE GOVERNMENTAL SERVICES POSSIBLE APPLICATIONS



CONNECTING KEY INFRASTRUCTURES

Governmental & Institutional
secure communications
(Embassies, EUROPOL, ...)

—
Management
of Infrastructures
(air, rail, road,
traffic management)

—
Galileo (augmentation),
Copernicus (data relay)

—
Command and control
of smart grids and M2M
(energy, finance, health,
data centres...)



CRISIS MANAGEMENT AND EXTERNAL ACTIONS

Civil protection

—
CFSP- CSDP

—
Humanitarian aid

—
Telemedicine

—
Maritime emergencies
(search and rescue)



SURVEILLANCE

Border and remote
areas surveillance

—
Remote Piloted
Aircraft systems

—
Maritime surveillance

—
Arctic region coverage

—
Complement to
military missions

—
Space surveillance



MASS-MARKET

5G / 6G integration

—
Edge computing
(edge in the sky)

—
Autonomous driving

—
e-health

—
Smart working, education

—
In-Flight, maritime connectivity

—
Smart agriculture

—
IoT

A Multi-orbital Architecture, Built on EU Programmes: GOVSATCOM and EuroQCI



Add Value Globally (Infrastructure & Services)



Support and enable disruptive technologies

- **5G/6G integration:** 5G backhaul, Edge delivery, 5G on the move
- **Quantum encryption**
- **Cloud, HPC, AI:** Synergies with European initiatives (GAIA-X...)
- **Edge computing, IoT:** smart mobility, smart agriculture...



Secure by design

- Strong encryption (Quantum), cyber resilience
- Proactive and reactive defences against cyber and RF threats
- Operational cybersecurity (Space Ops)



Reliable global access

- Access guarantees, autonomy of use
- Increased **robustness and redundancy** for existing national capacities
- Global geographical coverage, including Arctic



EU industrial leadership and autonomy

Mitigate risk and effects of reliance on non-EU megaconstellations:

- Bolster EU satcom service provider capacities
- Keep EU industrial ecosystem competitive against mega-constellation vertical integration
- Provide competitive EU satcom solutions to avoid business transfer from EU ISP to US megaconstellation providers

Added Value for EU (synergies with existing EU missions)

Copernicus

- Data relay for real time missions
- Piggybacked sensors

Galileo

- GNSS signal augmentation
- Quantum key distribution (PRS, system security)
- Avoid dependency on commercial networks

EGNOS

- EGNOS payload hosted on connectivity GEO sats

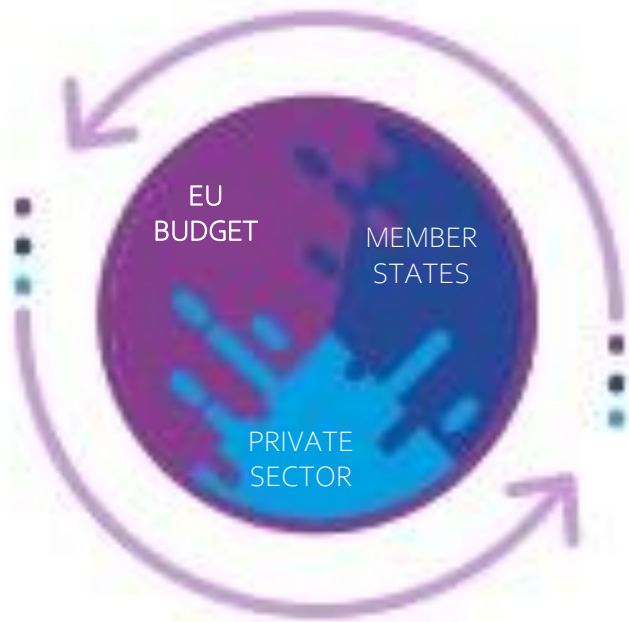
SST/STM

- Space sensors

Innovative Financing

Next Generation EU:

intelligent blending of EU and Member State funds with private sector investments

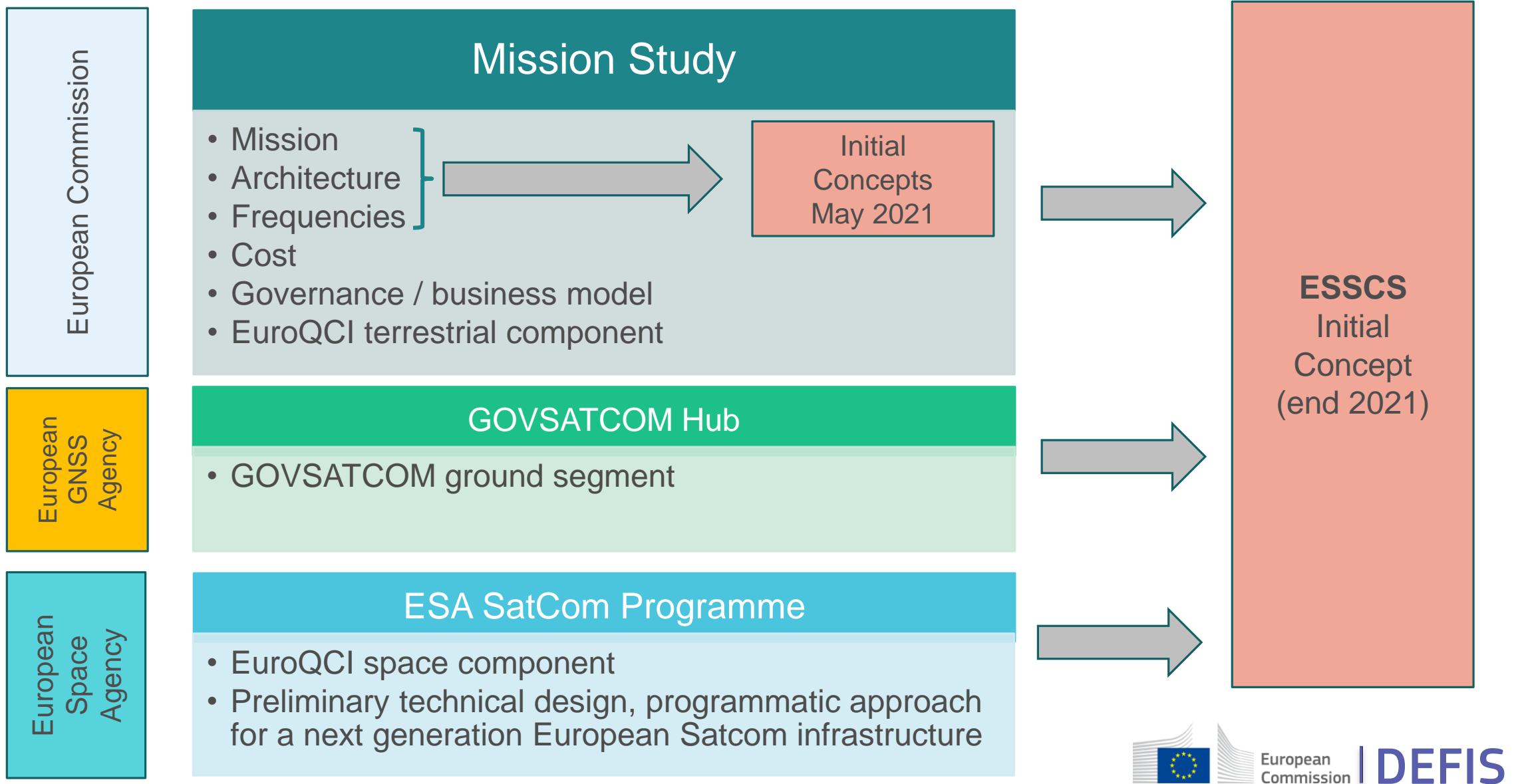


EU BUDGET
EUSP
Digital Europe
CEF
Horizon Europe
European Defence Fund

MEMBER STATE FUNDING
possibly
national recovery
and resilience plans
national space
agencies

PRIVATE SECTOR INVESTMENTS
mass-market:
Invest EU strategic
investments
other private funding
streams
in-kind contributions

Ongoing Studies

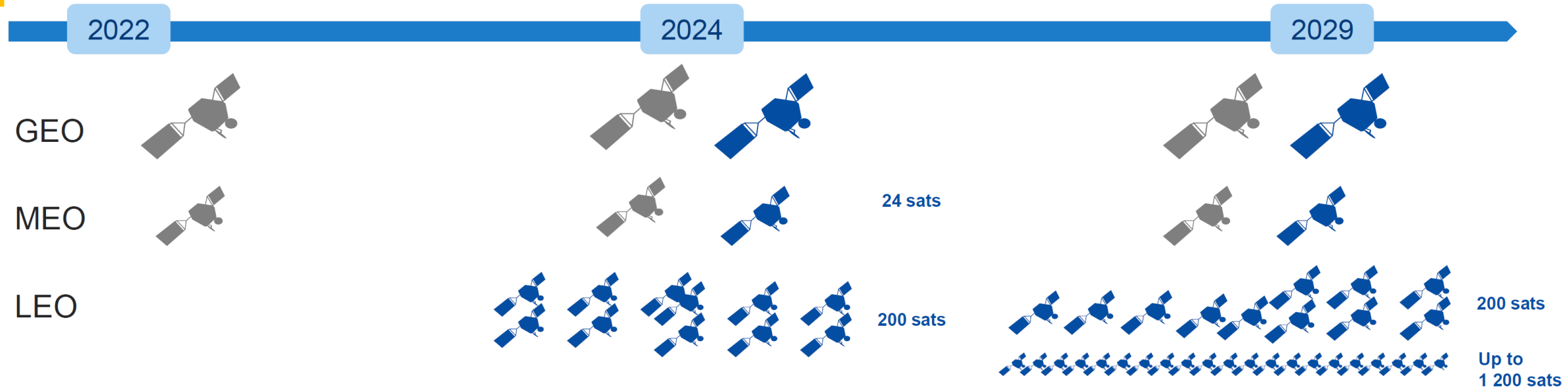


Initial Architectures Considered for the System

- Satellites: **80** – 1000+ **LEO**, plus MEO/**GEO** (**some existing**)
- Orbits: from 500 – **36,000km**, inclination from **0** to 90°
- Frequencies: L, S, Ku, Ka and Q/V bands
 - France has been very proactive and helpful towards frequency access
- **Inter-satellite links** (minimise need for infrastructure on non-EU territory)
- Secure communication: quantum optical links envisaged
- Coverage: initial focus on **EU**, and **Africa**, and ultimately global and polar

Potential incremental approach

ILLUSTRATIVE



3 ADVANCED MASS MARKET

- Increased capacity
- Full coverage of digital divide

2 SECURE AND RESILIENT BROADBAND

- Gov & Highly Secure
- Quantum for both gov. and commercial services
- Mass market, latency sensitive traffic (Cloud, Banking, mobility)
- Low data rate services (IoT, low rate services)
- Coverage: World (including Arctic)

1 LEGACY

- Governmental
- Limited mass markets services
- Non latency sensitive bulk traffic
- Coverage: EU & partially Africa

Upcoming activities



EU New Space study

- Foster an opportunity for the participation of European New Space and enable networking
 - Interactive information exchange
 - 3 days matchmaking
-
- To be launched mid-June

<https://edefis.eu/secure-connectivity-pre-registration>



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Watch this EU Space!

