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EU Secure Space-based Connectivity System
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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

SECURE COMMERCIAL SERVICES
POSSIBLE APPLICATIONS

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
The System Will Look Like This

- 10,000 satellites
- 1000km altitude orbits inclined at 90°
- Ku and Q bands, 10 spot beams per satellite
- High capacity inter-satellite links (no need for ground infrastructure outside the EU)
- Quantum optical links for secure communications
- 1Gb/s to users

At this stage it's just too early to know what the system will look like!
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

Mission Study
- Mission
- Architecture
- Frequencies
- Cost
- Governance / business model
- EuroQCI terrestrial component

GOVSATCOM Hub
- GOVSATCOM ground segment

ESA SatCom Programme
- EuroQCI space component
- Preliminary technical design, programmatic approach for a next generation European Satcom infrastructure

ESSCS
Initial Concept (end 2021)