

# navisp: Vision and Way Forward



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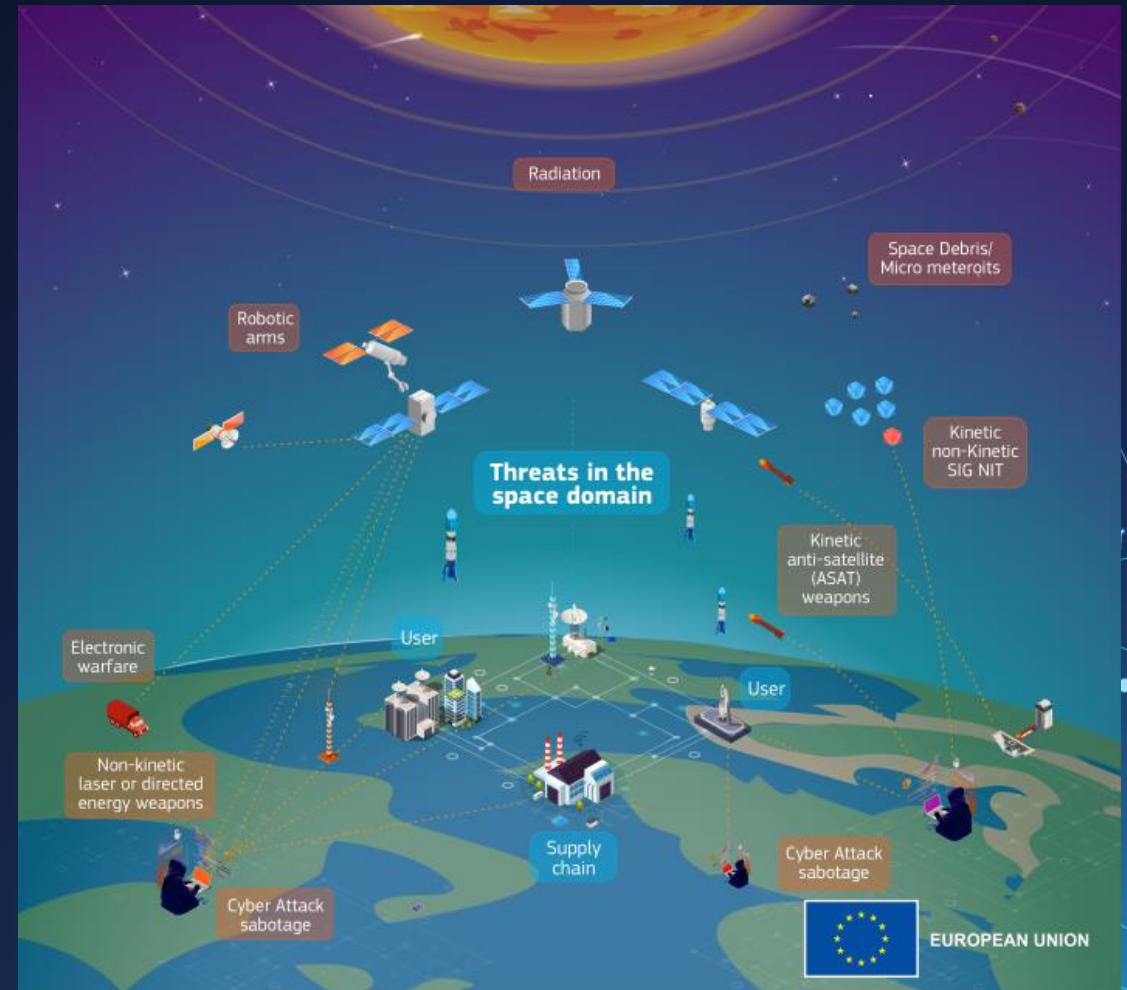
# Background – PNT on the rise

## Global trends:

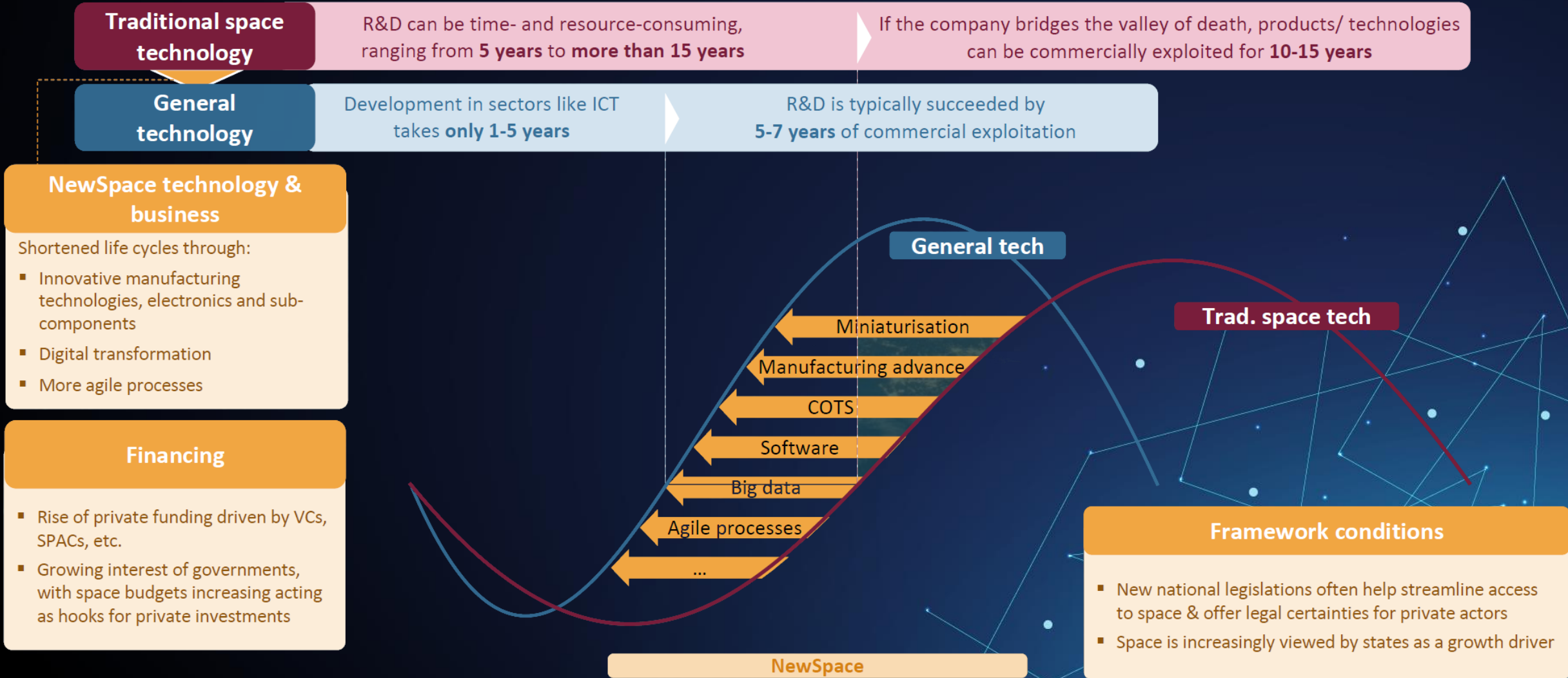
- Post-CoVID-19 digitalisation acceleration, for which PNT is backbone
- Geo-political situation: European concerns about security and sovereignty (EU acts on Chips & Critical Raw Materials, UK PNT strategy)
- New Space economic dynamics favouring concentration of infrastructure and services (vertical integration)

## PNT technology:

- Markets demanding more & better PNT (defence, consumer, automotive, transport & logistics, finances, critical infrastructure, etc.)
- PTA strategies (Protect, Toughen, Augment) driving GNSS enhancements (e.g., SBAS) and non-GNSS-related PNT developments (“assured PNT”)



# Background: NewSpace dynamics

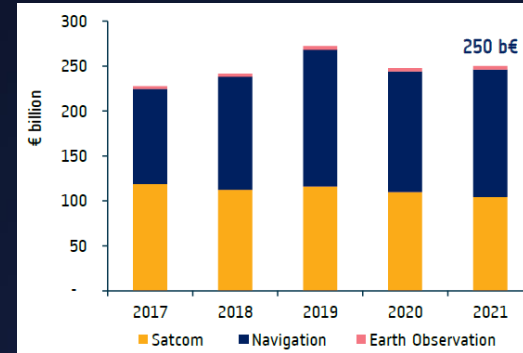


Source SpaceTech

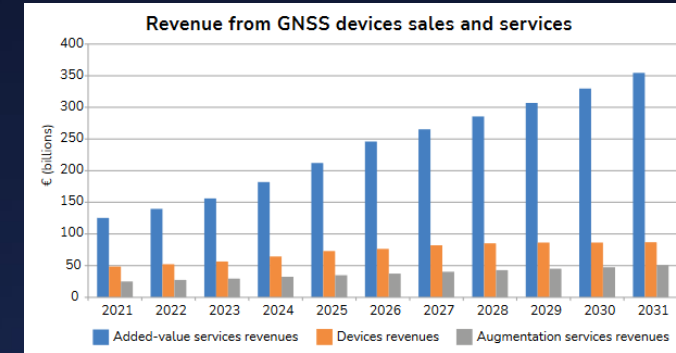
# PNT market perspectives

## Highlights:

- Consumer automotive as largest downstream markets
- Smartphones and wearables driving chipset sales and adoption of services
- Multi-PNT trend influencing downstream: Drones, finance, Driverless vehicles.



Source: ESA

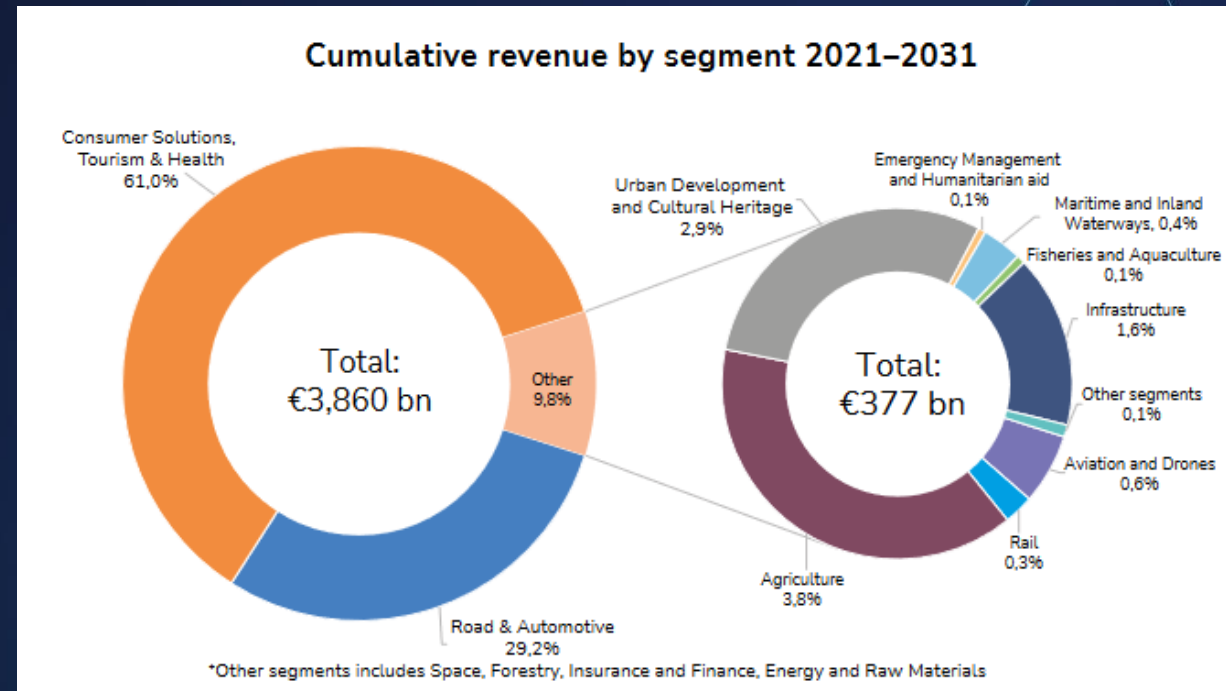


Source: EUSPA

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## Space value chain perspective:

- GNSS surpassing SatCom as largest downstream revenue source
- PTA: Multi-GNSS / Multi-frequency receptors on the rise
- Opportunities for new missions protecting overall GNSS capacity: secondary payloads onboard new constellations, interference monitoring, etc.



## NAVISP: NAVigation Innovation and Support Programme:

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



Click on the image for further information



# nausp working across key global PNT trends



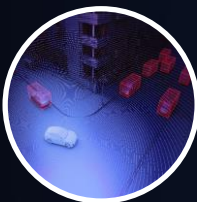
## PTA – Protect, Toughen, Augment

Protect global PNT provision, strengthen with new techniques, increase PNT sources



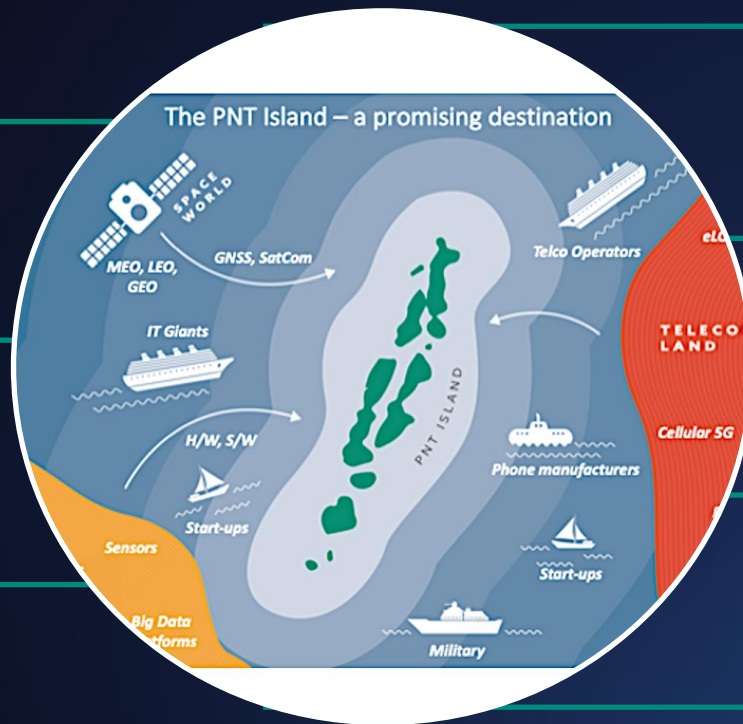
## Autonomous systems:

Opportunity for novel products and services



## Service Innovations

Key Tech advancements (e.g. cloud computing, ML, AI) expanding PNT horizons



Universal, resilient, multi-technology PNT

## GNSS Evolution

Multi-constellation, multi-frequency, SBAS



## Terrestrial systems:

Networks of opportunity, dedicated systems (5G, eLoran)



## Lunar Systems:

Support Lunar Economy through PNT infrastructure



## LEO Systems:

GNSS alternative, improved PNT capabilities



# Why work with nauisp?

- PNT focus:
  - Covering the whole PNT, not just GNSS
  - One of the few programmes in Europe with this focus
- Supporting industry:
  - Sharing and mitigating risk across the R&D product cycle – technology, market, regulation
  - IP developed by industry, for industry
  - ESA brand, a door opening
- ESA support and expertise in PNT
  - Dedicated ESA staff support
  - International industrial & institutional network

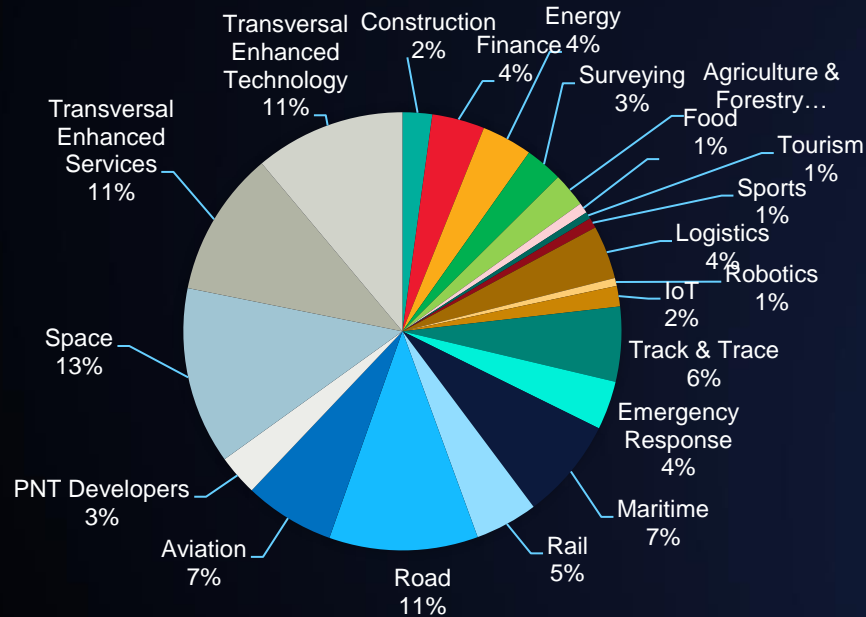


More than 300 activities engaged

More than 210 different actors

Several success stories materialized

## NAVISP projects final market covers various economic sectors



## Some NAVISP flagship projects:



### Real-Time Supercorrelating GNSS Receiver

Prime: Focal Point (UK)

Aim: Software Defined GNSS receiver capable of exploiting the angle-of-arrival of GNSS signals just through software processing increasing the levels of sensitivity, accuracy and integrity. Received Series-C funding.



### GSAB + GSAB2 - Grimaldi Satellite Assisted Berthing

Prime: Grimaldi Group (IT)

Aim: Assisted systems supporting berthing operations with big vessels as the PCTC – Pure Car & Truck Carriers, and berthing manoeuvres for a CON-RO Ship (overall length 250 m). Flagship project managed by a Grimaldi-led international consortium with Kongsberg (Norway) and Radiolabs (Italy)



### Autonomous Robot for Laser scanning and Inspections (ARLI)

Prime: DTU Space (DK)

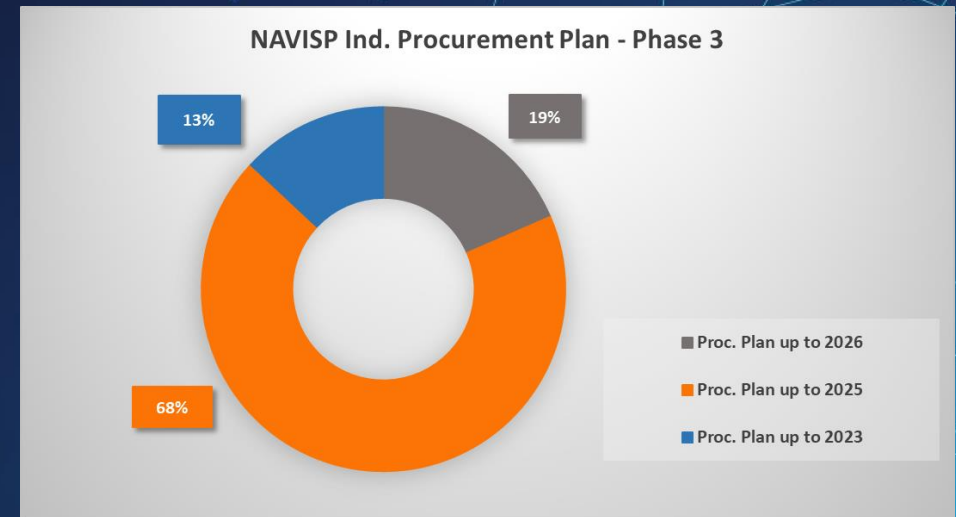
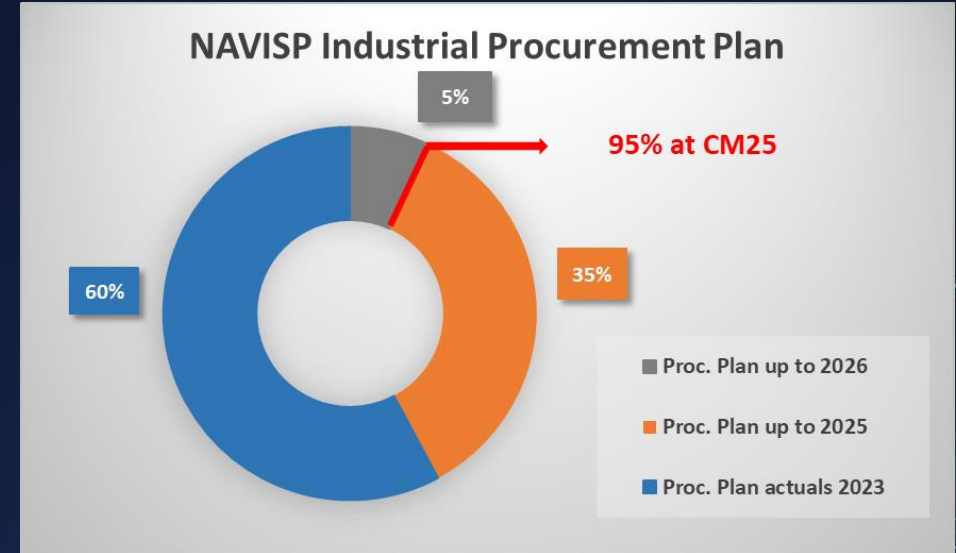
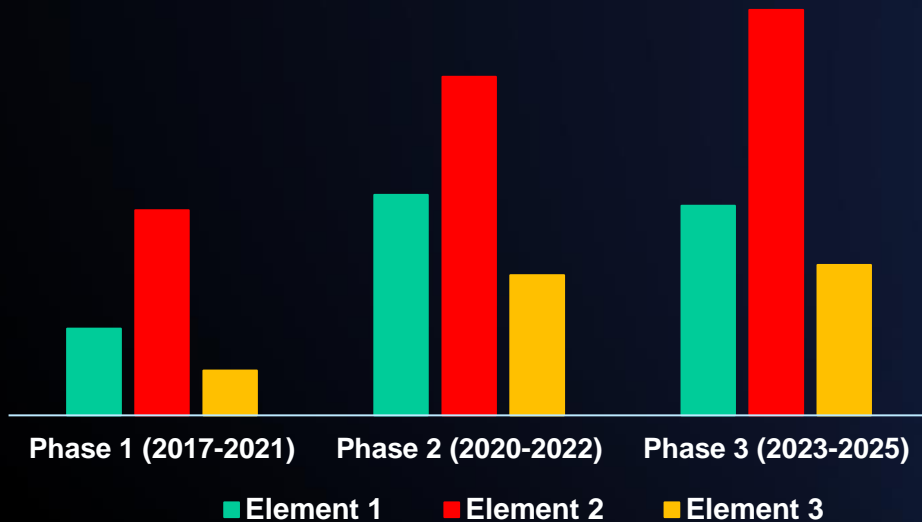
Aim: Enhance service levels by employing robots. The consortium aims to develop an autonomous Unmanned Ground Vehicle (UGV) equipped with a LiDAR sensor and a GNSS receiver, among other sensors. This UGV will patrol the city, automatically detecting tasks that require attention from service staff. The data collected during these patrols will be used to create a constantly updated digital twin of the city.

## NAVISP is attracting new actors while enlarging the (space) footprint in Europe

- 56% of the companies belong to other economic sectors
- 45% have never worked with ESA before
- 48% of Funding is allocated to SME's (as Prime)

- €284M over three phases, €108 M in phase 3
- Lower overheads w.r.t. other ESA programmes (< 15 %)
- Several National Delegations increasing subscriptions due to high demand (10 % increase)

NAVISP Funding per Year



# navisp, what is next?

## Strengthening presence across PNT value chain:

- Understand PNT-supported verticals
- Develop PPP approaches with market owners
- Support European PNT-related ecosystems



## Reinforce programme identity:

- Maintain overall PNT-centric focus
- Preserve focus on associated R&D risks (technology, market, regulatory),
- Deliver European PNT champions

## Expand NAVISP capabilities:

- Improve programme attractiveness to PNT-related markets
- Consolidate authority on PNT technologies, products and services
- Exploit and develop synergies across NAVISP Elements
- Simplify programme mechanisms

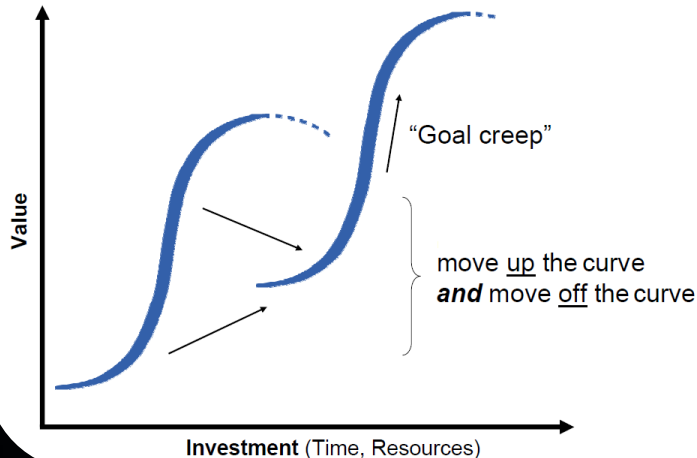


# Unlocking Europe's PNT potential

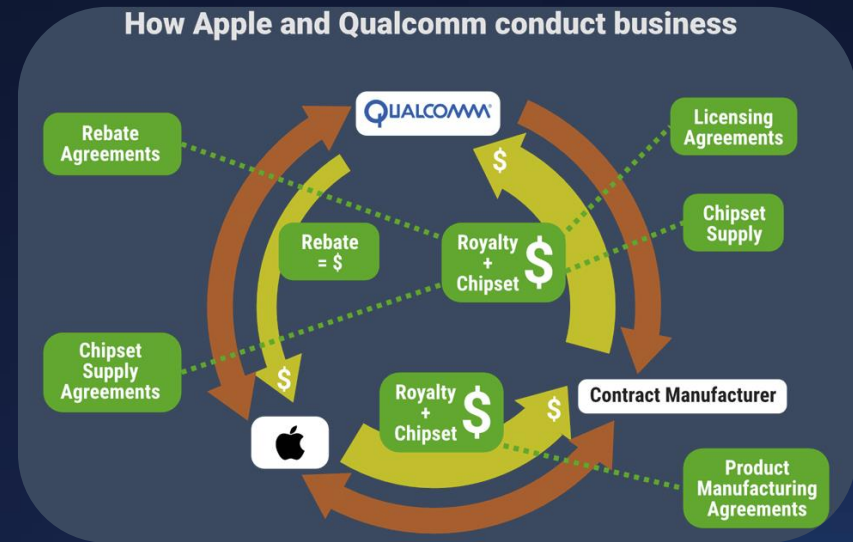
## Disruptive technology, key to ensure future market positioning

- Large technology risk today, large market growths tomorrow
- Key action: understand new markets for disruptive technology.

Moving **Off** the Value Curve: Making future technologies available today



## How Apple and Qualcomm conduct business



## IP, key to finance future R&D and company growth

- Intangible assets like IP and brand represent 80 % of industry market value
- Patents are key to productise and sell IP
- IP can foster additional revenue growth and ecosystem creation

# This will not be possible without you



Connected, Cooperative & Automated Mobility

Industry Days



# Your feedback is important



Have your say in shaping the future of **navisp**.  
Tell us what you miss!

- Scan the QR code, just takes 5 minutes
- You can save the survey and continue later

Enter our prize draw: three (3) winners will  
receive a gift from us



# Thank you

