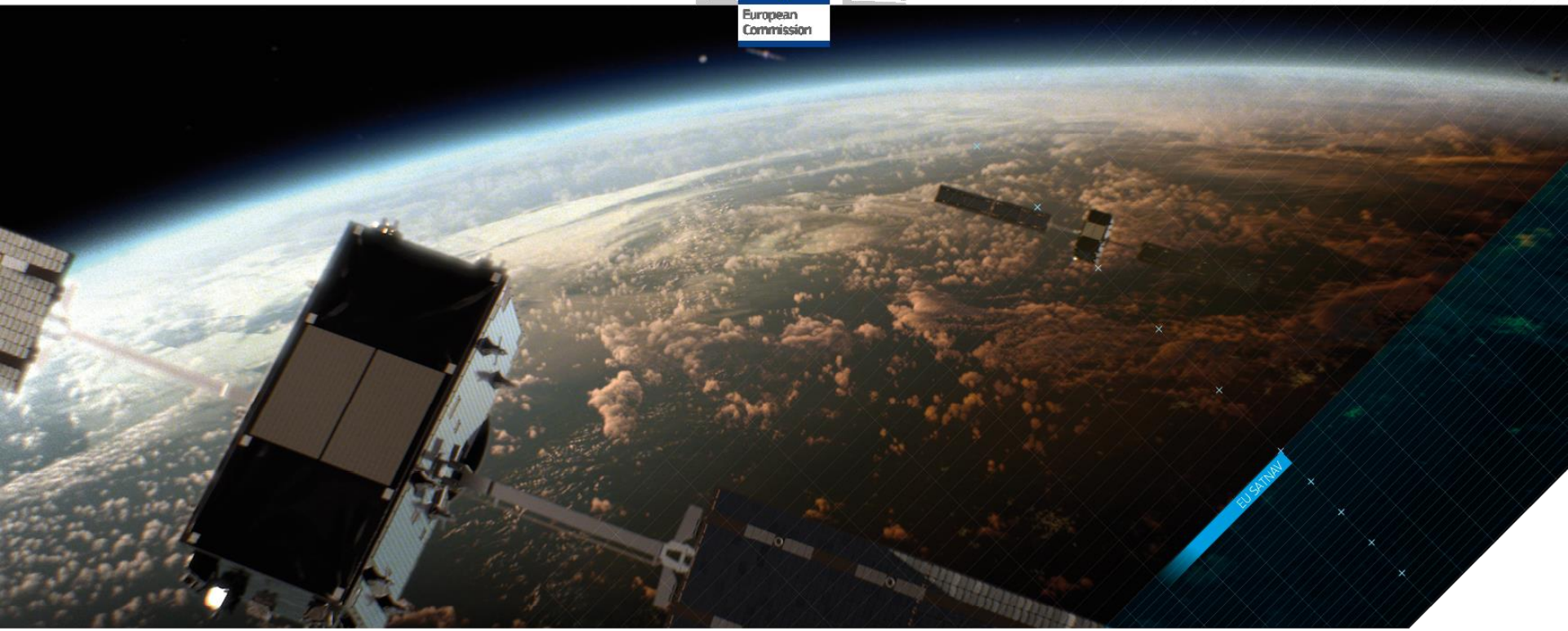

EU SPACE SERVICES - CONNECTING THE ARCTIC

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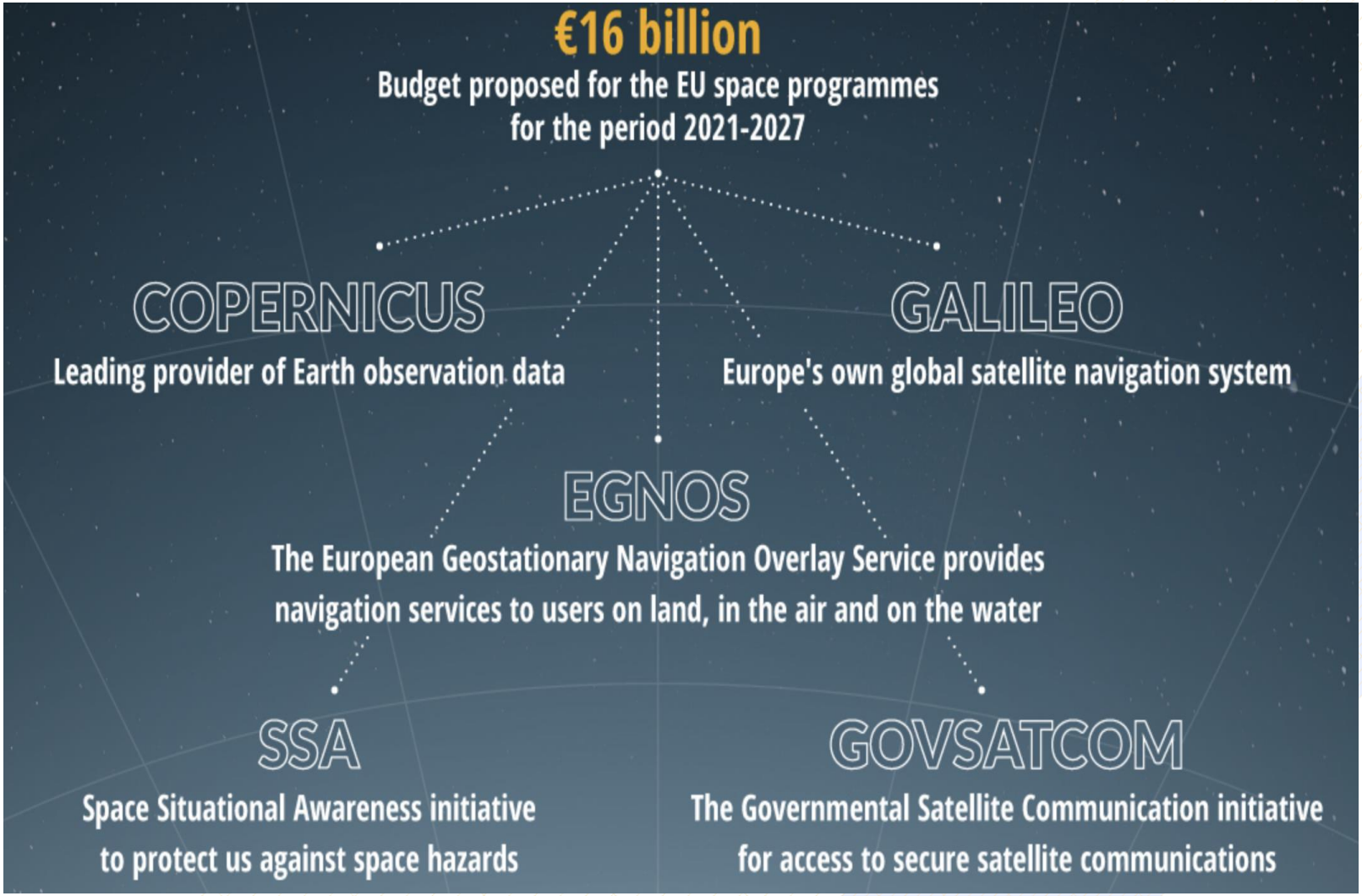


EU SPACE DELIVERING SERVICES FOR EVERYONE

EU SPACE POLICY - EU ARCTIC POLICY

A comparative time line

EU Arctic Policy

EU request an Arctic Policy

The European Council and the European Parliament submit a request to the Commission and the High Representative for Foreign Affairs and Security Policy to develop an integrated policy on Arctic matters, and to develop a more coherent framework for EU actions / funding programmes related to the region.

EU Arctic Joint Communication

A policy focused on Climate Change and Safeguarding the Arctic Environment; Sustainable Development in the region and to promote International Cooperation on Arctic Issues.

The Communication highlighted the importance of space assets for Communication, Earth Observation and Navigation in the Arctic.

EU Arctic Dialogue Seminars

Four working groups:
- Climate Change
- Maritime Transport
- Governance of the Arctic Ocean and Arctic Fisheries
- Arctic connectivity

The participants in these various Working Groups provided overviews of the relevance of space assets across domains whilst gathering user perspectives.

EU Arctic Policy Assessment

A tool for the European External Action Service (EEAS) and the European Commission to reassess and strengthen EU Arctic Policy.

2021-2027
New Multi-annual Financial Framework

2014 — 2015 — 2016 — 2017 — 2018 — 2019 — 2020

New EU Arctic Policy

New and improved EU Space Services for the Arctic

EU Space Policy

Space strategy

Space services will be developed to meet emerging needs in specific priority areas.....climate change and sustainable development / mobility - Copernicus will monitor CO2 and other greenhouse gas emissions and **changes in the Arctic.**

New Space Regulation

A legal framework to enable the continuation and improvement of existing space services and to develop and operate new system functionalities - some of which will result in **improved and/or new services for businesses and communities in the Arctic.**

COPERNICUS COMPONENTS

FROM GLOBAL EARTH OBSERVATION DATA TO LOCAL INFORMATION AND PRODUCTS

COPERNICUS DATA: WHAT IT CAN TELL US

Land:

- Lake ice extent
- Snow cover extent
- Snow water equivalent

Atmosphere:

- Black Carbon
- Methane

Marine (not complete list):

- Ocean Physics
- **Biogeochemistry transparency**, turbidity, primary production, pCO2, planktons, optics, nutrients
- **Ocean waves** (significant height, mean period, direction, stokes drift, wind waves, swells)
- Sea Ice Surface Temperature
- **Sea Ice parameters** (concentration, extent, thickness, edge, velocity and drift, age, albedo)
- Snow over sea ice
- SAR Sea Iceberg Concentration

Climate:

- Albedo, leaf area index and fraction absorb photosynthetically active radiation
- Glaciers elevation and mass change data
- Glaciers extent data
- Methane data
- Ozone
- Soil moisture
- Sea surface temperature daily
- Sea ice monthly and daily
- Sea surface heights NRT

Not including On-demand services as Copernicus Emergency Management and Security Services

EU SATELLITE NAVIGATION SYSTEMS

Galileo

- Global coverage (GNSS)
- Operational since 2016
- Galileo Open Service initial services performance exceeding expectations
- Galileo constellation will be completed towards the end of 2020

EGNOS

- Regional coverage
- Improves GPS performance (and soon Galileo too) over Europe
- Used in the aviation sector in Europe since 2011
- Delivers service performance levels required for safety critical applications

'It's there, use it'

GALILEO AND EGNOS SERVICES FOR THE ARCTIC

Galileo Open Service (OS)

- Freely accessible service for positioning, navigation and timing

Galileo Public Regulated Service (PRS)

- Encrypted secure service for governmental use with greater robustness and resilience

Galileo Search and Rescue (SAR) Service

- Assists search and rescue teams to locate people in distress

Galileo High Accuracy Service (HAS) and Authentication Service

- HAS = more precise, down to 20cm – Authentication = more secure

EGNOS Safety-of-Life (SoL) Service

- Provides the required system integrity to support safety critical applications

GALILEO SEARCH AND RESCUE (SAR) FOR THE ARCTIC

EU Funded Galileo infrastructure installed in Spitzbergen (part of the Svalbard archipelago) enables Search and Rescue service coverage in the Arctic improving transport safety and mobility in the region.
(This infrastructure supports the International Cospas-Sarsat Programme)

SEARCH AND RESCUE IN THE ARCTIC

«The Northguider» Hinlopen Strait, Svalbard 2018-2019 - Picture sourced from https://www.arctictoday.com/

Safety for ships and their crews operating in the Arctic is paramount as the the conditions are so extreme

EU GOVSATCOM:

Ensure reliable, secured and cost-effective

satellite communications services

for EU and national public authorities

managing security critical missions and infrastructures

In collaboration with:

The European Space Agency

The European Defence Agency

Space

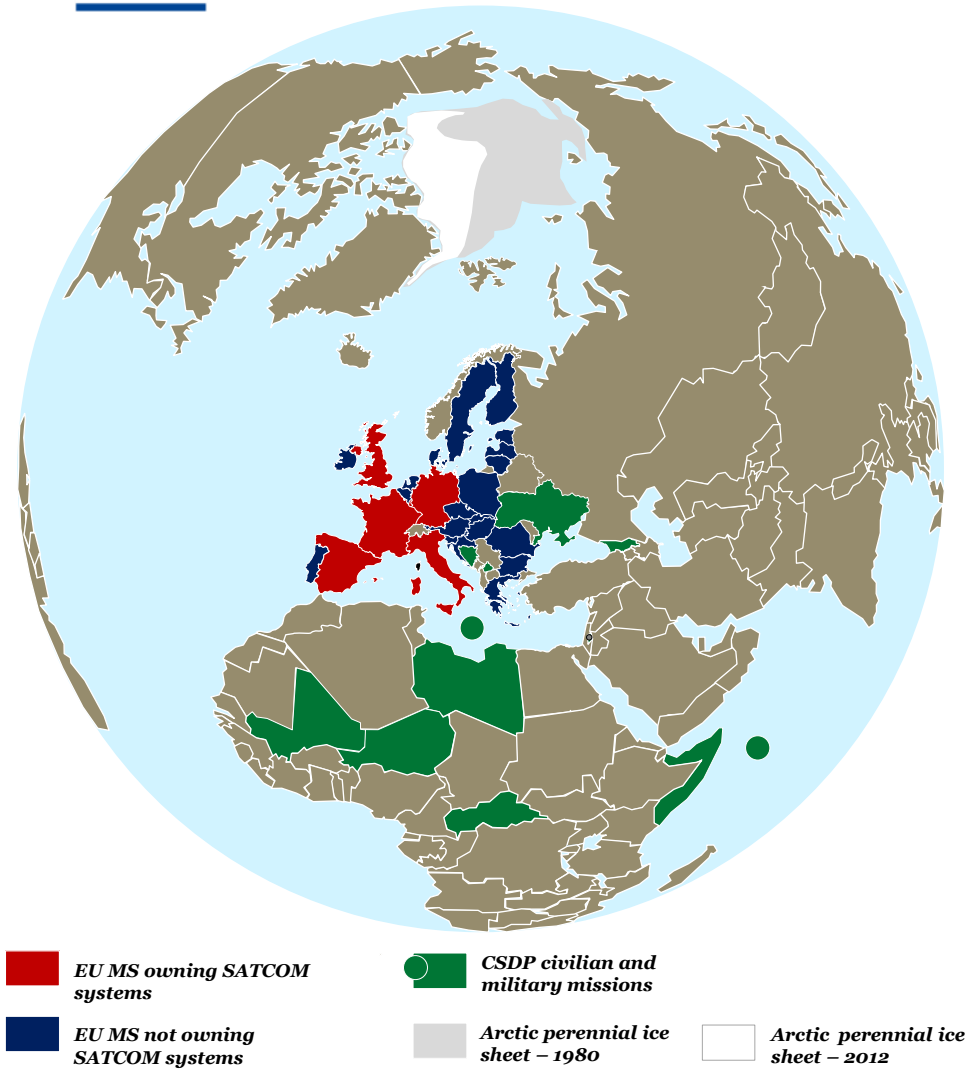
Why GOVSATCOM?

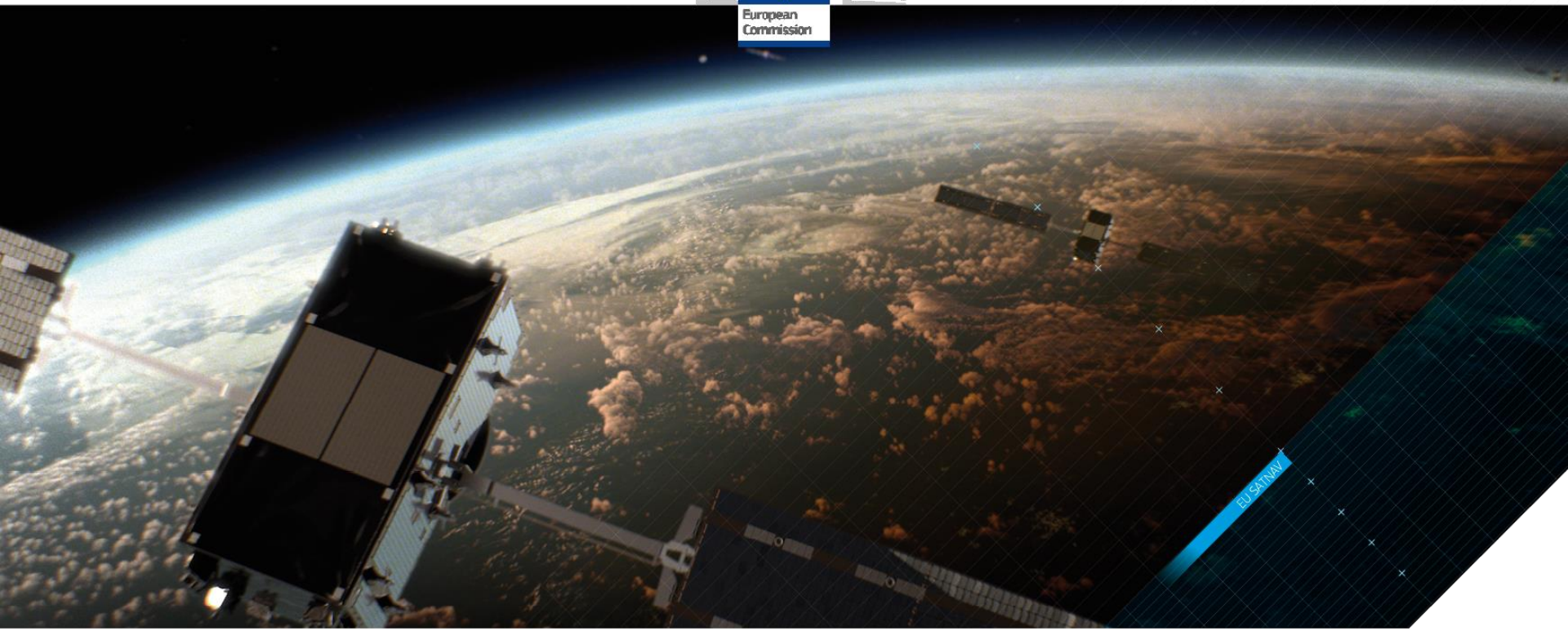
EU and Member States security actors need satellite communication.

But do not all have access where and when it is needed.

Approach:

- Pooling and sharing of existing satellite systems.
- In the future, potential additional systems to cover coverage gaps that exist in the Arctic.





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