

navisp

An enabler supporting European competitiveness in the PNT sector



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→ THE EUROPEAN SPACE AGENCY

SATNAV: A strategic sector – Europe Leading the Way



Satellite navigation is the largest downstream space market



50 000 jobs in European GNSS downstream market



Europe as a strong international partner



4+ billion Galileo users worldwide / EGNOS fully integrated in aviation



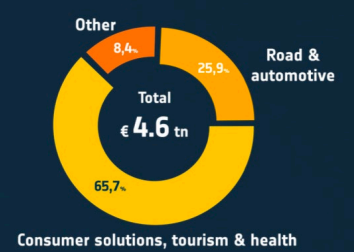
Strategic enabler for European autonomy and resilience (Dual Use)



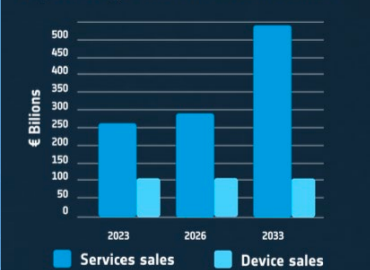
Supporting European competitiveness in a strategic sector



Expected cumulative GNSS revenue 2023-2033⁵

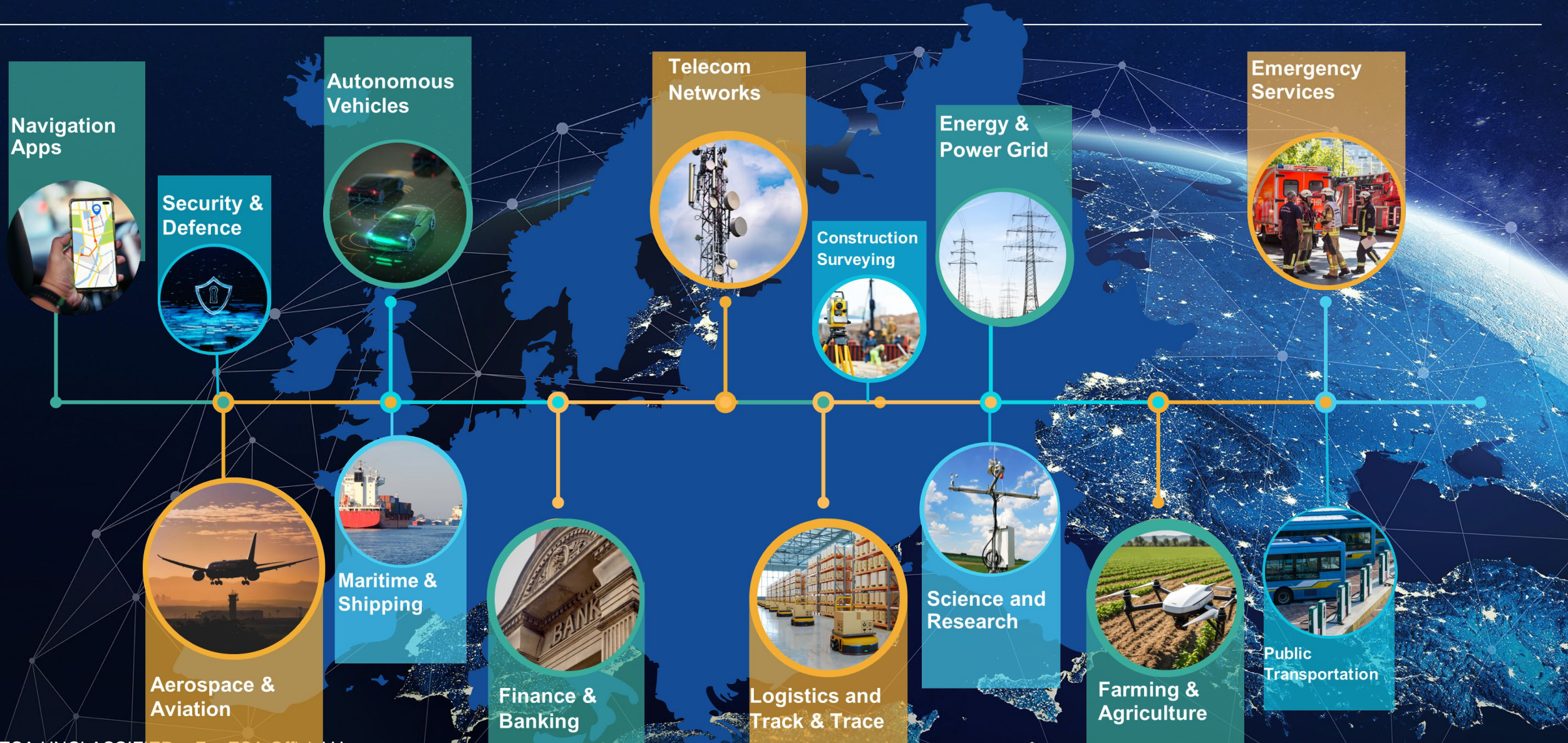


Expected growth in GNSS revenue⁶



Positioning, navigation and timing is everywhere around us.
Already 10% of EU's GDP relies on satnav systems and its set to grow.

Offering a wide range of benefits for Society



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Finance Energy

Precise timing ensures accurate **timestamping** of transactions. (to at least 100 microsecond accuracy)

ATM notifies the bank's server in real-time, confirming that the user's location, the ATM's location, and the transaction time all align with secure data protocols.

PNT ensures real-time **synchronisation** between ATMs, banks, and financial institutions.

Helps detect suspicious patterns, such as multiple withdrawals in different locations.

Knowing the correct sequence of events is crucial for the finance industry considering almost **1 billion** messages are processed every second.

PNT ensures continuous uptime by syncing backup servers globally.

PNT tracks the precise location of grid infrastructure like power plants, substations, and transformer

PNT guides the flow of electricity along the most optimal transmission routes.

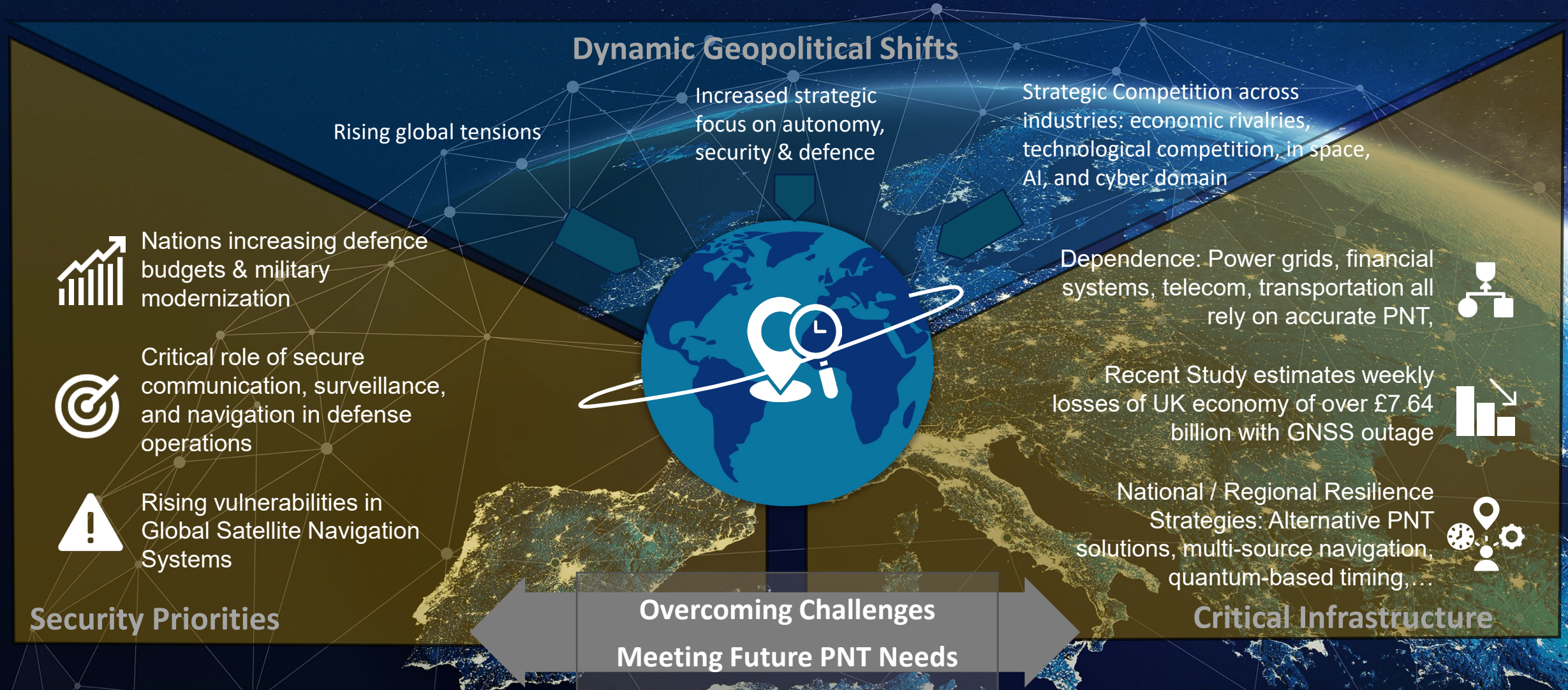
PNT ensures the stability and efficiency of power distribution → feeding electricity into the grid without timing mismatches.

Precisely times energy input from renewable sources to keep grid operations stable.

PNT synchronises grid components using precise timing for load balancing.

Provides continuous, high-accuracy tracking of grid performance for operators

Essential Component for Security & Resilience



• Since February 2022, there has been a notable increase in GNSS jamming and spoofing, particularly in regions surrounding conflict zones and other sensitive areas such as the Mediterranean, Black Sea, Middle East, Baltic Sea, and the Arctic.

From experts....

Polish GNSS researchers (2025):
Recent GPS interference in the Baltic likely originates from ships in transit:
Over six months, 84 hours of GNSS interference were detected

Norwegian Communication Authority: In 2024 were almost daily GNSS navigation disturbances

Eurocontrol: During the first two months of 2024, we received 985 GPS outages compared with 1,371 for the whole of 2023

...to public media....

How GPS warfare is playing havoc with civilian life

Financial Times, 05/2024

Immer mehr Störungen im Luftraum

Russland greift offenbar das GPS-System an

ZDF, 05/2024

The Dangerous Rise of GPS Attacks

Thousands of planes and ships are facing GPS jamming and spoofing. Experts warn these attacks could potentially impact critical infrastructure, communication networks, and more.

Wired, 04/2024

Electronic Warfare Spooks Airlines, Pilots and Air-Safety Officials

Hundreds of daily flights around the world are running into GPS spoofing, a hazard that poses new risks for pilots and passengers

Forbes, 06/2024

Why GPS Is Under Attack

By Selam Gebrekidan, K.K. Rebecca Lai, Pablo Robles and Jeremy White July 2, 2024

NY Times, 07/2024

Les Pays-Bas s'inquiètent des manipulations de données GPS et de leur impact sur la sécurité des vols aériens

Le monde, 11/2024

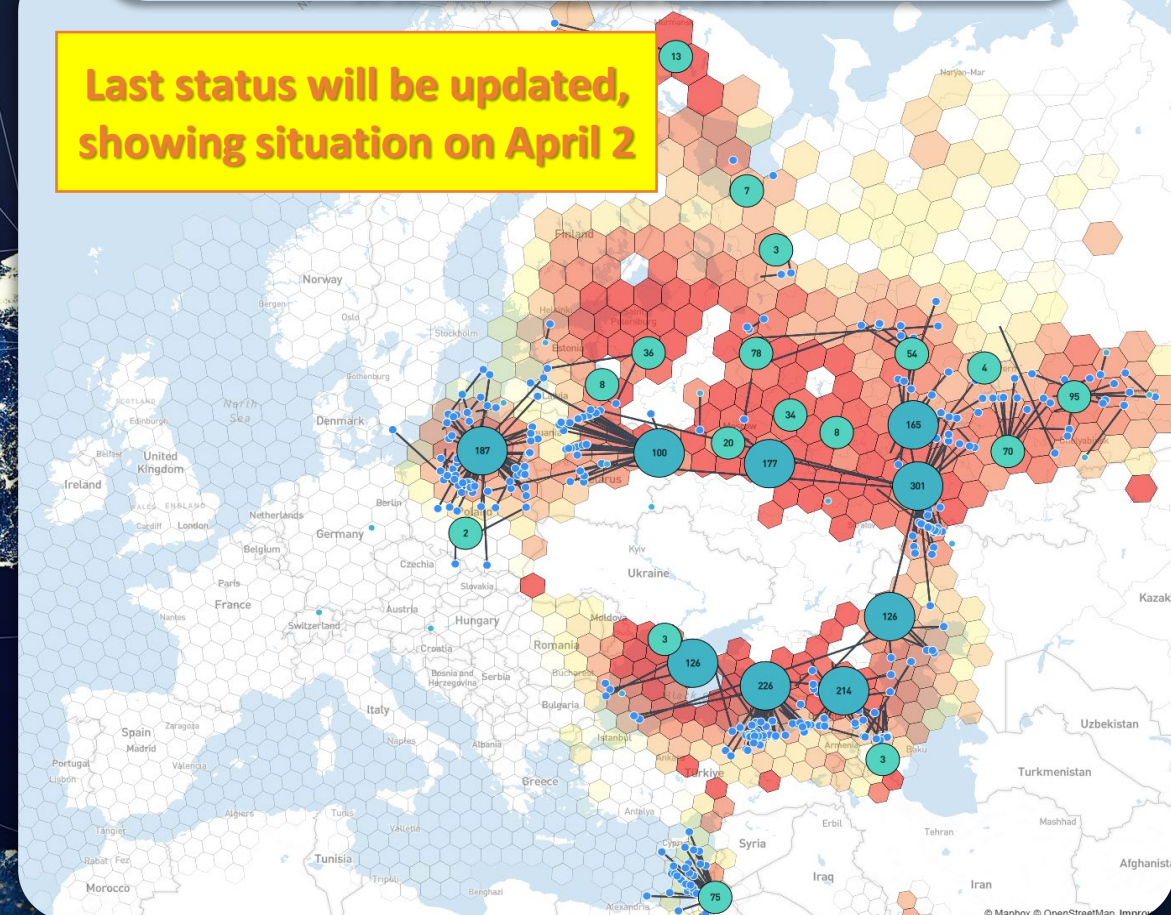
Por qué han crecido un 400% los ataques a los GPS de los aviones comerciales: afectan a más de 1.000 vuelos a diario

El Espanol, 10/2024

GNSS Interference Incidents

10-12 March 2025, based on SKAI DATA

Last status will be updated, showing situation on April 2



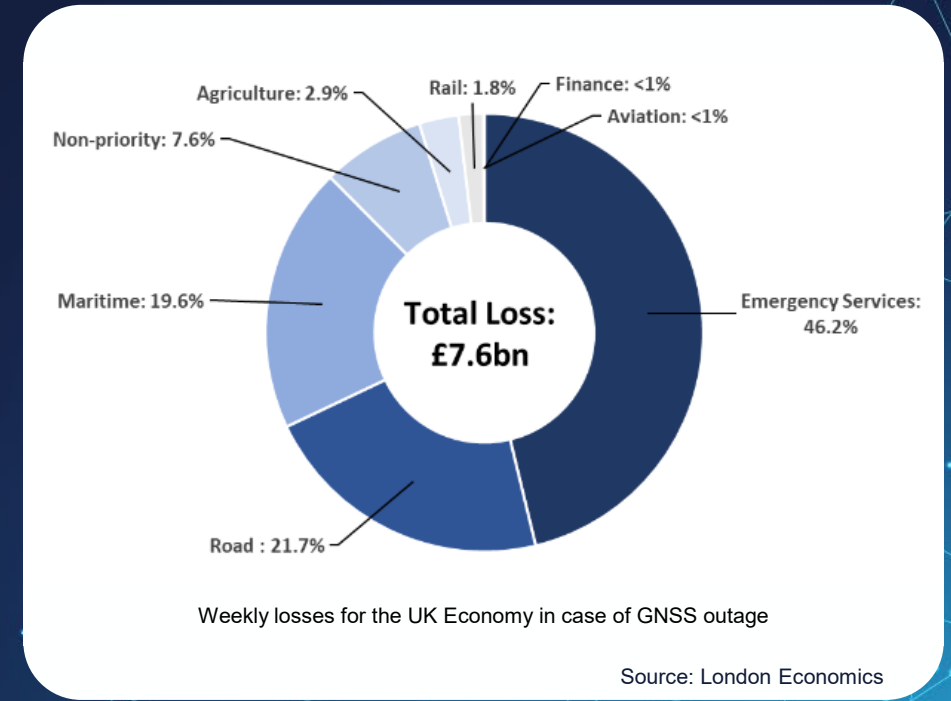
What is navisp?

navisp: NAVigation Innovation and Support Programme:

- ESA's programme focusing on **PNT (Position, Navigation, Timing)** innovation and competitiveness
- Supporting Participating States' PNT champions sharing and mitigating **R&D and market risks**
- Leveraging on ESA's heritage on European GNSS

Some highlights on PNT:

- In 2023, GNSS was approximately **65%** of the **total downstream space market**..
- GNSS is today the **dominant PNT** technology
- PNT systems serve as a **fundamental component of modern infrastructure**
- **PNT disruption** poses major negative **consequences** across the economy.



The European Context

Europe in the global downstream market (M\$)

Novaspace [Satcom, EO] - EUSPA [GNSS]



- Global downstream market ~\$400 B (€361.5 B), 65 % for GNSS (2023)
- > 90 % is commercial and accessible to European industry
- Europe losing market share in PNT (EUSPA / EIB)

European GNSS Downstream Global Market Share

Scenario 1:

"What we can claim at best"

Current European market share in GNSS sector



~ €54 B/y
360 000 jobs

Scenario 2:

"What we can aspire to"

Usual European market share in other High-Tech sectors



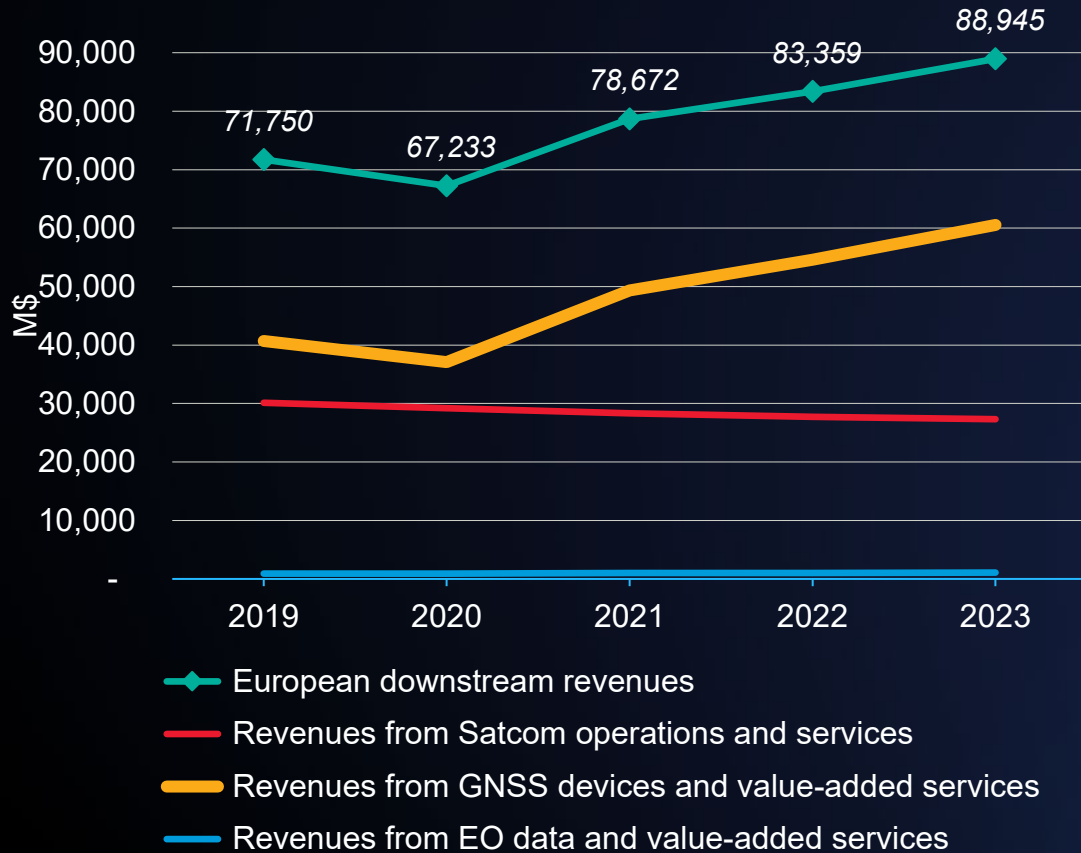
~ €77.5 B/y
515 000 jobs

Source: Space Y / ESA

PNT: Expanding Opportunities

European downstream revenues (M\$)

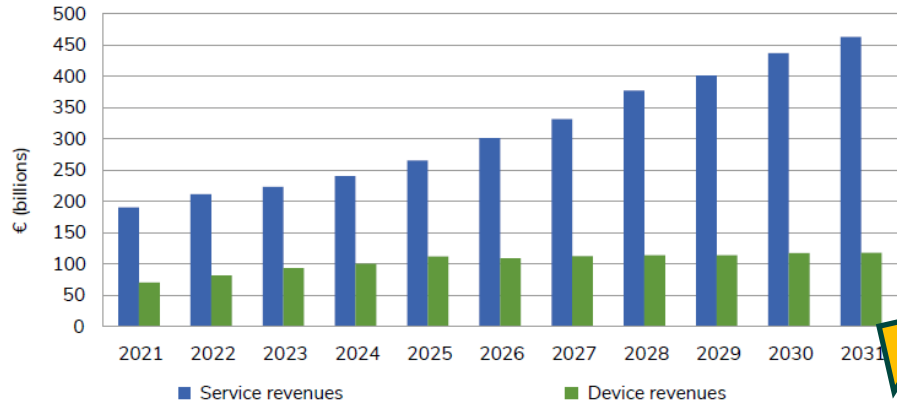
*Novaspace (Satcom, EO) - EUSPA (GNSS)



- In 2023, Global Navigation Satellite Systems (GNSS) constituted approximately **65%** of the **total downstream space market**
- Global GNSS Market size estimated to reach US\$355.3 billion by 2030, growing at a **CAGR of 9.6%** by 2030.
- Europe captures **~23% of the total downstream market**, sustaining a stable market share in the past years.
- GNSS revenues are derived from **device sales** and **GNSS-enabled services** (location-based applications, consumer applications)
- PNT systems, particularly GNSS, serve as a **fundamental component of modern infrastructure**, essential for sectors such as transportation, telecommunications, and national defence.
- Substantial growth → offers long-term opportunities for **investment and innovation**.

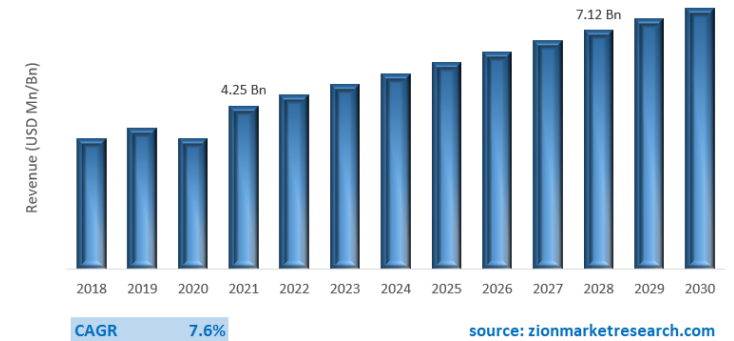
The PNT Opportunity

Revenue from GNSS devices sales and services



Source: EUSPA

Global GPS Anti-Jamming Market Size 2022-2028



source: zionmarketresearch.com

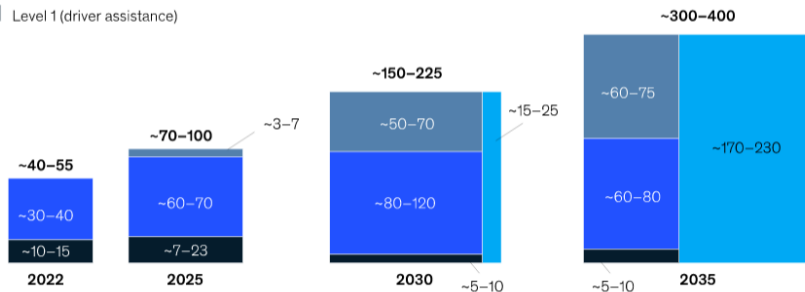
PNT is more than GNSS

...and others

Advanced driver-assistance systems (ADAS) and autonomous-driving (AD) revenues, \$ billion

- Level 4 (high driving automation)
- Level 3 (conditional driving automation)
- Level 2 (partial driving automation)
- Level 1 (driver assistance)

Source: McKinsey & Co.

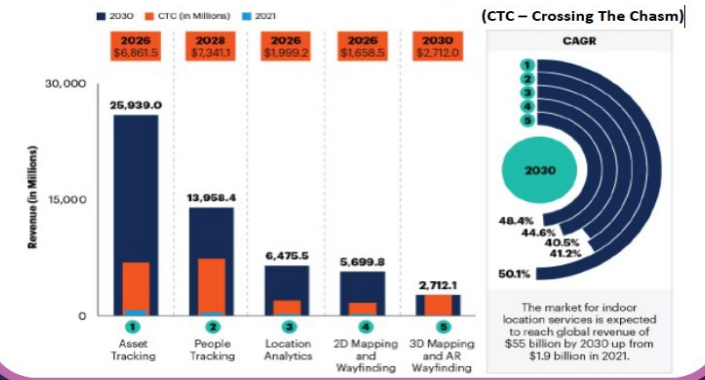


Global Location Services Market

Source: Gartner

1.9B\$ 2021 x > 25 55 B\$ 2030

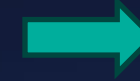
Indoor Location Services Revenue Opportunity Projection



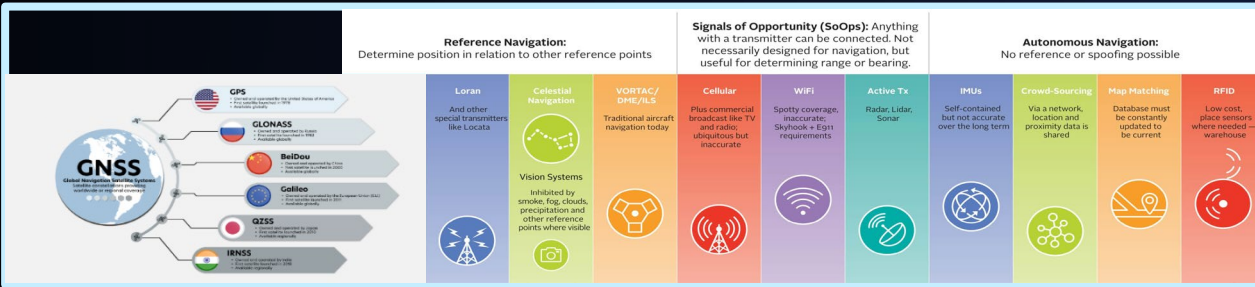
navisp: Advancing commercial PNT



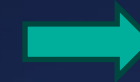
- Commercial / demonstrators
- Hosted payloads
- PNT-enhanced space operations



**Commercial PNT
Missions / Payloads**



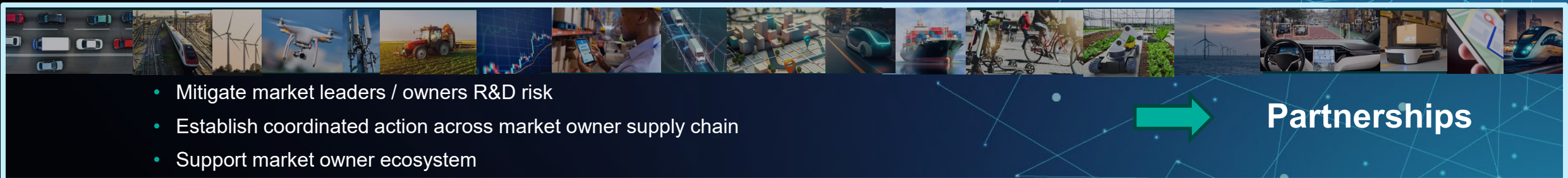
- GNSS receivers / components
- PTA – Protect, Toughen, Augment
- Alternative PNT



**PNT user segment
products**



**Value – added
products / services
for PNT markets**



Partnerships

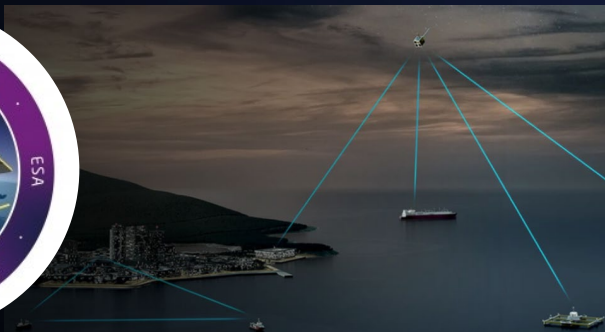
nausp: Commercial PNT Missions

ICING – Independent Critical Navigation:

- Understand **satellite / terrestrial VDES capabilities** as an alternative PNT system for maritime environment

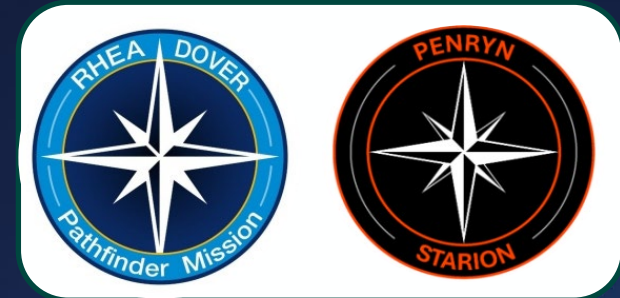
MAPS – Maritime Alternative PNT Solution:

- **Commercial demonstration** of a hybrid space (4 satellites) / terrestrial VDES-based PNT system for maritime
- Full solution targeting **GNSS independence** in maritime environment



DOVER / PENRYN:

- Demonstration satellites to understand the **commercial case** behind selling PNT as a by-product out of different satellite capabilities



Satellite-based Quantum Time Transfer (QTT):

- QTT demonstration targeting **picosecond accuracy** between terrestrial and satellite clocks
- Develop the case for a **global QTT hybrid system**



nausp: Partnerships

Market owners are the downstream markets gate keepers



PVT Assurance in support of forensic evidence for IAEA inspectors



PNT assisted berthing operations



Satellite-terrestrial PNT antenna for automotive



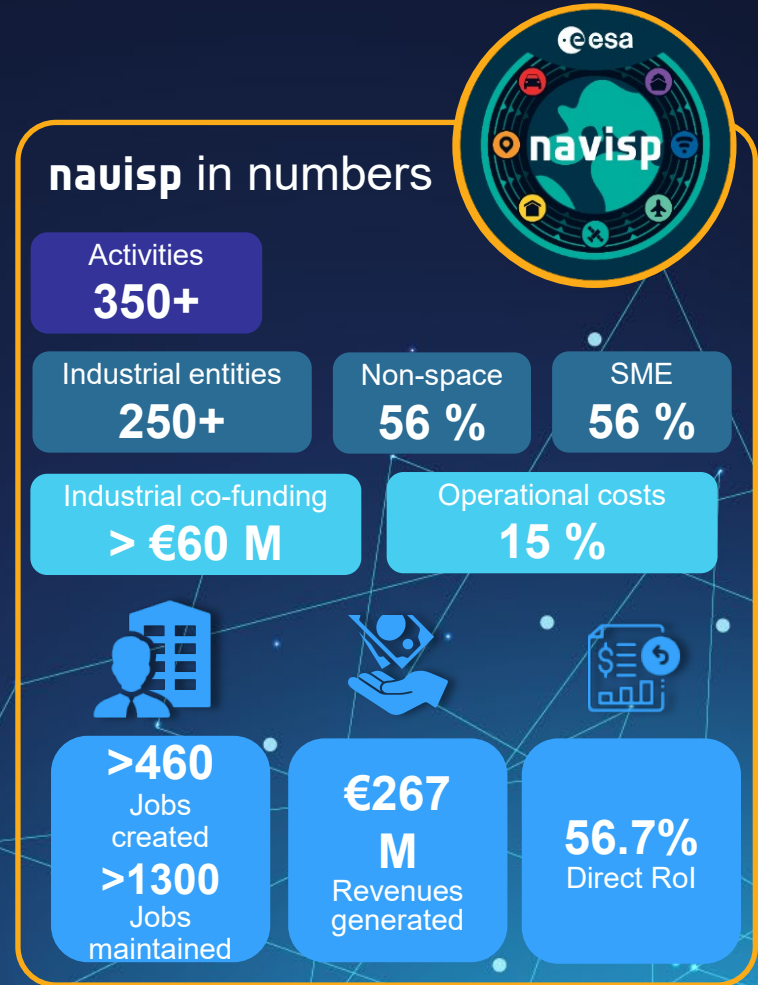
Increased Member State Support

- Germany, Italy, UK, and Ireland have **raised initial CM22 subscriptions**
- Indications show that **€110M budget** is on track as planned, with possibility of oversubscription.

Proven Economic Impact: Study by London Economics (2024): €1M. Invested in NAVISP results in **€1.8M in GDP**.

Strategic Industry Partnerships & Market Penetration

- NAVISP Industry Days 2025** have achieved record registration of **≥ 450**
- Expanding Partnerships** to foster technological innovation, global competitiveness and resilient supply chains:



- **navisp** phase 4 request for €110m is **fully justified**:
 - PNT is a **growing opportunity** for European Industry
- **navisp** is the **commercially-driven** programme of NAV:
 - Innovation and development-related risk mitigation for **new PNT commercial products and services**
 - **Risk** to be shared with partners
- **navisp** phase 4 will be **more agile and responsive** to industry needs
 - **navisp** phase 4 shall drive procurement process and contract **simplifications**

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Thanks!

