

An overview of  
SatCen activity

# Annual Report 2024



Tel. +34 91 678 60 00  
email: [info@satcen.europa.eu](mailto:info@satcen.europa.eu)

Postal address: Apdo. de Correos 511, E-28850 Torrejón de Ardoz, Madrid, Spain  
[www.satcen.europa.eu](http://www.satcen.europa.eu)

© SatCen, 2025

Reproduction is authorised provided the source is acknowledged. Printed in Spain.  
Printed on white chlorine-free paper.

Cataloguing data can be found at the end of this publication.  
Luxembourg: Publications Office of the European Union, 2025  
ISBN 978-92-95034-32-7 doi 10.2820/0048092

This report is published in accordance with Article 7 of Council Decision 2014/401/ CFSP of 26 June 2014.

An overview of SatCen activity

# **Annual Report** **2024**

# Table of contents

Foreword of the Director  
Changing of the Guards at SatCen

## **1. INTENSIFIED SECURITY CHALLENGES**

- P.10** Our Mission and Vision
- P.11** A Challenging Strategic Context

## **2. OPERATIONAL HIGHLIGHTS**

- P.14** Operational Perspectives
- P.16** Operational Priorities
- P.17** Core Tasking under CFSP/CSDP
- P.18** Support to EU Missions and Operations
- P.20** Support to EU External Action
- P.21** Copernicus Service on Support to EU External and Security Actions (SESA)
- P.22** Copernicus Border Surveillance Service (CBSS) and Commission Agencies
- P.23** Use and Acquisition of Satellite Data

## **3. CLASSIFIED IT PLATFORM**

- P.28** Operational Projects

## **4. CAPDEV & COOPERATION**

- P.34** Development of Space, Security and Defence Capabilities
  - Developing Operational Interinstitutional Cooperation
  - Copernicus SESA
- P.35** Support to Frontex for CBSS
- P.36** Expanding Cooperation with European Agencies
- P.37** Advancing European Security through Innovation
- P.38** Research and Innovation
- P.39** Training and Capacity Building

## **5. EFFECTIVE RESOURCE MANAGEMENT**

- P.42** Human Resources Development
- P.44** General Services
- P.45** Communications
- P.46** Legal, Data Protection and Procurement
- P.47** Financial Management
  - SatCen Total Funding 2024

## **6. WAY FORWARD**

- P.53 ANNEX 1. ABBREVIATIONS**
- P.55 ANNEX 2. TRAININGS AT SATCEN**
- P.56 ANNEX 3. R&I PROJECTS OVERVIEW**



# Foreword of the Director



Rear Admiral Louis Tillier, SatCen Director

The Strategic Compass' assessment in 2022 that the world was going through “major political shifts”, “challenging our ability to promote our vision and defend our interests” continued to drive SatCen activity to high volumes in 2024. As stated by the President of the EU Council, Antonio Costa, in his address to EU Ambassadors on 04 February 2025, it is a world of “disorder, of paradox, of nuance and plurality, of risks and threats, of multipolarity, of uncertainty”. The need for intelligence to first understand this complexity, then shape actions and policies has never been so high. It is illustrated by SatCen's production in 2024, answering growing user requests. The power of having a shared assessment should not be underestimated, in particular its contribution to the unity of action of the Union in the field of CFSP and beyond. All SatCen products are shared with EU bodies that have a need to know, as well as with the 27 Member States of the European Union. The Centre does not only reinforce our situational awareness, it also makes a major contribution to the EU and its citizens in building a common strategic culture within the Union.

The first major operational output is that production was remarkably high in 2024, with 5,590 products, delivered to all 27 Member States and EU institutions, mainly the European External Action Service (EEAS), from the capability of one single pooled and shared agency. If defence spending is an investment in the security of our European future, investment in SatCen is even more efficient, as the financial burden is shared.

The priorities determined by Member States were successfully implemented. Core production for intelligence services, in support of EU missions & operations and strategic partners, represents 63% of our production and 82% together with the support to External Action. The support to EU

missions and operations, namely IRINI, ASPIDES and ATALANTA, as well as EUMM Georgia and the EU Mission in Armenia (EUMA) has never represented such a high share of production, at nearly 22% compared to 4% back in 2019. SatCen also holds regular exchanges, in Torrejón and in the field, with EU missions and operations personnel, to provide the operational support they need within their budget.

The synergies created with other EU activities was successful in its diversity, in support to external border management, external action, humanitarian aid and security. The most impactful relationship addressing the internal-external security nexus is SatCen's support to Frontex. It doubled in number of products between 2019 and 2024, with an 18% share of our total production delivered to Frontex in 2024. The Centre is eager to continue this story of success in 2025, when we will celebrate the tenth anniversary of a fruitful cooperation with Frontex under the Copernicus Border Surveillance Service (CBSS). SatCen, built on its unique expertise, is acting as the EU agency delivering geospatial intelligence (GEOINT) products and services, while also assuring consistency and unity of action in the GEOINT domain across EU institutions and for Member States, always under their political guidance.

In the context of the volatile international security environment, efforts to make SatCen scalable, to match increased operational needs and to prepare for the future, were successful.

The Centre continued to develop the classified IT platform, the first EU secret cloud accessible to all Member States connected to the EU Operational Network (EOW). Interactive services, such as online access to data and the catalogue, are available 24/7 in a secure environment. In 2024,

services were completed by artificial intelligence detection tools and a communication system to directly interact with users from the EEAS and national intelligence entities.

With efforts to increase the training offer, attendance increased (+15%) and numerous workshops, for instance on threats to space or the use of Copernicus SESA services, were successfully organised. SatCen continued to provide a full ecosystem dedicated to space, security and defence, supporting and working with Member States and EU institutions, also providing tools to exploit the extensive data SatCen is producing, for example in EU missions and operations headquarters. In combination with communication and outreach towards key stakeholders in the EU, but also towards students working in the Centre's field of activity, the Centre today has no problem successfully recruiting candidates. It complements its ability to scale up and continue to grow, based on the decisions of the Member States!



# Changing of the guards at SatCen



General Jorge Farré, SatCen Deputy Director

On a personal note, I would like to sincerely thank my predecessor, Ambassador Sorin Ducaru, for his tireless work during his mandate as SatCen Director, and especially for handing over such a professionally run agency with enthusiastic staff, fully ready to meet the challenges ahead of us all.

Furthermore, I very much welcome the new Deputy Director, Brigadier General Jorge Farré Basurte, who joined the Centre in October 2024. With his extensive background in military and political affairs, including in important fields like space and EU defence policy, he has already demonstrated his strong leadership competence and his highly valued contribution to further strengthening the SatCen top management team.

As a final remark, I would also like to express my deep gratitude to our Member States, including our host nation Spain, for the high level of trust placed in SatCen as the EU's GEOINT agency. Only on the basis of their clear mandate and strong backing was the Centre able to contribute with its tailored analysis services to the EU's essential situational awareness in these times of uncertainty and crises.

Additionally, I would like to wholeheartedly thank all our staff for their dedication and professionalism, and for going the extra mile to fulfil the information needs of our users and partners – this daily effort of our experts once again provided the solid basis for the Centre's value and usefulness.







1.



# **INTENSIFIED SECURITY CHALLENGES**



Visit of Deputy Commander EU NAVFOR Operation ATALANTA - CA Eric Dousson, 06 February 2024

## Our Mission and Vision

The European Union Satellite Centre (SatCen), often referred to as “Europe’s Eyes in the Sky”, is the EU’s geospatial intelligence agency, providing specialised analysis services in space, security, and defence. Established in 1992 under the Western European Union (WEU) and integrated as an EU agency in 2002, SatCen has evolved into a crucial pillar supporting the EU’s Common Foreign and Security Policy (CFSP) and Common Security and Defence Policy (CSDP). By leveraging satellite imagery and collateral data, the Centre delivers advanced intelligence that enhances political decision-making and enables effective civilian and military operations. Its services benefit the EU, its Member States, and strategic partners such as the United Nations (UN) and the Organisation for the Prohibition of Chemical Weapons (OPCW).

SatCen plays a pivotal role in early crisis warning and supports diplomatic, economic, and humanitarian initiatives. The Centre fosters synergies with EU space and security activities, acting as the Entrusted Entity for the Copernicus Service in Support to EU External and Security Action (SESA). By working closely with agencies such as the European Border and Coast Guard Agency (Frontex), the European Defence Agency (EDA), and the European Space Agency (ESA), SatCen strengthens the EU’s strategic autonomy and enhances operational efficiency. Politically, the Centre operates under the oversight of the Political and Security Committee (PSC), with operational direction provided by the High Representative/Vice President (HR/VP), ensuring that its work aligns with the EU’s security and defence priorities.





## A Challenging Strategic Context

Throughout 2024, SatCen's Board, in line with the ministerial-level Board held in August 2023, reaffirmed the Centre's strategic mandate to expand its operational role. This evolution reflects the EU's growing ambitions in security and defence, as well as the increasingly complex global security environment. Russia's war of aggression against Ukraine, the situation in the Middle East and parts of Africa, and the intensifying geopolitical competition between the United States and China have underscored the need for enhanced situational awareness and rapid intelligence capabilities. Against this backdrop, the Centre plays a vital role in advancing the EU's strategic autonomy, supporting key initiatives such as the Strategic Compass and the new EU Preparedness Union Strategy. By providing a reliable and shared informational foundation, SatCen enhances Europe's decision-making and operational capabilities, particularly in times of crisis.







# 2.

## OPERATIONAL HIGHLIGHTS





## Operational Perspectives

SatCen's operations are driven by its core mission: delivering timely and relevant geospatial intelligence to support decision-making under the EU's Common Foreign and Security Policy (CFSP) and Common Security and Defence Policy (CSDP). In accordance with its Council Decision, SatCen's primary users include the Council of the European Union and the High Representative (HR), which plan their information needs around a list of prioritised intelligence requirements.

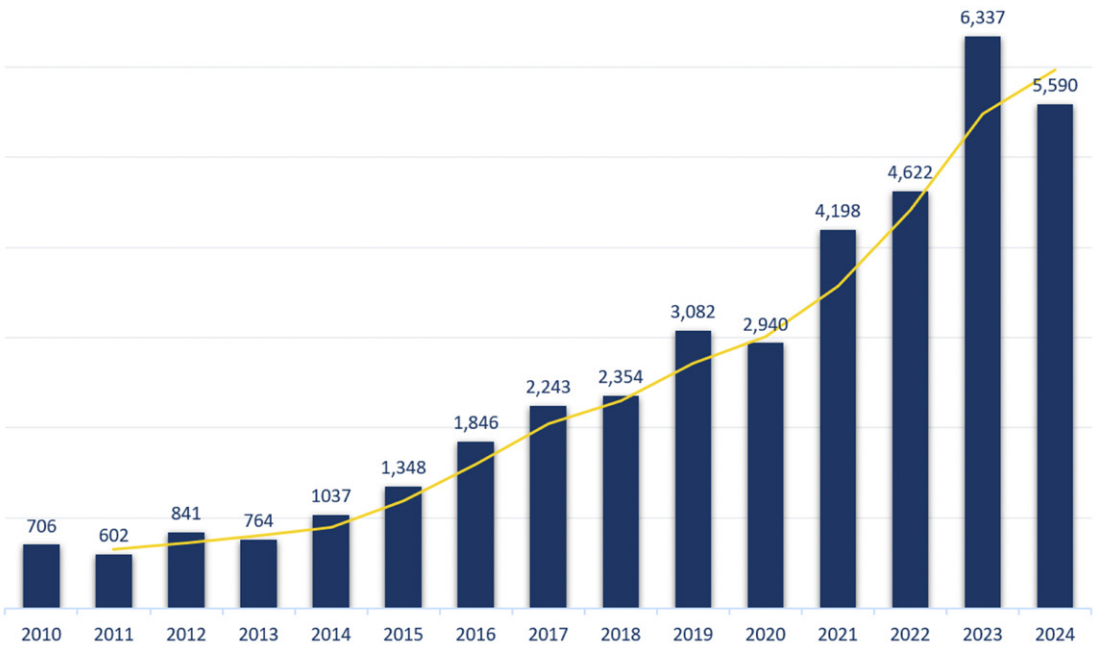
However, the dynamic nature of global security means that each year presents unforeseen developments that significantly impact SatCen's established work plan. The Centre must remain flexible and responsive to emerging crises, adjusting its operational focus to provide intelligence that meets urgent and evolving needs.

The annual planning process, which includes the development of an imagery collection strategy, is a delicate task due to the unpredictable nature of the security landscape. Over the past year, instability in the EU's neighbourhood and beyond has continued to shape operational priorities. Russia's ongoing war of aggression against Ukraine, geopolitical tensions in the Middle East and Africa, and the broader strategic competition among global powers have all strongly influenced the nature of the Centre's tasking.



In addition, the Centre was continuously engaged in the Copernicus security service, namely the Support to EU External and Security Actions (SESA) and the Copernicus Border Security Service (CBSS) for Frontex.

**Annual Nominal Output of Geospatial Intelligence Products 2015-2024**

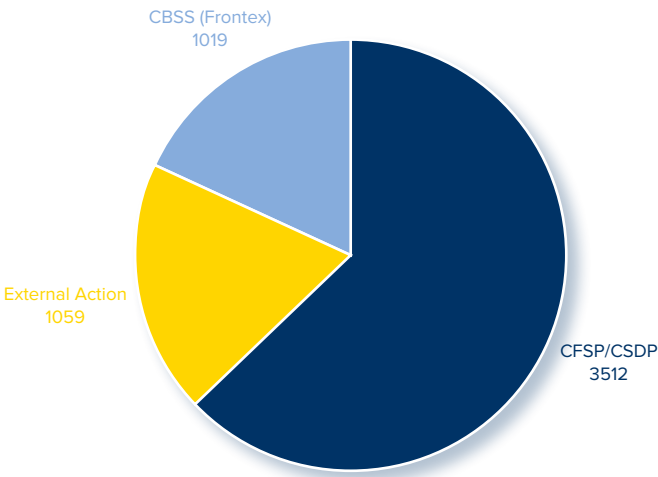


Continuing the trend of recent years, the Centre’s annual production has steadily increased, reflecting both the EU’s growing ambitions in space, security, and defence, as well as the evolving geopolitical landscape.

# Operational Priorities

In 2024, SatCen’s operational activities were structured around **three key policy areas**:

Nominal Production by Service 2024



1

Core tasking under CFSP/CSDP, encompassing requests from the High Representative, EEAS/SIAC, the Council, Member States, EU Missions and Operations.

2

Support to EU External Action, including assistance to humanitarian aid efforts and support to strategic partners.

3

Collaboration in the context of other Union activities such as the Copernicus Border Surveillance Service (CBSS), supporting Frontex in enhancing border security and situational awareness.

## Core Tasking under CFSP/CSDP

As a Council agency, SatCen naturally works closely with Member States and SIAC as a key partner inside the EEAS, providing geospatial intelligence derived from the analysis of raw imagery. This critical input helps address the information needs of political decision-makers.

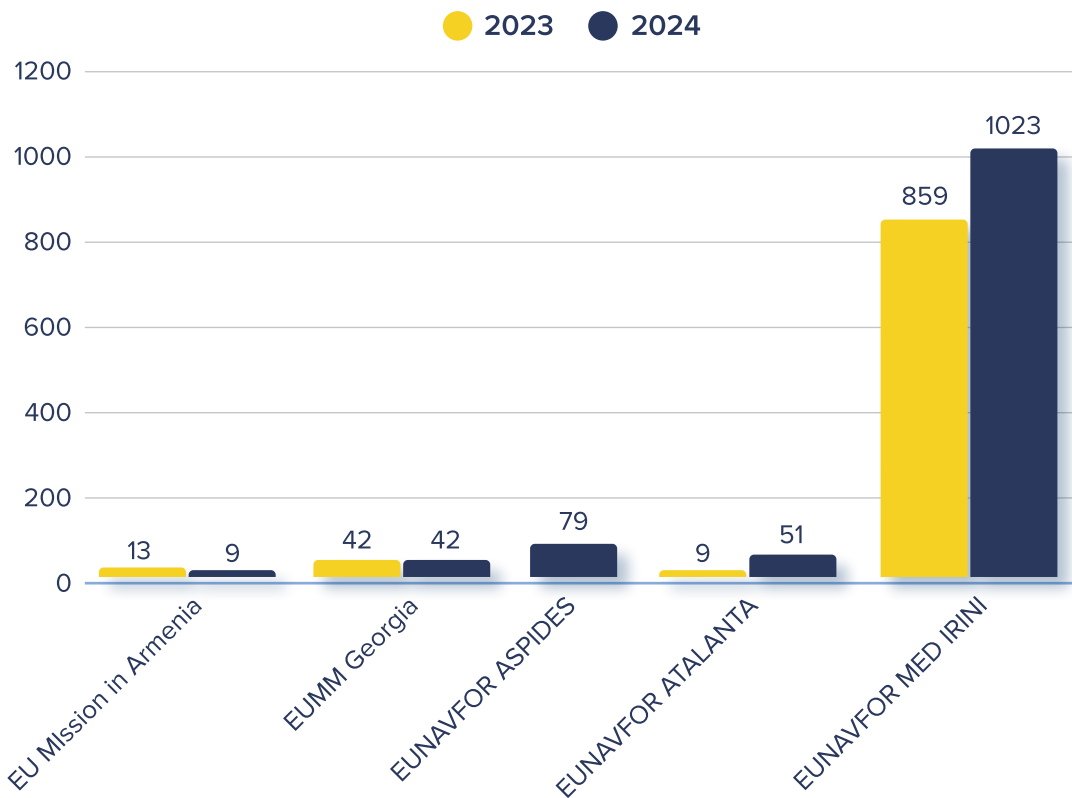
The Centre provided the fastest and most direct access to information through its GEOINT products, representing a unique geospatial collection mechanism for both the EU Intelligence and Situation Centre (INTCEN) and the EU Military Staff (EUMS). The fields of analysis covered a wide range of topics and geographic areas, including general security surveillance, analysis of military capabilities, contingency planning, critical infrastructure assessments, analysis of economic sanctions, the non-proliferation of weapons of mass destruction (WMD) and strategic foresight.

Additionally, the Centre also provided support to the Crisis Response Centre (CRC) by delivering updated information on different emergency situations, including non-combatant evacuation (NEO) operations, humanitarian aid and damage assessment.

# Support to EU Missions and Operations

EU missions and operations remain a significant focus of SatCen’s production, accounting for 22% of its total output in 2024—an 8% increase from 2023. This growth reflects the Centre’s strong commitment to supporting the EU’s operational engagements and its ability to provide timely intelligence to key users. The largest share of this support was dedicated to Operation EU NAVFOR MED IRINI, mandated to enforce the UN arms embargo on Libya. SatCen also continued its longstanding support to EU NAVFOR ATALANTA, an operation safeguarding maritime security in the Indo-Pacific and the UN World Food Programme (WFP) and other vulnerable vessels against piracy threats since 2008.

## Nominal production for EU Missions and Operations







SatCen participated in a long-range patrol during a visit to EUMM Georgia

Additionally, the Centre provided tailored geospatial intelligence to the EU Monitoring Mission (EUMM) in Georgia. By delivering detailed monitoring reports covering vast areas, SatCen enabled enhanced situational awareness that would otherwise be difficult to monitor.



©Operation Aspides

In 2024, SatCen also supported the newly launched EU naval operation, EUNAVFOR ASPIDES, which ensures the safe passage of commercial vessels in the Red Sea by providing maritime situational awareness and vessel protection when needed. The Centre supported this mandate since its inception with geospatial intelligence, thereby significantly increasing the area of surveillance and foresight capacities of the naval assets.



©EU Mission in Armenia

In 2024, the EU reinforced its commitment in the South Caucasus by launching the EU Mission in Armenia (EUMA), tasked with monitoring and reporting on the ground situation, enhancing human security, and fostering confidence-building measures between the parties. SatCen's intelligence services played a key role in these efforts and will continue to support EUMA in its mission.

Overall, SatCen's support to EU missions and operations reached a high level of maturity and robustness in 2024, demonstrating its indispensable role in EU security and defence efforts.

## Support to EU External Action

In 2024, SatCen continued to enhance its support to strategic partnerships, particularly with international organisations, in line with its mandate from the Political and Security Committee (PSC). A key partner in this regard remains the United Nations.

The Organisation for the Prohibition of Chemical Weapons (OPCW) benefited from SatCen's specialised services under the framework of the agreed collaboration within the Common Foreign and Security Policy (CFSP). These partnerships underscore SatCen's commitment to strengthening strategic partnerships, also in line with the Strategic Compass.



The Organisation for the Prohibition of Chemical Weapons (OPCW) training for readiness to provide technical assistance in the event of a chemical incident © UN, 2024

# Copernicus Service on Support to EU External and Security Actions (SESA)

SatCen’s cooperation with European Commission agencies continued to evolve, notably through the provision of GEOINT services to the Copernicus Support to EU External and Security Action (SESA - formerly SEA).

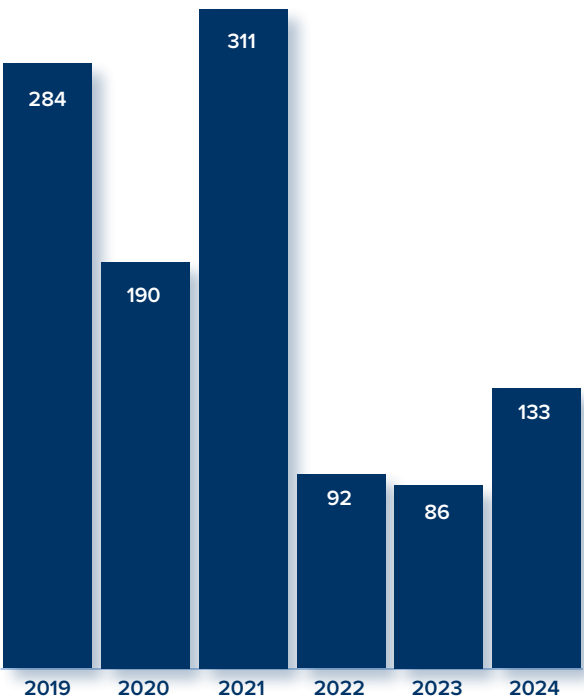
SatCen continued to serve as the Entrusted Entity for the Copernicus Service in Support to EU External and Security Action (SESA), reinforcing its role within the EU’s security architecture. As part of the Copernicus security service, SESA provides tailored geospatial intelligence derived from satellite imagery analysis, enhancing situational awareness for institutional stakeholders operating in security-related domains. This capability ensures that decision-makers receive accurate, timely, and mission-specific insights, supporting the EU’s external action and security objectives.

Beyond its vital role in ensuring the security of EU citizens—supporting contingency planning, damage assessment, humanitarian aid, and evacuations—Copernicus Support to EU External and Security Action (SESA) has also contributed to the development of new

areas of interest. In particular, its work in climate security and environmental risk analysis highlights how such factors can act as amplifiers for regional crises, reinforcing the need for proactive monitoring and response.

SatCen’s cooperation with the European Commission continues to have a strong multiplier effect, enhancing the Centre’s activities by leveraging alternative sources of funding. This partnership significantly increases the value of SatCen’s services, benefiting a wide range of institutional stakeholders and strengthening the EU’s strategic foresight capabilities.

## SEA-SESA Nominal Production



# Copernicus Border Security Service (CBSS) and Commission Agencies



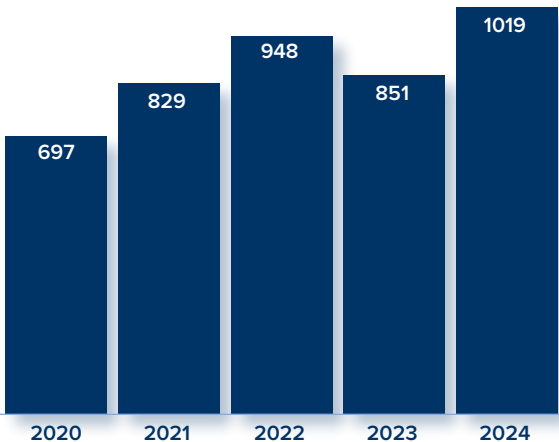
Dr. Susan Steele, Executive Director of EFCA,  
12 February 2024

As part of the European Union’s commitment to enhancing border management and security, SatCen continued to play a key role in the implementation of the Copernicus Border Security Service (CBSS) in support of Frontex. This service delivers advanced geospatial intelligence derived from satellite imagery to strengthen the EU’s situational awareness and operational response to challenges at external borders, strengthening the EU’s foresight capacity and resilience in border security.

The CBSS, delivered in support of Frontex, remained a major component of the Centre’s annual production, accounting for approximately 18% of total output.

Beyond its collaboration with Frontex, SatCen also explored potential synergies with other European Commission agencies, including the European Fisheries Control Agency (EFCA) and Europol. In 2024, the Centre initiated the process of securing formal approval for administrative arrangements to facilitate and expand these partnerships, reinforcing its commitment to enhancing cooperation in the security domain.

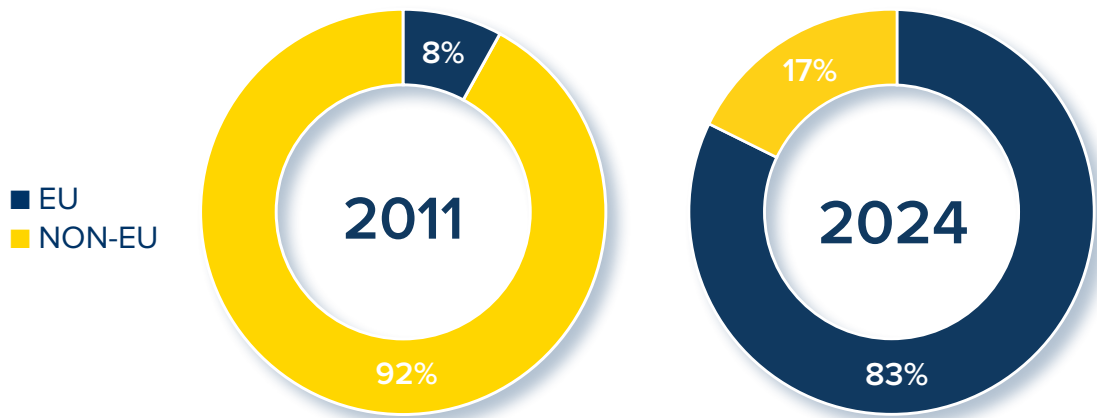
## CBSS Nominal Production





## Use and Acquisition of Satellite Data

Over the past decade, SatCen has undergone a significant transformation in its data sourcing strategy, shifting from heavy reliance on non-EU providers to predominantly using European space assets. Today, more than 80% of the satellite data used at SatCen comes from EU-based providers —a stark contrast to 2011, when only 8% was sourced from European providers. This shift not only reflects the growing maturity of the EU space sector and its ability to support the Centre’s geospatial intelligence needs but also underlines heightened European strategic autonomy.



Currently, the backbone of SatCen’s analysis comes from commercial private-sector providers, complemented by the Sentinel satellite constellation of the European Earth Observation Programme Copernicus and government satellites from EU Member States. Following the signature of agreement with the Spanish Ministry of Defence on 16 January, granting access to their national Earth Observation satellite systems, SatCen looks forward to renewing cooperation with other Member States, including France, Luxembourg, Germany and Italy. This combination ensures a diverse and resilient data supply, enabling high-precision geospatial analysis across various domains.

■ EU Sensors ■ Governmental\* ■ Commercial

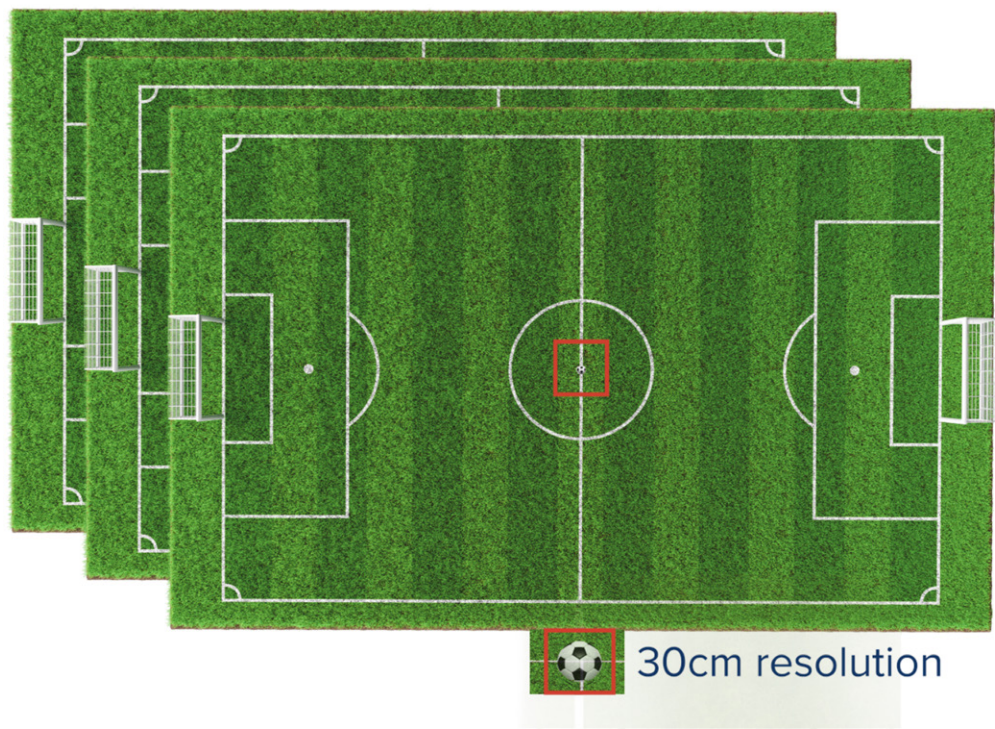


\*Agreements for new governmental systems currently under negotiation

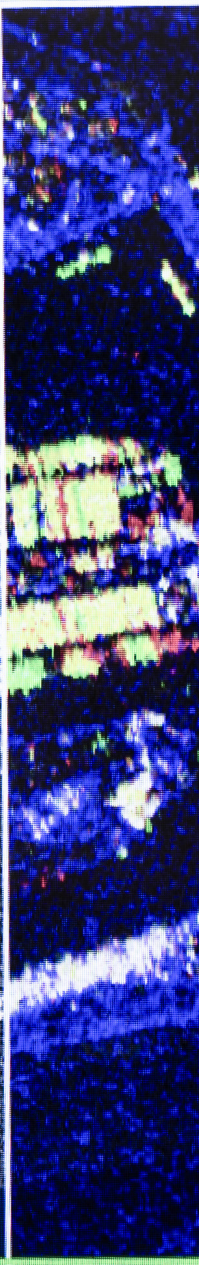
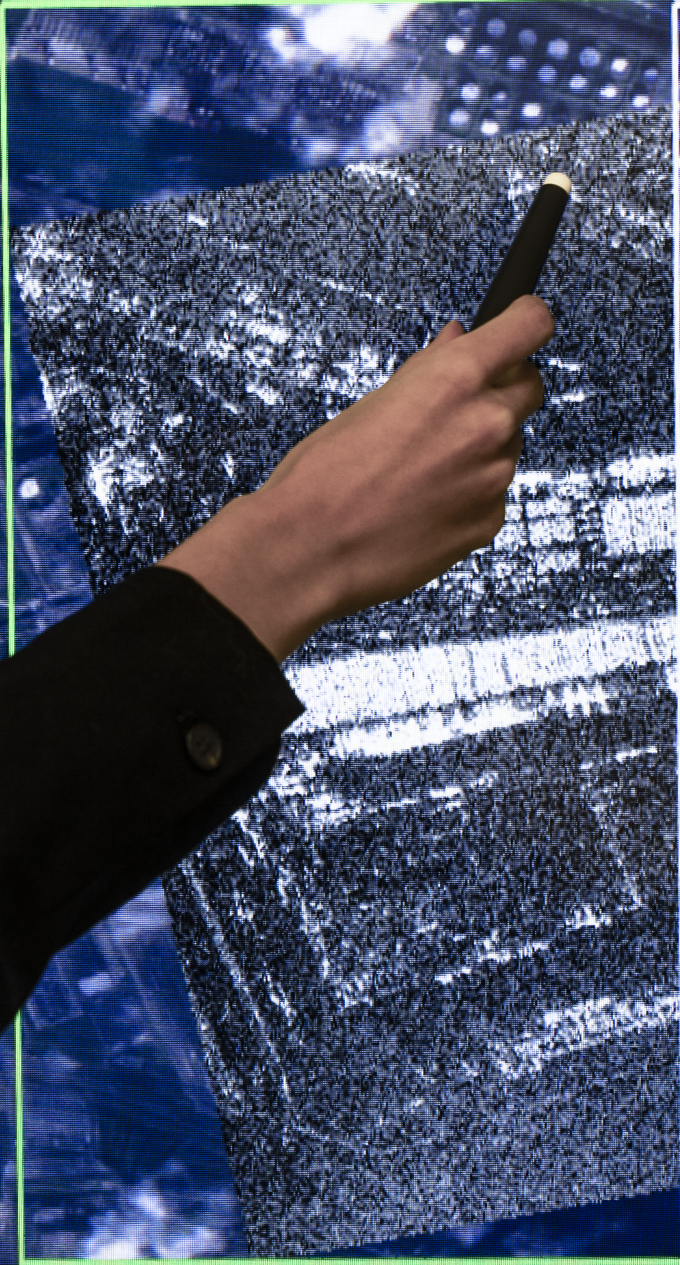
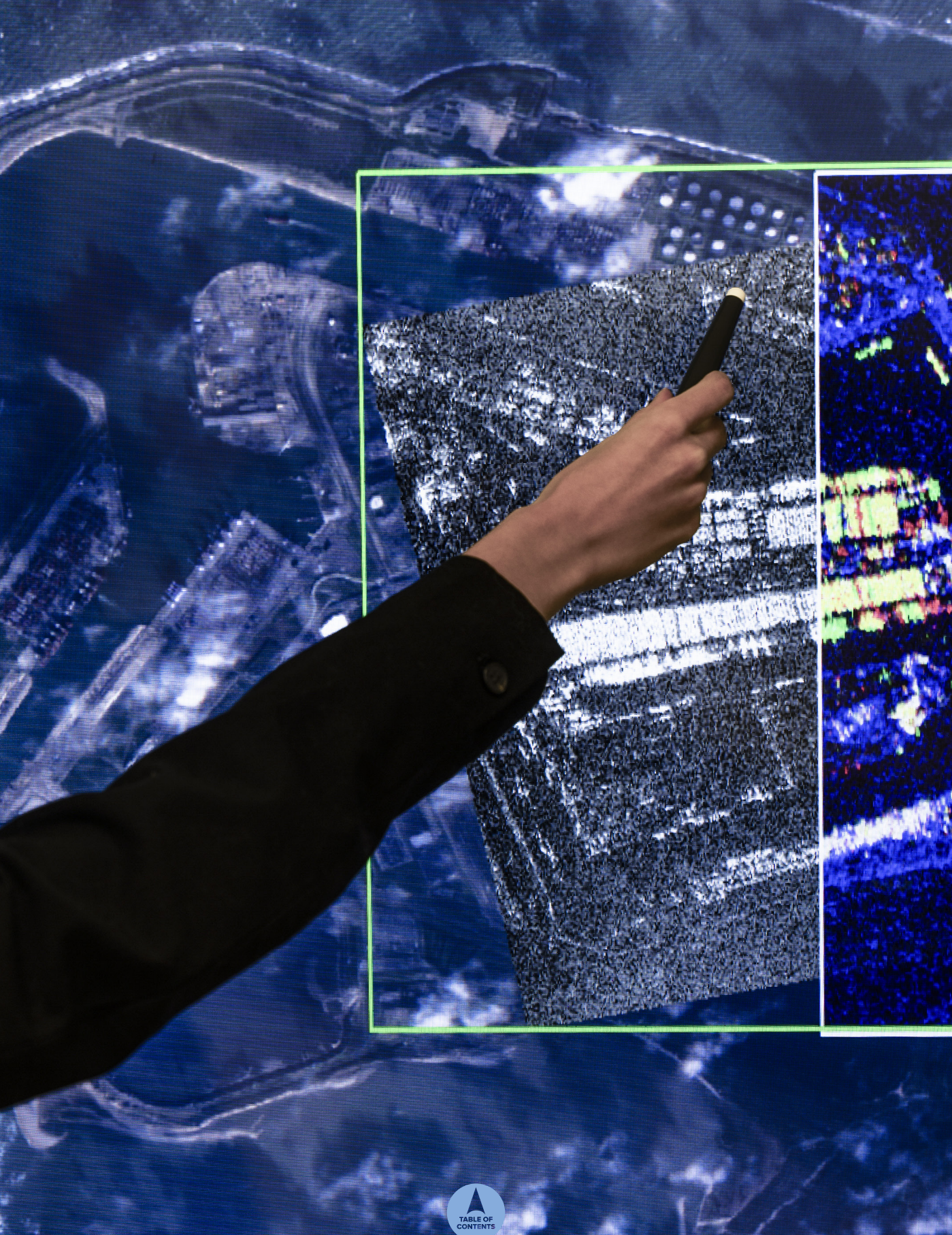
SatCen continuously evaluates its approach to data acquisition to maintain the right balance between commercial and governmental sources. While SatCen is closely working with EU Member States that possess governmental capacities, the potential new European Earth Observation governmental service (EOGS) initiative could represent a complementary key element of this strategy to strengthen EU's autonomy in accessing EO data. The current Multiannual Financial Framework (MFF) includes a pilot phase, primarily led by SatCen, aimed at demonstrating the potential of a dedicated governmental satellite service. The long-term vision is to establish a fully operational governmental capability in the next MFF cycle.

In 2024, the total budget allocated for the purchase of commercial data for core tasking is a key component of SatCen’s overall budget. This investment facilitated the acquisition of 5,660 satellite images, covering a total surface area of 700,000 km<sup>2</sup>—an area comparable to around 98 million football fields. To illustrate the level of detail, the resolution of the commercial Earth Observation satellites used by SatCen is approximately 30 cm, just slightly larger than the diameter of a standard football, which measures around 22 cm. This substantial data intake underscores the Centre’s capacity to provide timely and detailed geospatial intelligence to its stakeholders.

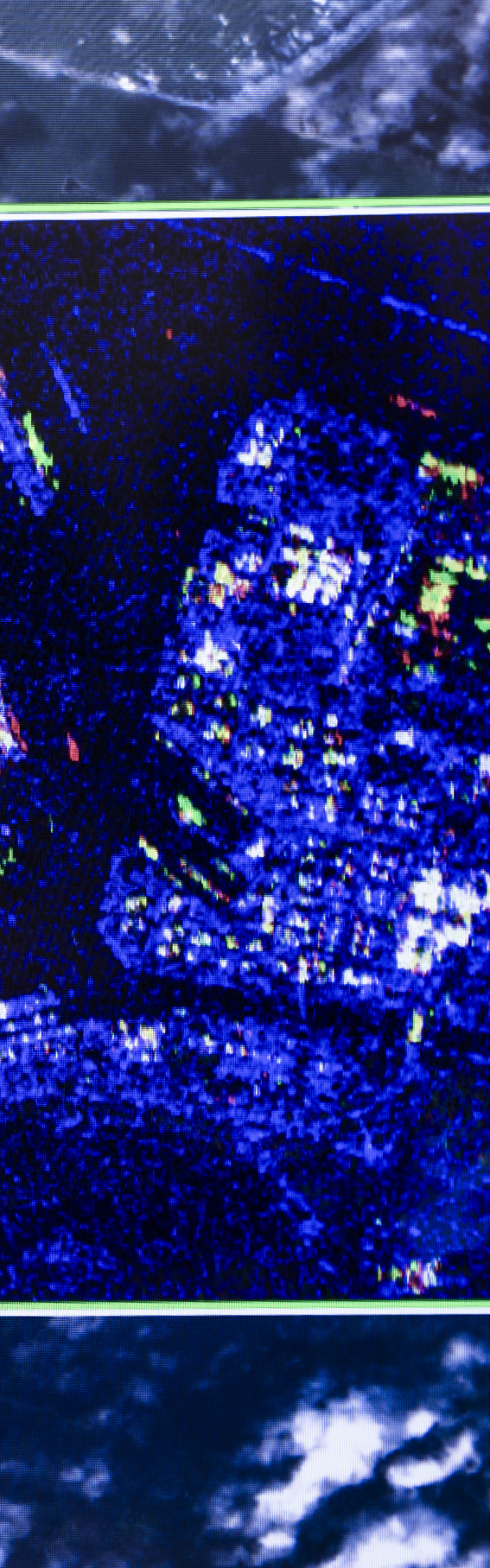
**700.000 km<sup>2</sup> = 98 Million Football Fields**











# 3.

## **CLASSIFIED IT PLATFORM**



# Operational Projects

## Digital Platform ramping up

The Digital Platform, SatCen's classified cloud infrastructure, has been fully operational since 2023, providing advanced geospatial services to the Centre's core users. This transformative platform shifts SatCen's business model from a traditional paper or PDF-based approach to an interactive, always-on system. By enabling real-time access to databases and catalogues, it enhances efficiency and responsiveness in delivering geospatial intelligence.

Throughout 2024, the platform saw a steady increase in adoption, with the number of users rising. More EU Member States and operations have joined, with additional connections in progress. The platform's capabilities have also expanded, incorporating AI-powered detection services and an interactive communications system, further strengthening SatCen's analytical and operational capacities.

The overarching objective remains to integrate all Member States, ensuring seamless access to geospatial intelligence. The platform is also set to serve as the foundation for future services, such as the European Observation Governmental Service (EOGS), reinforcing the EU's strategic autonomy in space-based security and defence.

## Electronic Tasking Tool

In 2024, SatCen developed the Electronic Tasking Tool (ETT) to streamline the processing of task requests. Designed in close collaboration with EEAS SECDEFPOL.5, the tool enhances approval workflows by ensuring security checks and feasibility assessments before tasks are seamlessly integrated into SatCen's operations.

Planned for deployment in early 2025, the ETT is set to improve efficiency by providing greater visibility of production requirements, optimising planning, and reducing manual interventions—minimising errors and accelerating task execution.

## Artificial Intelligence

In 2024, SatCen made significant advancements in its artificial intelligence (AI) domain. The AI factory became fully operational at the start of the year, streamlining model training, accelerating deployment, and continuously refining existing models. Detection models, previously limited to SatCen premises, were successfully integrated into the Digital Platform, expanding their accessibility.

Significant progress was also made in the field of artificial intelligence, including both generative AI and object detection models, directly enhancing production efficiency. AI models were developed to summarise intelligence products, suggest automatic text corrections in line with SatCen's quality standards, and provide an internal chatbot for quick information retrieval. These innovations reduced manual workload, simplifying and accelerating key processes.

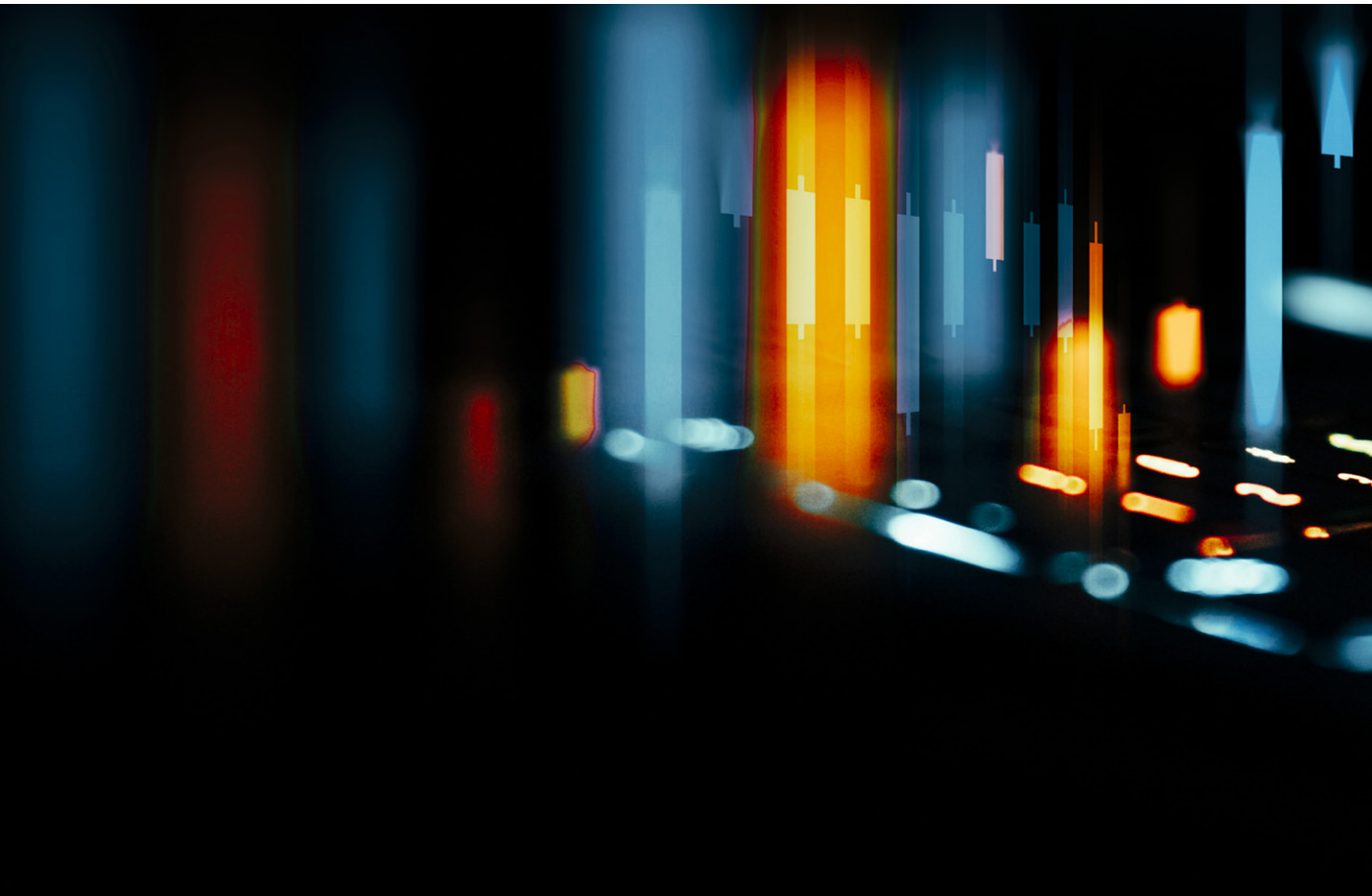


Aircraft detection and segmentation with AI

## Streamlining Analytic Work

Enhancing efficiency in administrative workflows remained a priority for SatCen in 2024, ensuring staff could dedicate more time to operational tasks while maintaining full compliance with regulations. Building on its long-standing paperless approach, the Centre introduced new digital tools and refined existing ones to further reduce administrative burdens.

One key improvement was the digitalisation of the annual staff appraisal process, which had previously been one of the last paper-based procedures at SatCen. A new web-based tool was implemented to manage the multi-step workflow, significantly streamlining the process. This resulted in a one-month reduction in overall completion time compared to 2023, while providing greater transparency for the Administration Division.





Additionally, electronic signature workflows were enhanced. While digital signatures had been in use since 2020, the process was still reliant on emails for managing approvals. In 2024, a dedicated web-based tool was introduced to automate the signature workflow for invoices and financial document processing. This not only reduced handling efforts but also accelerated payment procedures, improving overall efficiency.





# 4.

## **CAPDEV & COOPERATION**

# Development of Space, Security and Defence Capabilities

## Developing Operational Interinstitutional Cooperation

In 2024, SatCen reinforced its collaboration with the European Commission, particularly in the Copernicus component of the EU Space Programme. The Centre remained entrusted with the Copernicus Support to EU External and Security Actions (SESA) service and maintained a Service Level Agreement (SLA) with Frontex under the Copernicus Border Surveillance Service (CBSS). SatCen also contributed to shaping the research and innovation (R&I) priorities of the Copernicus Security Service through the strategic research agenda and participated in EU-funded R&I projects.

### Copernicus SESA

In 2024, Copernicus SESA strengthened its operational implementation and user engagement, resulting in increased tasking and production. A key milestone was the signing of the framework contract for geospatial product delivery in March.

SatCen contributed to key advisory groups for Sentinel missions and participated in the ROSE-L Analysis Ready Data Working Group. User awareness was boosted through events like the first Copernicus SESA Workshop, drawing over 60 participants, and outreach at the Copernicus User Forum, Environmental Crimes Workshop, and EU Space Networks.

To enhance visibility, a new visual identity, dedicated website, service portfolio, and promotional video were launched. A broad info campaign engaged multiple EU agencies and DGs.

Strategically, SatCen contributed to shaping the Copernicus Security Service research agenda and integrating emerging data sources, such as radio frequency data, into contributing missions.



Copernicus SESA: Policy Areas

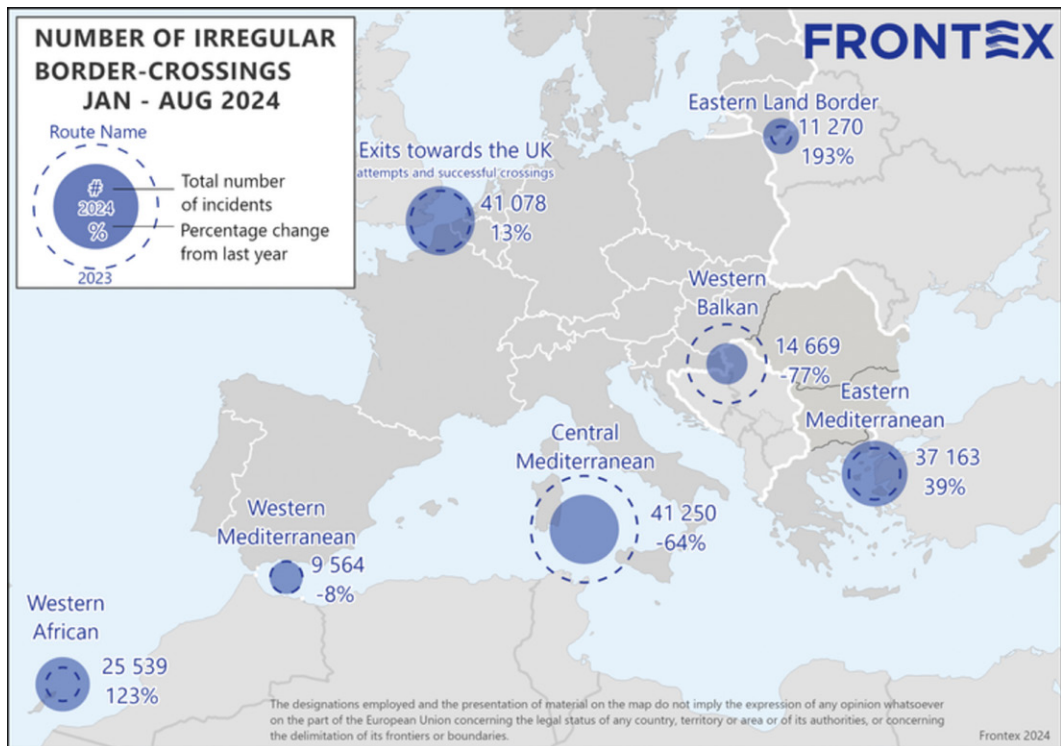


## Support to Frontex for CBSS

Since 2015, SatCen has been a key partner to Frontex, delivering over 6,425 geospatial intelligence products to support efforts in border surveillance, irregular migration prevention, cross-border crime, and search and rescue. A new Working Arrangement (WA) and Service Level Agreement (SLA) signed in December 2023 paved the way for an expanded service portfolio launched in 2024.

In October, SatCen joined the EUROSUR Fusion Services (EFS) Validation Exercise, testing surveillance tools in real-world conditions with Polish authorities. A joint procurement was also initiated to adapt the Electronic Tasking Tool (ETT) to Copernicus SESA and CBSS protocols.

The CBSS SLA included R&I components focused on European Integrated Border Management, such as satellite communications, advanced border technologies, and new Earth Observation (EO) data systems. Regular exchanges explored joint innovations, including Radio Frequency (RF) monitoring, High Altitude Platform Station (HAPS), Digital Twin Earth, and maritime surveillance applications—further reinforcing SatCen’s role in EU border security.



FRONTEx Migratory Map (Jan - Aug 2024)

## Expanding Cooperation with European Agencies

### European Defence Agency (EDA)

SatCen and EDA advanced their cooperation through the annual roadmap, participating in key projects such as GISMO/GeoHuB for geospatial data management, MARSUR for maritime situational awareness, and MATRIX for defence intelligence solutions. The new Digital Twin Earth for Defence and Security (DTE4DS) initiative also launched, further strengthening joint efforts.



### European Space Agency (ESA)

A new ESA-SatCen Administrative Arrangement was signed in May 2024, reinforcing long-term collaboration on data access, emerging technologies, and pilot projects.

### European Maritime Safety Agency (EMSA)

Cooperation with EMSA focused on maritime security, particularly through the CISE and CISE-Alert projects. SatCen participated in the CISE High-Level Event, discussing civil-military cooperation in maritime safety. Continued engagement with DG MOVE explored access to IMS data, which would greatly enhance services provided to EU missions such as IRINI, ASPIDES, and ATALANTA



### European Fisheries Control Agency (EFCA)

SatCen's longstanding partnership with EFCA strengthened in 2024, with efforts to formalise an Administrative Arrangement. EFCA was actively involved in Copernicus SESA and, by the end of the year, was designated by DG MARE as the requesting party for fisheries control, reinforcing its role in European maritime surveillance.

### Group on Earth Observations (GEO)

Within the Group on Earth Observation, SatCen continued to lead the Space Security Pilot Initiative, supporting international objectives such as the UN Sustainable Development Agenda, the Sendai Framework, and the Paris Agreement.



# Advancing European Security Through Innovation

## Common Hub for Governmental Imagery (CoHGI)

In 2024, SatCen reaffirmed its commitment to contribute to European security and defence initiatives through collaborative efforts, notably through its involvement in the Common Hub for Governmental Imagery (CoHGI) initiative. This initiative could aim to establish a common hub to facilitate the exchange of governmental imagery catalogues at European level between Member States and SatCen. This effort could enhance geospatial intelligence capabilities and could align with projects such as SPIDER and the potential new EOGS initiative, supporting future European geospatial services.

## Space based Persistent ISR for Defence and Europe Reinforcement (SPIDER)

Under the European Defence Fund (EDF), the SPIDER project progressed in designing a space-based Earth Observation System-of-Systems (SoS) to improve intelligence, surveillance, and reconnaissance (ISR) capabilities. By integrating existing and future European satellites, SPIDER enhances revisit rates, reactivity, and autonomous re-tasking, strengthening Europe's security autonomy.

## Earth Observation Governmental Service (EOGS) Pilot

SatCen continued its mid-term activities for the EOGS pilot, including stakeholder engagement and security accreditation discussions. In the long term, SatCen played a key role in DEFIS Advisory Group feasibility studies, ensuring its expertise in GEOINT, secure cloud infrastructure, and user needs are central to a possible future EOGS implementation.

## Research and Innovation

In 2024, SatCen's research and innovation (R&I) efforts focused on enhancing operational capabilities by leveraging technological advancements across the entire Earth Observation (EO) value chain. These activities aimed to improve user experience, expand data access, integrate advanced technologies, refine data processes, and address evolving security challenges.

### Enhancing User Experience and Service Delivery

SatCen advanced its platform-based approach, integrating services within GeoHub and GEO-DAMP to improve access, timeliness, and usability. The Climate and Environment Security Data and Analysis Hub (CESDA) progressed towards a proof of concept, aiming to strengthen climate-security intelligence and decision-making.

### Expanding Data Access and Exploitation

SatCen worked to broaden its exploitable data catalogue, incorporating multi-sensor satellite constellations and air-based EO sources. Key projects included PERIVALLON (maritime surveillance) and GEONAW (protection against PNT threats).

### Advancing Technology Integration

SatCen explored AI-driven solutions, digital twins, and knowledge graphs to enhance data analysis. Notable projects included EMBED2SCALE, which advanced AI-based vessel tracking, and INTSEN2, which developed super-resolution algorithms for satellite imagery.

### Optimising Data Processing

Efforts focused on automated detection and risk assessment, such as EMBED2SCALE for vessel tracking and ATLANTIS for infrastructure risk monitoring.

### Addressing Emerging Security Challenges

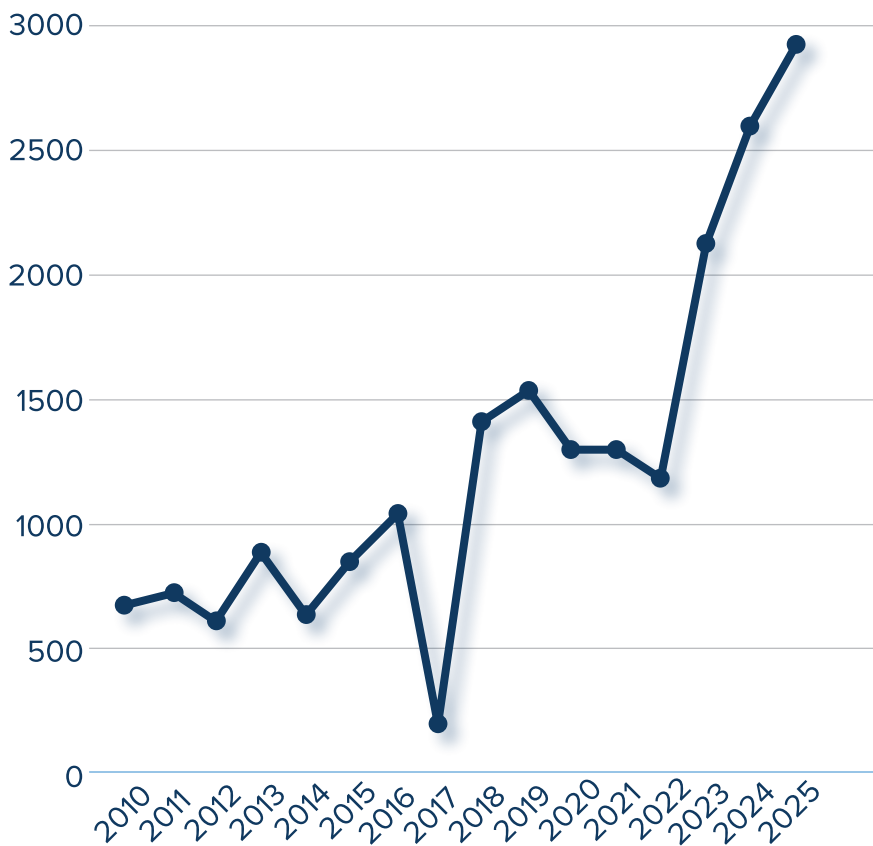
R&I activities aligned with evolving EU security needs, prioritising maritime surveillance (EMBED2SCALE, EURMARS), climate security (CESDA, CENTAUR, SDGs-EYES), environmental compliance (PERIVALLON), cultural heritage (RITHMS) and Arctic security (ARCOS).



# Training and Capacity Building

In 2024, SatCen’s training unit focused on strengthening expertise in geospatial intelligence, both for SatCen staff and Member State personnel. Training covered key domains such as GEOINT, IMINT, Synthetic Aperture Radar (SAR), Nuclear Fuel Cycles, and data processing. These specialised courses fostered synergies by educating users on how to tailor requests and interpret SatCen services effectively. By promoting a common analytical approach across the EU security ecosystem, the training programme enhanced interoperability and collaboration in geospatial intelligence.

Number of Attendees x Days to SatCen Training Courses







# 5.

## **EFFECTIVE RESOURCE MANAGEMENT**

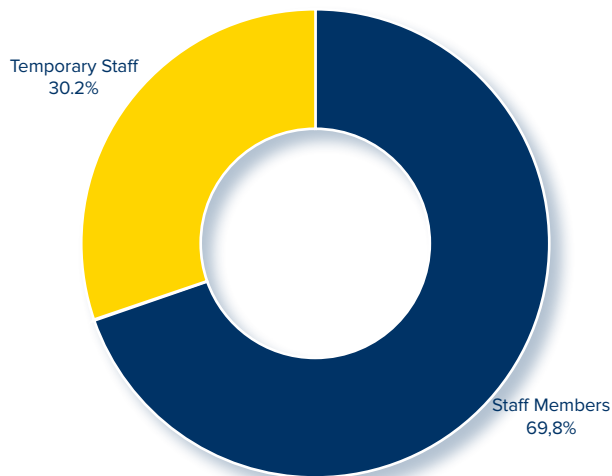




# Human Resources Development

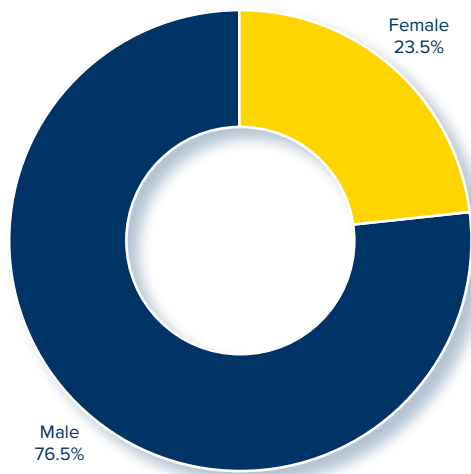
By the end of 2024, SatCen employed 149 highly skilled professionals, with 104 in permanent positions and 45 in temporary roles. The number of seconded national experts (SNEs) increased from 13 to 15, with participation expanding from 7 to 9 Member States, including Bulgaria, Czechia, Estonia, Hungary, Italy, Poland, Romania, Slovakia, and Slovenia. Additionally, 10 trainees contributed to the Centre’s activities throughout the year.

Composition of SatCen Staff - by Type of Post



SatCen strengthened recruitment efforts through university partnerships, institutional outreach, job fairs, and targeted digital campaigns, enhancing awareness of career and traineeship opportunities. These initiatives significantly broadened geographical representation and improved gender balance, with the number of candidate nationalities rising from 6 in 2022 to over 20 in 2024. Female participation also grew, particularly among trainees, with the overall female workforce reaching 23.5%, slightly above industry averages. SatCen staff now represent 20 Member States, reflecting the Centre’s commitment to diversity and excellence in supporting its mission.

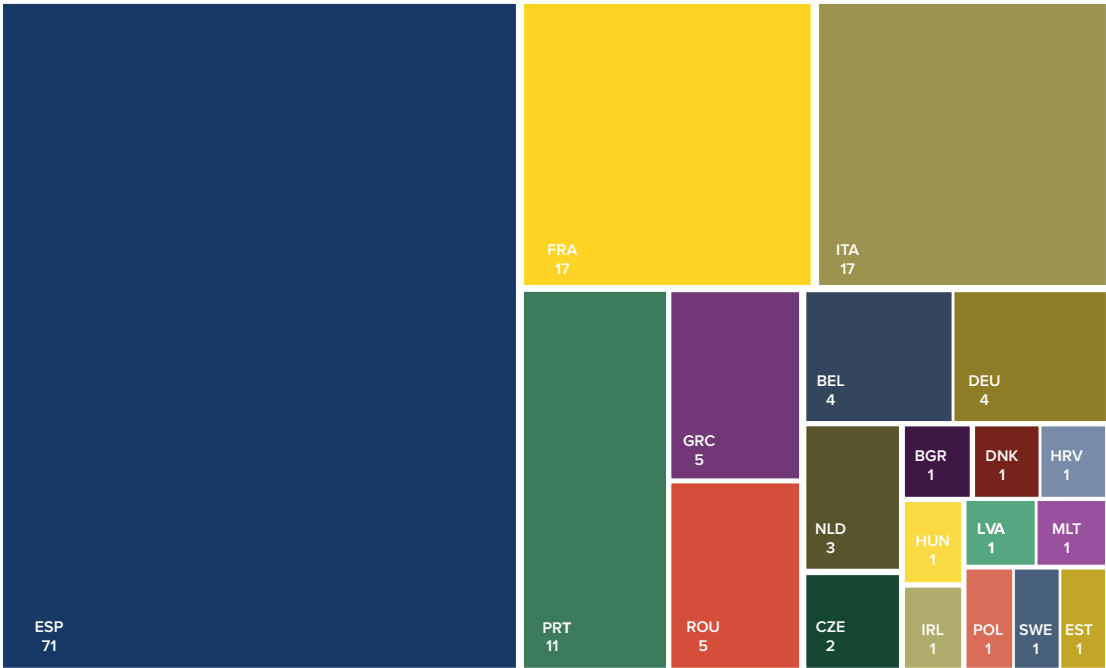
Composition of SatCen Staff by Gender





Staff well-being, diversity, and inclusion remained key priorities in 2024. To foster a respectful and supportive work environment, all staff received training on the prevention of harassment and burnout, while senior management participated in a dedicated session on inclusive leadership. A Well-being Working Group was established to support employees' physical and mental health. Additionally, CPR and first aid training sessions were offered to all staff, and a survey on mental health was conducted to further inform well-being initiatives.

Composition of SatCen Staff by Nationality



## General Services

Ensuring modern, secure, and efficient facilities is essential for SatCen's operational effectiveness. In 2024, key infrastructure improvements included the renovation of the entrance hall, office space reorganisation to accommodate new staff, enhanced evacuation routes, waterproofing of the second-floor roof, and soundproofing of offices. Additional measures included upgraded signage, modernisation of the public address system, and the installation of a photovoltaic panel field, expected to supply 20% of SatCen's annual electricity needs. Further efforts to optimise natural resource consumption, including water conservation initiatives, were supported by staff awareness campaigns on environmental protection.



# Communications

In 2024, SatCen's communication team reinforced the Centre's reputation as a leading provider of GEOINT analysis and an attractive employer. Outreach efforts targeted key stakeholders, including SatCen users, EU and Member State decision-makers, international organisations, and the wider security, defence, and space communities.

## Strengthening SatCen's Position in the EU Ecosystem

Communication activities aligned with the strategic vision of the EU High Representative, highlighting SatCen's role as a critical agency for strengthening the EU's situational awareness in security and defence. Engagements underscored the Centre's contribution to CFSP/CSDP decision-making and reinforced its position as an autonomous EU entity.

## Modernising SatCen's Visual Identity

A major milestone in 2024 was the introduction of a refreshed visual identity, including a new logo. This evolution modernised SatCen's image while maintaining continuity. The update was progressively implemented across official documents, presentations, signage, and the website, ensuring consistency with contemporary EU aesthetics.

## Engaging with Partners

SatCen actively participated in high-profile events, showcasing its expertise in geospatial analysis. Key engagements included the Space Conference, the

Schuman Security and Defence Forum, and the STORM TIDE 24 exercise under the Belgian EU Presidency. The Centre also contributed to discussions at the Berlin Security Conference, the Space Defense and Security Summit, and the CISE High-Level Event.

## Media Outreach and Public Engagement

SatCen actively engaged with trusted media to ensure accurate representation of its work. Notable interviews included former Director [Ducaru's discussion with Euractiv](#) on geopolitical challenges and a feature in The European titled ['Europe's Eyes in the Sky'](#). Additionally, IHEDN highlighted the Centre's role in ['SatCen: Europe's Hub of Geospatial Intelligence'](#). Further reinforcing SatCen's strategic importance, the former High Representative published ['Sharpening Europe's Eyes in the Sky' on the EEAS website](#).

## Expanding Social Media Presence

Social media played a crucial role in raising awareness, promoting SatCen as a cutting-edge employer, and enhancing educational outreach.

A strong focus on modern audiovisual formats, such as explanatory videos and infographics, increased engagement.

SatCen also contributed to EU-wide initiatives, promoting key international days like GIS Day and World Maritime Day, further expanding its network within the security, defence, and space communities.

## SatCen Logo Evolution



# Legal, Data Protection and Procurement

On procurement, SatCen launched 36 procedures in 2024, amounting to a total of EUR 16.5 million. These included nine high-value contract procedures—five open, two restricted, and two exceptional negotiated procedures.

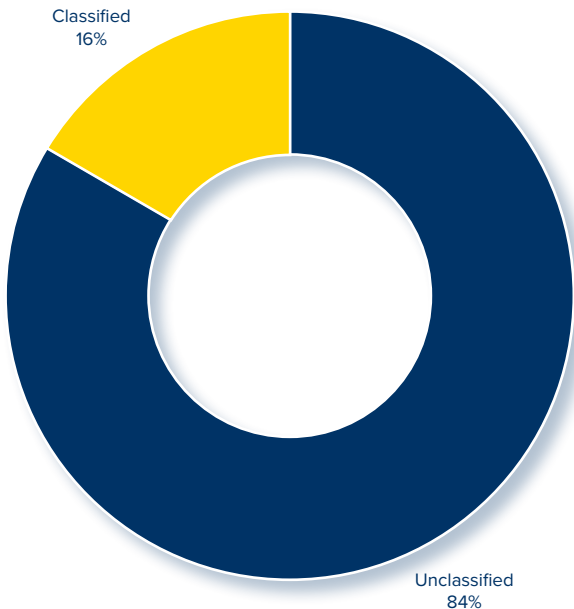
In the legal domain, the Data Protection Officer (DPO) conducted awareness training sessions on generative AI, data protection, and other legal topics for all staff. New employees also received a dedicated data

protection induction training as part of their onboarding, ensuring compliance with SatCen’s regulatory framework.

## Registry

In 2024, the registry managed 3,251 documents across classified and unclassified networks, maintaining a consistent trend from previous years.

### Documents handled by Registry in 2024





# Financial Management

The 2024 budget reflected a 6.63% increase in expenditure and a 2.71% rise in income, resulting in a 14.41% overall increase in Member State contributions to SatCen’s General (15.33%) and Pensions Budget (5.87%). This increase aligned with the SatCen Work Programme 2024 and the Baseline Augmented Development Plan endorsed by the Board in 2021. Given the evolving political and strategic landscape, these factors shaped the budget’s development.

Beyond the strategic context, key considerations in the 2024 budget included:

**Rising User Demand:** The quality, complexity, and speed of SatCen’s analysis products must meet increasing requests from EEAS/SIAC, Member States, strategic partners, EU missions and operations (via the European Peace Facility), and the UN.

**Development Plan Investments:** No additional CAPEX funds were required in 2024, following previous financial injections.

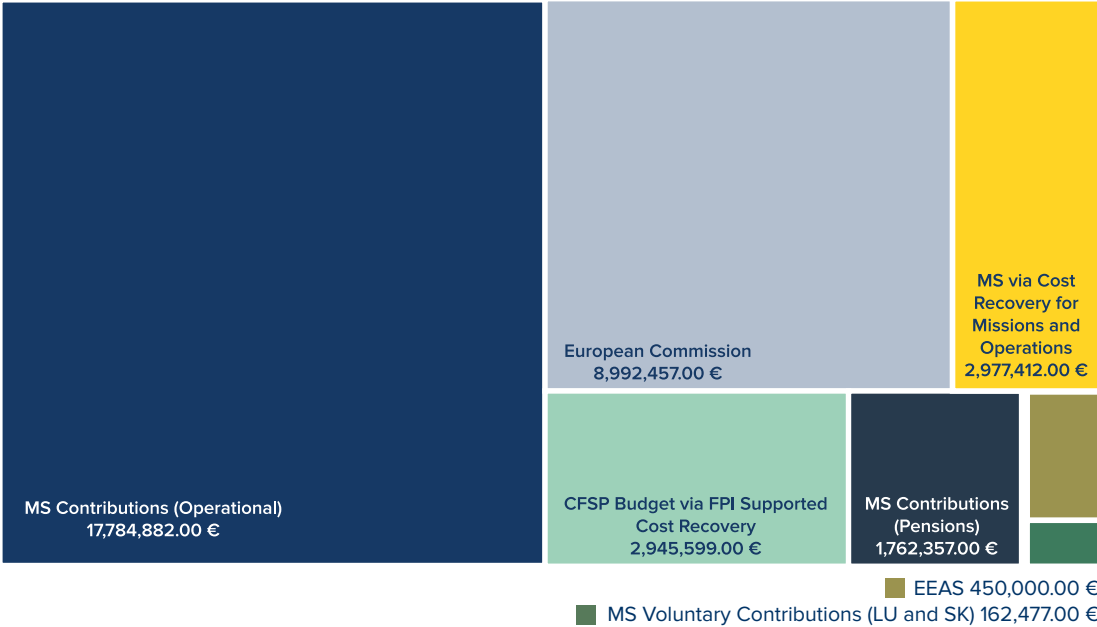
**Technology Upgrades & Innovation:** Continuous improvement of SatCen’s capabilities, particularly in secure IT services.

**Key Agreements:** Implementation of the Copernicus SESA Contribution Agreement (signed 29 August 2023), as well as agreements with Frontex (WA and SLA).

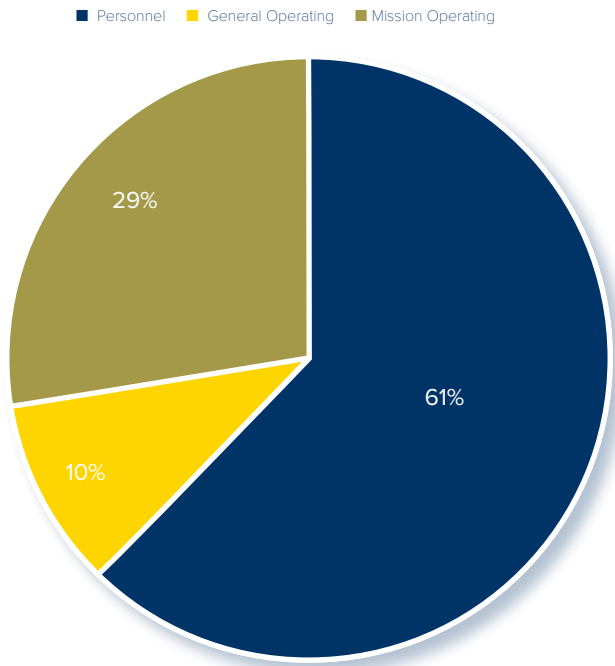
**Inflation Impact:** Financial pressures stemming from the economic consequences of Russia’s war of aggression against Ukraine.

Additionally, SatCen’s data budget for core tasks benefited from voluntary contributions of EUR 500,000 from Luxembourg and EUR 10,000 from Slovakia.

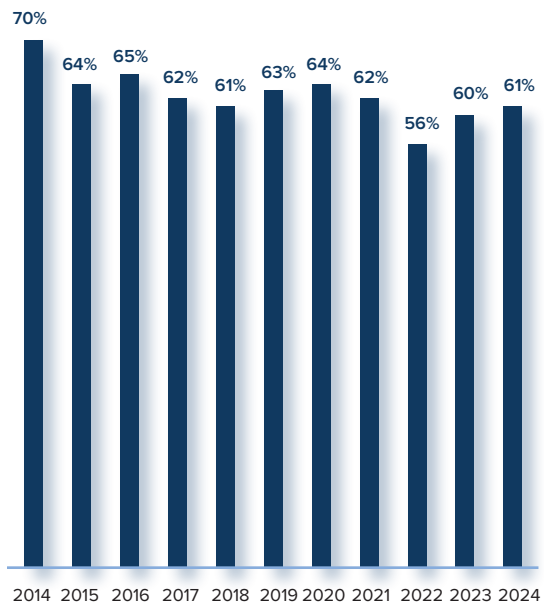
## SatCen Total Funding 2024



The graph below illustrates the relative weight of personnel costs, highlighting the critical role of SatCen’s analytical expertise in delivering high-quality geospatial intelligence products and services.

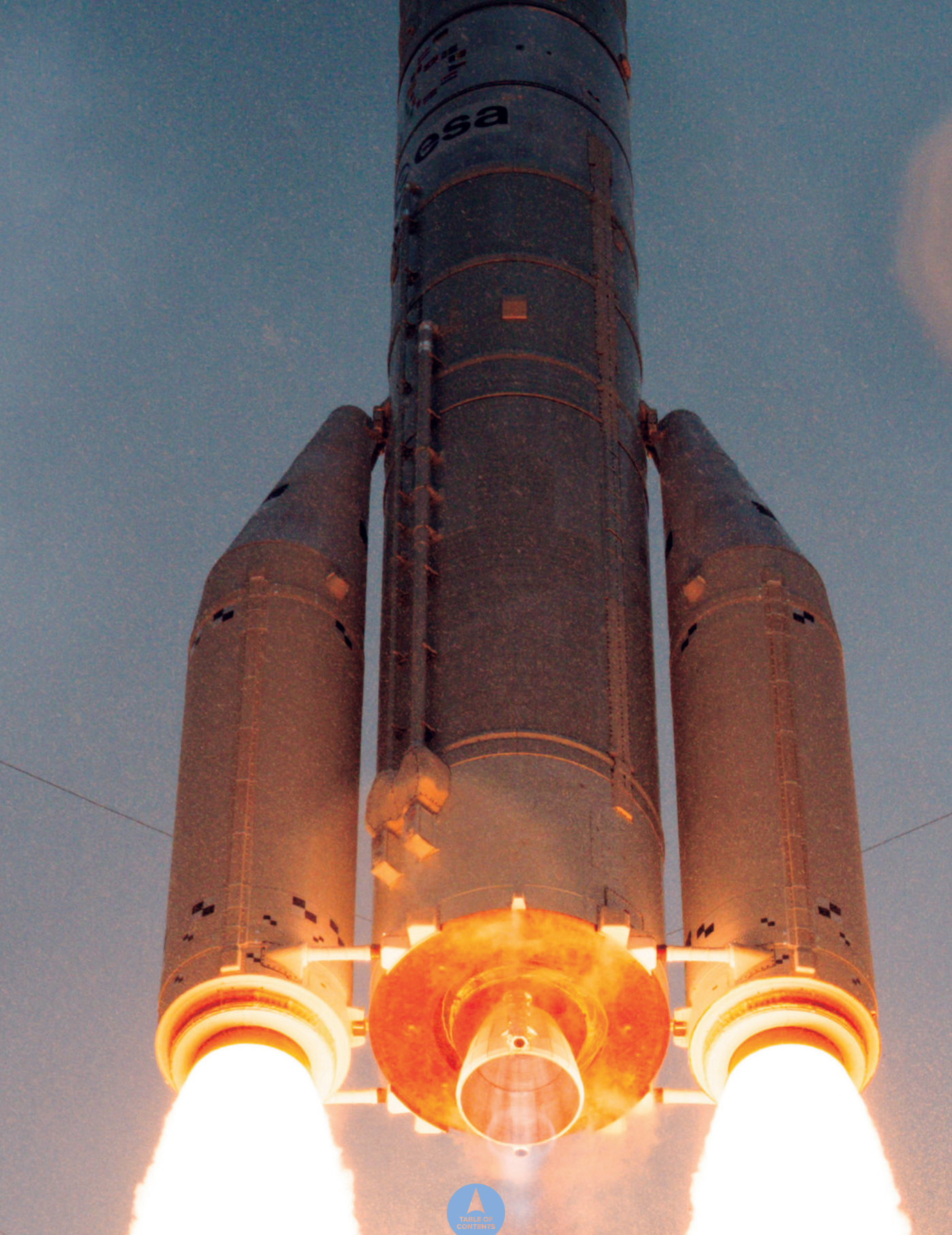


The following chart displays the evolution of personnel costs over total expenditure.



Executed in 2024, the 2023 College of Auditors (CoA) closing accounts received a very positive auditor's report, confirming full compliance with SatCen's financial rules and Financial Manual. The College of Auditors provided the overall opinion that the final accounts fairly represented SatCen's financial position and performance as of 31 December 2023. Furthermore, all transactions and information were in material compliance with financial regulations.

During the 149th Board meeting on 4 October 2024, the SatCen Board approved the designation of two members of the College of Auditors to oversee audits for SatCen, its SatCen WEU Residual Administrative Tasks Unit, and external projects for the 2024, 2025, and 2026 financial years.







# Way Forward

In parallel with its intense operational activity, the Centre has dedicated significant time to preparing for rapidly evolving situations. This preparation involves not only technical issues, particularly regarding space and IT systems, but also encompasses other critical aspects. One of the main lessons learnt from the war in Ukraine is that security and defence actors must be ready to scale up, and to deliver in high volumes. Reaching a scalable model has been driving SatCen's organisation in all aspects, especially operational and administrative processes. Finding and training the necessary workforce in a very competitive and highly skilled sector requires a substantive effort in recruitment and training.

Everything has been prepared following extensive discussions with Member States to build the Development Plan 2025-2029, adopted by our Board in early 2025. It gives us clear guidelines to be more sustainable despite the volume and intensity of activity, to strengthen our data acquisition strategy and IT systems, and to prepare for emerging or heightened challenges, in areas such as the non-proliferation of nuclear weapons, maritime security, the climate and security nexus, and hybrid threats.

Lastly, we are convinced that better cooperation and collaboration within the European Union can achieve great things. Our tools and our methods are built on this assumption; working together, and always under the political guidance of the Member States, for the security of the Union and its citizens.

**AA** – Administrative Agreement

**AI** – Artificial Intelligence

**CBSS** – Copernicus Border Surveillance Service

**CESDA** – Climate and Environment Security Data and Analysis Hub

**CFSP** – Common Foreign and Security Policy

**CISE** – Common Information Sharing Environment

**CoA** – College of Auditors

**CoHGI** – Common Hub for Governmental Imagery

**CRC** – Crisis Response Centre

**CSDP** – Common Security and Defence Policy

**DG** – Directorate-General

**DG DEFIS** – Directorate-General for Defence Industry and Space

**DG MARE** – Directorate-General for Maritime Affairs and Fisheries

**DPO** – Data Protection Officer

**DTE4DS** – Digital Twin Earth for Defence and Security

**EDA** – European Defence Agency

**EDF** – European Defence Fund

**EEAS** – European External Action Service

**EFCA** – European Fisheries Control Agency

**EFS** – EUROSUR Fusion Services

**EMSA** – European Maritime Safety Agency

**EO** – Earth Observation

**EOGS** – Earth Observation Governmental Service

**EOW** – EU Operational Network

**EPF** – European Peace Facility

**ESA** – European Space Agency

**ETT** – Electronic Tasking Tool

**EU** – European Union

**EUMM** – European Union Monitoring Mission

**EUMS** – EU Military Staff

**Frontex** – European Border and Coast Guard Agency

**GEO** – Group on Earth Observation

**GEO-DAMP** – Geospatial Data Management Platform

**GEOINT** – Geospatial Intelligence

**GIS** – Geographic Information System

**GISMO** – Geospatial Information to Support decision-Making in Operations

# ANNEX 1. ABBREVIATIONS

**HAPS** – High Altitude Platform Stations

**HR/VP** – High Representative/Vice President

**IHEDN** – Institute for Advanced Studies in National Defence

**IMINT** – Imagery Intelligence

**IMS** – Integrated Maritime Services

**INTCEN** – EU Intelligence and Situation Centre

**ISR** – Intelligence, surveillance and reconnaissance

**IT** – Information Technology

**MARSUR** – Maritime Surveillance

**MATRIX** – Multi-INT Analytics for Tactical Operations

**MFF** – Multiannual Financial Framework

**NEO** – Non-combatant Evacuation Operation

**OPCW** – Organisation for the Prohibition of Chemical Weapons

**PERIVALLON** – Protecting the EuRopean territory from organised enVironmentAl crime through inteLLigent threat detectiON tools

**PNT** – Positioning, Navigation and Timing

**PSC** – Political and Security Committee

**R&I** – Research and innovation

**RF** – Radio Frequency

**SAR** – Synthetic Aperture Radar

**SatCen** – European Union Satellite Centre

**SEA** – Support to EU External Action (Copernicus)

**SECDEFPOL** – Security and Defence Policy

**SESA** – Support to EU External and Security Actions (Copernicus)

**SIAC** – Single Intelligence Analysis Capacity

**SLA** – Service Level Agreement

**SNE** – Seconded National Expert

**SoS** – System-of-Systems

**SPIDER** – Space based Persistent ISR for Defence and Europe Reinforcement

**UN** – United Nations

**WA** – Working Arrangement

**WEU** – Western European Union

**WFP** – World Food Programme

**WMD** – Weapons of Mass Destruction



## SATCEN'S IMINT & GEOINT TRAINING YEAR 2024

### WHO WE SUPPORT

- Provision of training to EU institutions, Member States and all SatCen staff.

### SUBJECT:

- Training that supports the core business of the SatCen, primarily imagery and geospatial analysis.

### COURSES:

- Delivery of our annual in-house, imagery and geospatial analysis training.
  - Customised in-situ imagery analysis training.
  - Training support (guest speakers)
- Development of SatCen training support to EU institutions and international Organisations

Four-week  
Course

#### FORMATION INITIALE IMINT

Initial, foundation training for Image Analysts from the SatCen and from Member States in areas related to defence and security

Two-week  
Course

#### DATA PROCESSING

The entire process of imagery and other sensor-derived data (DTM, DEM, ...) acquisition, processing and preparation for the use of the image Analyst at the workstations

Two-week  
Course

#### SAR SYNTHETIC APERTURE RADAR

Provides initial foundation training, followed by more advanced training for the exploitation of SAR imagery in the field of defence and security

Three-week  
Course

#### INDUSTRIAL INSTALLATIONS

Provides imagery analysis training for the interpretation of selected industrial installations using satellite and aerial imagery

Three-week  
Course

#### GEOSPATIAL INTELLIGENCE - GEOINT

Provides and introduction to the use of GIS tools and advanced techniques for the generation of Geo-spatial intelligence products and services

Two-week  
Course

#### NUCLEAR FUEL CYCLE AND NUCLEAR WEAPONS RELATED FACILITIES

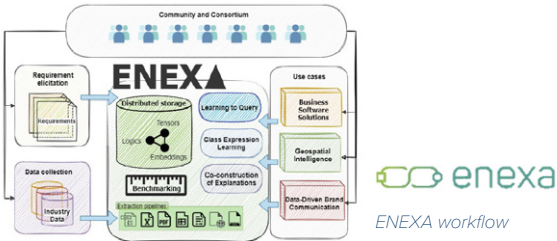
Provides theoretical and practical instructions on involved in the Nuclear Fuel Cycle (NFC) and in the development and deployment of nuclear weapons

**Six courses** divided into **sixteen weeks**, are taught in our *Classified premises* at SatCen. More than 120 students attend the different modules of the courses in a academic year.

# ANNEX 3. R&I PROJECTS OVERVIEW

## ENEXA

Efficient Explainable Learning on Knowledge Graphs



- ☒ Extension of the service offer and user experience
- ☐ Enlargement of the exploitable data catalogue
- ☒ Exploration of advanced technologies
- ☒ Enhancement of data-related processes
- ☐ Evolution of application areas

### Project scope

- To implement human-centred explainable machine learning approaches for real world knowledge graphs.
- To design and develop three different use cases (i.e. brand communication, business processes, and GEOINT) that demonstrate and validate the implemented solutions.

### SatCen role

- To coordinate the gathering of user requirements for all use cases.
- To implement the GEOINT Use Case using knowledge graphs to improve feature classification in satellite imagery.

### Outcomes for SatCen

- Acquisition of practical know-how in using knowledge graphs for geospatial analysis

### Time span

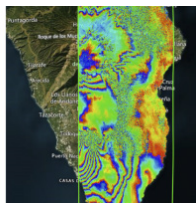
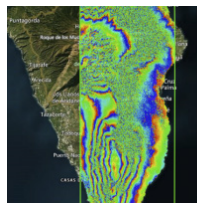
### Framework

- October 2022 - September 2025
- EC Horizon Europe

# ATLANTIS

Improved resilience of Critical Infra Against Large scale transNational and sysTemic rISks

## ATLANTIS



Example of InSAR processing to be adapted for an ATLANTIS large scale pilot to assess the potential impact of cascading risks in critical infrastructures.

- ☐ Extension of the service offer and user experience
- ☐ Enlargement of the exploitable data catalogue
- ☒ Exploration of advanced technologies
- ☐ Enhancement of data-related processes
- ☒ Evolution of application areas

## Project scope

- To enhance resilience and Cyber-Physical-Human (CPH) security of key EU Critical Infrastructures through the implementation of software and hardware solutions in support to anticipation, monitoring and response actions.
- To implement three Large Scale Pilots: (i) Transport, Energy and Telecoms; (ii) Health, Logistics/ Supply Chain and Border control; and (iii) Financial Technologies, in which different CPH threats are simulated and the performance of implemented solutions validated.

## SatCen role

- To exploit EO data to assess the impact of cascading risks on critical infrastructures, in particular using DInSAR techniques in the Transport pilot.
- To learn about the use of multi-domain data sources for CI monitoring and protection.

## Outcomes for SatCen

- Enhancement of available knowledge about issues affecting transport critical infrastructures as well as current methodologies and technologies to mitigate their impact.
- Enhancement of internal processing pipelines for InSAR processing.

## Time span

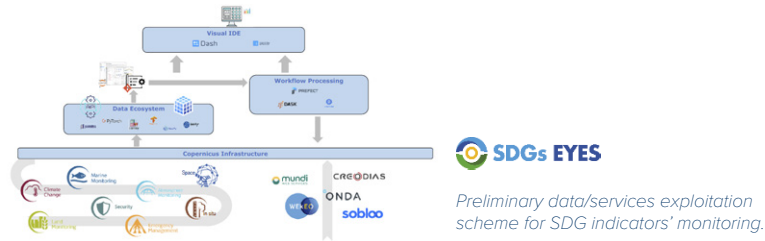
- October 2022 - September 2025

## Framework

EC Horizon Europe

# SDGs-EYES

## SDG – Enhanced monitoring through the family of copErnicus Services



- ☒ Extension of the service offer and user experience
- ☐ Enlargement of the exploitable data catalogue
- ☐ Exploration of advanced technologies
- ☐ Enhancement of data-related processes
- ☒ Evolution of application areas

### Project scope

- To boost the European capacity for monitoring the UN Sustainable Development Goals (SDG).
- To exploit the combination of data and tools of the six core services of Copernicus.
- To develop five pilots to support SDGs' achievement, in particular SDGs 13, 14 and 15.

### SatCen role

- To develop a pilot on Climate Security, focused on the assessment of the SDG 13.1.1 indicator.
- To grow SatCen portfolio with relevant services for Climate Security.

### Outcomes for SatCen

- Enhancement and extension of capabilities to address Climate Security scenarios (compound climate hazards in Sahel).

#### Time span

- January 2023 - December 2025

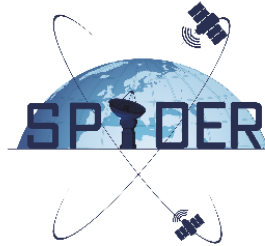
#### Framework

EC Horizon Europe



# SPIDER

## Space-based Persistent ISR for Defence and Europe Reinforcement



- |                                                                             |                                                                                   |                                                                          |                                                                           |                                                         |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Extension of the service offer and user experience | <input checked="" type="checkbox"/> Enlargement of the exploitable data catalogue | <input checked="" type="checkbox"/> Exploration of advanced technologies | <input checked="" type="checkbox"/> Enhancement of data-related processes | <input type="checkbox"/> Evolution of application areas |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------|

### Project scope

- To design a space-based System-of-Systems (SoS) to provide European countries with Space ISR capabilities that are capable to answer to new military needs in a cost-effective way, compatible with national and EU initiatives.
- To build a federated solution that improves current capabilities in what respect reactivity, including autonomous re-tasking, revisit periods and end-to-end system latency.

### SatCen role

- To support the gathering and consolidation of user requirements and use cases.
- To coordinate the definition of user interface, and participate in the definition of other Federation Layer interface requirements and functionalities.
- To coordinate the definition of a technology roadmap for future phases.

### Outcomes for SatCen

- Enhancement of knowledge for a future EO data management infrastructure that allows a single interface to different satellite data sources.
- Definition of improved services for satellite tasking and reception of data.

### Time span

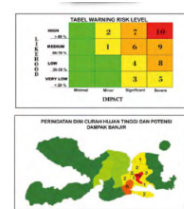
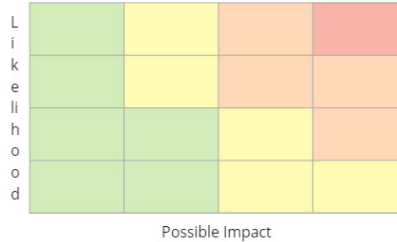
- December 2023 - August 2026

### Framework

EC EDF 2022

# CENTAUR

Proactive Automatic Imagery Intelligence powered by Artificial Intelligence exploiting European Space Assets



- ☒ Extension of the service offer and user experience
- ☐ Enlargement of the exploitable data catalogue
- ☐ Exploration of advanced technologies
- ☐ Enhancement of data-related processes
- ☒ Evolution of application areas

## Project scope

- To develop foresight and early warning tools based on water and food insecurity indicators as precursors of conflict.
- To improve situational awareness and preparedness around climate change and its impact on complex emergencies and multidimensional (security) crises.
- To anticipate the occurrence and possible knock-on effects of crisis events, contributing to resilience and effective adaptation.
- To provide an early warning system which generates alerts when pre-established thresholds for crisis indicators are reached.

## SatCen role

- To support policy analysis and user engagement activities, including collection of user requirements and definition of use cases.
- To design products and services, and perform the associated testing and validation activities.
- To plan and monitor the transition and integration of validated services and products within the Copernicus SESA service chain.

## Outcomes for SatCen

- Enhancement of SatCen experience on Climate Security's relevant topics from experts and EU institutions.
- Implementation of pilot services to improve situational awareness and foresight capabilities to seize the climate security effects.
- Evolution of the Copernicus SESA portfolio by reinforcing the early warning and proactive geo-intelligence services and enrich current products by integrating new vulnerability, fragility and exposure indices and forecasts.

### Time span

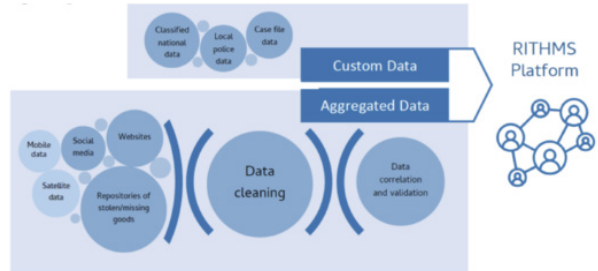
- December 2022 – November 2025

### Framework

EC Horizon Europe

# RITHMS

Research, Intelligence and Technology for Heritage and Market Security



- ☐ Extension of the service offer and user experience
- ☐ Enlargement of the exploitable data catalogue
- ☒ Exploration of advanced technologies
- ☐ Enhancement of data-related processes
- ☒ Evolution of application areas

## Project scope

- To build a platform to support Law Enforcement Agencies (LEAs) in detecting criminally organised activities, assessing potentially looting areas, tracking looted objects in the criminal market and generating predictive outputs to prevent future criminal developments.
- To boost the operational capacity of Police and Customs/Border Authorities in addressing the increasingly organised and poly-criminal nature of trafficking in cultural goods.

## SatCen role

- To contribute to the use case(s) description and demonstration activities relevant to Copernicus SESA service and SatCen Users.
- To develop products for demonstration purposes.
- To contribute to the validation of the proposed solutions.

## Outcomes for SatCen

- Getting access to additional tools to enhance SatCen's Cultural Heritage geospatial products and analysis.
- Enlargement of Copernicus SESA and SatCen community of users.
- Supporting the long-term evolution of the SESA Service by leveraging the Cultural Heritage related analysis and products.

### Time span

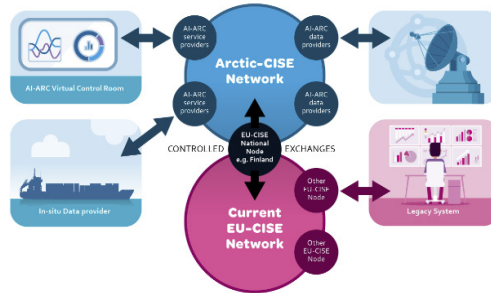
- October 2022 – October 2025

### Framework

Horizon Europe

# AI-ARC

## Artificial Intelligence based Virtual Control Room for the Arctic (AI-ARC)



- ☐ Extension of the service offer and user experience
- ☒ Enlargement of the exploitable data catalogue
- ☒ Exploration of advanced technologies
- ☐ Enhancement of data-related processes
- ☒ Evolution of application areas

### Project scope

- To improve decision-making and communication in the Arctic area as well as boost maritime safety through the concept of the Virtual Control Room (VCR).
- To develop the VCR, applying AI, machine learning and virtual reality in the implemented solution.

### SatCen role

- To participate in the AI-ARC pre-operational validation of the information exchange framework.
- To contribute to the assessment of the future deployment roadmap.

### Outcomes for SatCen

- Contribution to the developed solution, to ensure that IMINT maritime aspects and capacities are properly included.
- Interacting and supporting maritime partners in the framework of the project.

### Time span

- September 2021 – February 2024

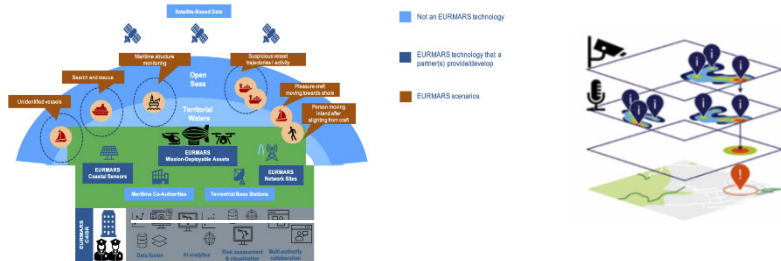
### Framework

EC Horizon 2020



# EURMARS

An advanced surveillance platform to improve the EUropean Multi Authority BordeR Security efficiency and cooperation



- ☐ Extension of the service offer and user experience
- ☒ Enlargement of the exploitable data catalogue
- ☒ Exploration of advanced technologies
- ☐ Enhancement of data-related processes
- ☒ Evolution of application areas

## Project scope

- To develop a platform to improve sensing capabilities for wide areas surveillance by integrating high-altitude flying technology, satellite imagery and UAVs.
- To integrate different existing and future systems for maritime surveillance to allow collaborative operation.

## SatCen role

- To identify operational requirements for border and maritime security.
- To define user requirements to increase monitoring capability, improve platform performance and enhance multi-tasking capabilities.
- To assess and validate developed tools/services/infrastructures.
- To test the developed platform in terms of data access and exploitation.
- To enrol on tasks related with Co-Design / User Requirements gathering, with active participation in user requirements definition to increase surveillance capability.

## Outcomes for SatCen

- Increasing technical capabilities portfolio, with the possibility to have a new surveillance platform for 24/7 wide area surveillance.
- Enlargement of SATCEN innovation by developing new detection and cognition capabilities.

### Time span

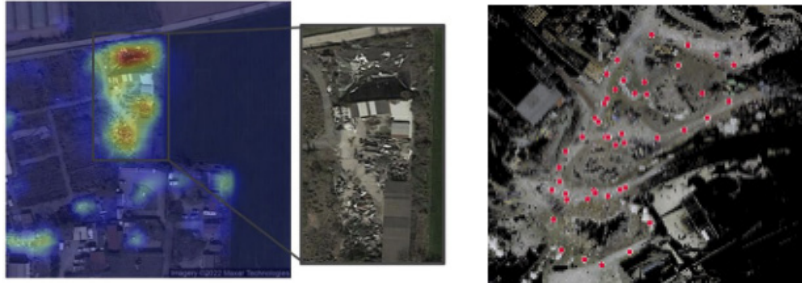
- October 2022 – September 2025

### Framework

EC Horizon Europe

# PERIVALLON

Protecting the EuRopean terrItory from organised enVironmentAI crime through  
inteLLigent threat detectiON tools



- |                                                                             |                                                                                   |                                                                          |                                                                |                                                         |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Extension of the service offer and user experience | <input checked="" type="checkbox"/> Enlargement of the exploitable data catalogue | <input checked="" type="checkbox"/> Exploration of advanced technologies | <input type="checkbox"/> Enhancement of data-related processes | <input type="checkbox"/> Evolution of application areas |
|-----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------|

## Project scope

- To create an Environmental Crime Observatory.
- To develop innovative tools and solutions for monitoring activities.
- To enhance investigation processes and methodologies.
- To enlarge international cooperation.

## SatCen role

- To define user requirements and needs.
- To define and implement a use case to validate the technical solutions developed within the project by technical partners.
- To assess and validate developed tools/services/infrastructures.

## Outcomes for SatCen

- Development of new solutions relevant for SATCEN, namely, expanding the domain of Environmental Crime.

## Time span

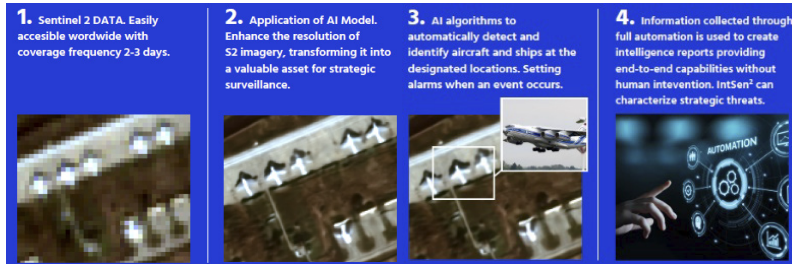
- December 2022 – November 2025

## Framework

EC Horizon Europe

# INTSEN2

## Proactive Automatic Imagery Intelligence powered by Artificial Intelligence exploiting European Space Assets



- ☐ Extension of the service offer and user experience
- ☐ Enlargement of the exploitable data catalogue
- ☒ Exploration of advanced technologies
- ☒ Enhancement of data-related processes
- ☐ Evolution of application areas

### Project scope

- To improve resolution of Sentinel images with the objective of enabling their use in the security field.
- To introduce European space EO assets in an automatic workflow: from image acquisition (freely available, worldwide cover, 2-3 days frequency) to improved resolution for defence purposes, automatic object identification (airplanes, ships and anti-aircraft equipment) and processing, with the aim of constantly monitoring any area and setting alarms when an event occurs.
- To promote the competitiveness of European defence, establishing operational independence from third countries through the application and use of exclusively European assets.

### SatCen role

- To collect user needs to design the IntSen<sup>2</sup> solutions.
- To design the service, including the service catalogue and scenarios.
- To implement a roadmap for fostering adoption of new approaches by the IMINT community and for implementing proactive solutions.

### Outcomes for SatCen

- Exploration of a service for continuous monitoring capability, heavily reducing data acquisition costs (and the dependency on VHR imagery availability) and unlocking the potentialities of proactive IMINT.
- Reinforcement of the SatCen know-how database, expertise and capabilities, based on AI cutting-edge models.

#### Time span

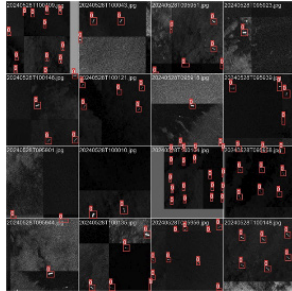
- December 2022 – December 2024

#### Framework

EC EDF 2021

# EMBED2SCALE

## Earth Observation & Weather Data Federation



# E2S

AI vessels training with Sentinel-1 data

- ☐ Extension of the service offer and user experience
- ☐ Enlargement of the exploitable data catalogue
- ☒ Exploration of advanced technologies
- ☒ Enhancement of data-related processes
- ☒ Evolution of application areas

## Project scope

- To explore the use of AI compressors trained by self-supervision on High-Performance Computing (HPC) systems to distil valuable embeddings from raw data.
- To simplify data storage, discovery and sharing processes, ensuring that EO data can be processed just once for different applications.
- To reuse the embeddings created across various applications, reducing the latency and energy consumption associated with managing vast data volumes.
- To provide efficient, near-real-time EO services at a large scale and affordable cost across multiple data providers and data hubs.

## SatCen role

- To develop AI algorithms for vessel identification using EO data (e.g. PAZ, Sentinel-1 and Sentinel-2) and ancillary data (e.g. AIS).
- To create embedding models to compress the relevant information extracted with the AI tools for vessels detection.

## Outcomes for SatCen

- Expansion of SatCen capabilities for Maritime Awareness.
- Access to embeddings applications for vessel detection.

## Time span

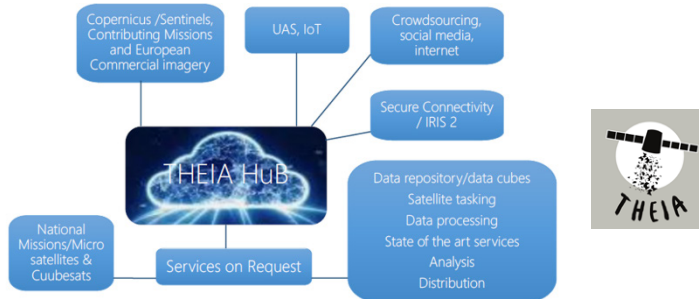
- January 2024 – December 2026

## Framework

EC Horizon Europe

# THEIA

## I Enhancing Copernicus Security Services - EU governmental crisis management hub for forced population displacement



- |                                                                                        |                                                                        |                                                                          |                                                                |                                                         |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------|
| <input checked="" type="checkbox"/> Extension of the service offer and user experience | <input type="checkbox"/> Enlargement of the exploitable data catalogue | <input checked="" type="checkbox"/> Exploration of advanced technologies | <input type="checkbox"/> Enhancement of data-related processes | <input type="checkbox"/> Evolution of application areas |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------|

### Project scope

- To fit current services to better respond to evolving policy and user requirements in the domain of crisis management, enabling best-informed decisions based on data fusion, processing and analysis, exploiting data quantity (multi-temporal data) and variety, using Geospatial Artificial Intelligence (GeoAI) and Machine Learning.
- To address critical challenges, such as population displacement due to conflicts, compounded not only by those derived from wars, but also from climate change, extreme weather events, food shortages and poverty.
- To access data and to deliver information narrowing the gap between capabilities and more stringent security observation requirements.
- To bring added operational value at regional at local levels, offering better coordination to involved actors.
- To support EU independent capabilities and technologies in strategic domains.

### SatCen role

- To engage in user activities such as the provision and collection of user requirements, the design of the solutions and the contribution to the overall THEIA system framework.
- To participate in the THEIA system demonstration and validation.
- To contribute as adviser throughout the product development chain (including testing with end users and delivery of solutions).

### Outcomes for SatCen

- Development of tools and applications for enhanced border activity detection, timely access to data and delivery of information.
- Enhancement and enlargement of the current Copernicus Security Service (CSS) to better respond to evolving policy and user requirements.
- Integration of non-space data along end user intelligence supply chains.
- Integration of GeoAI and EO data analytics with a variety of other application-specific data sources.

### Time span

- December 2024 - May 2027

### Framework

EC Horizon Europe



# AI4COPSEC

Security enhancement through heterogeneous data fusion and improved AI/ML-powered Copernicus maritime and border surveillance services



- ☒ Extension of the service offer and user experience
- ☐ Enlargement of the exploitable data catalogue
- ☐ Exploration of advanced technologies
- ☐ Enhancement of data-related processes
- ☒ Evolution of application areas

## Project scope

- To develop advanced AI/ML methods and models to process heterogeneous data sources including satellite-based EO data (optical, SAR, infrared, S-AIS), ground-based data sources (AIS), media and social media data (OSINT), in-situ environmental measurements (IoT) to provide near real-time intelligence in the CSS.
- To demonstrate the capabilities of self-supervised AI/ML methods and models to automatically identify suspicious or illegal activity at sea in near real-time and provide reliable and real-time environmental information in support to operations at sea.
- To boost timeliness and accuracy of information from both EO and non-EO data.

## SatCen role

- To engage in user activities such as the provision and collection of user requirements, the design of the solutions and the contribution to the overall AI4COPSEC framework.
- To contribute to the verification and validation activities of the proposed use cases.
- To contribute as adviser throughout the product development chain (including testing with end users and delivery of solutions).

## Outcomes for SatCen

- Expansion of the scope of the current CSS and boosting the technological capacities.
- Provision of a comprehensive, multi-layered intelligence framework by amalgamate non-space data sources, in-situ data and OSINT with space-based observations.
- Development of advanced processing chains capable of handling the growing volume of satellite data.
- Becoming a pioneer in GeoAI methods and EO datasets fusion, enabling the detection and analysis of patterns and trends that cannot be detected by traditional methods.

## Time span

- December 2024 – November 2027

## Framework

EC Horizon Europe

# MATRIX EVOLUTION

Proactive Automatic Imagery Intelligence powered by Artificial Intelligence  
exploiting European Space Assets



- |                                                                             |                                                                        |                                                                          |                                                                |                                                         |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Extension of the service offer and user experience | <input type="checkbox"/> Enlargement of the exploitable data catalogue | <input checked="" type="checkbox"/> Exploration of advanced technologies | <input type="checkbox"/> Enhancement of data-related processes | <input type="checkbox"/> Evolution of application areas |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------------------------------------|

## Project scope

- To define a strategy and implementation roadmap for an EU AI framework, aligned with EU Member States' needs and interests.
- To foster AI knowledge sharing within the EU IMINT community.
- To consider and discuss national initiatives on AI.
- To produce synergies with other relevant EU and international forums.
- To feed the capability development process considering EU opportunities.

## SatCen role

- To coordinate technical and contractual activities.
- To coordinate the MATRIX Expert Working Group (MEWG).
- To identify and leverage synergies with ongoing and future EU-funded initiatives, such as the European Defence Fund (EDF), ensuring coordinated efforts and resource optimisation.

## Outcomes for SatCen

- Finalisation of the feasibility study to assess the technical, operational, financial viability and the implementation roadmap of the AI framework for IMINT.
- Positioning SatCen in a key role in the implementation of an EU AI framework.
- Positioning MATRIX as a reference initiative in AI for IMINT at the EU level.
- Planning and initiating the testing and development phase of the AI framework.

## Time span

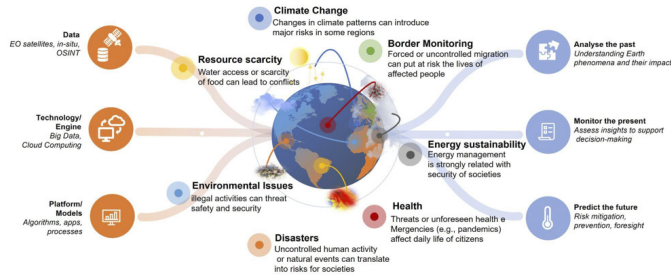
- February 2024 – December 2024

## Framework

SatCen-EDA Joint Initiative

# DTE4DS

## A Digital Twin of the Earth for Defence and Security: Landscape Study



- ☒ Extension of the service offer and user experience
- ☐ Enlargement of the exploitable data catalogue
- ☐ Exploration of advanced technologies
- ☒ Enhancement of data-related processes
- ☐ Evolution of application areas

### Project scope

- To acquire an overall understanding of the Digital Twin of the Earth ecosystem, in particular for Defence and Security.
- To provide a state-of-the-art analysis of Digital Twin technologies.
- To identify reference scenarios and user requirements for Security and Defence.
- To draw up a technology roadmap to feed next phases of the initiative.

### SatCen role

- To supervise, together with EDA, the contract awarded to an industrial consortium for the execution of the project.
- To support the definition of reference scenarios and to provide user requirements and feedback from SatCen stakeholders.
- To evaluate the proposed DTE for Defence and Security technology roadmap.

### Outcomes for SatCen

- Provision of a comprehensive view of the current landscape in EO-based digital twin technologies that supports EDA and SatCen to define future follow-up activities.
- Definition of a preliminary set of use cases and high-level user requirements.
- Establishment of a preliminary roadmap of technology developments for a future pre-operational DTE4DS.

### Time span

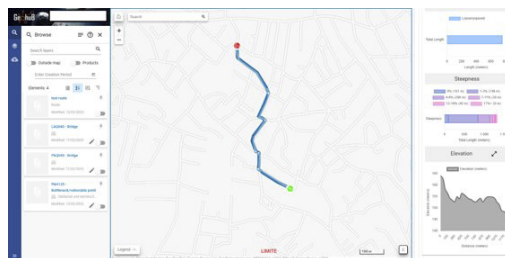
- December 2024 – July 2025

### Framework

SatCen-EDA Joint Initiative

# GeohuB – Phase 5

## Geospatial Information to Support Decision-Making in Operations



*GeohuB – Intuitive and easily usable GIS capabilities*

- ☒ Extension of the service offer and user experience
- ☐ Enlargement of the exploitable data catalogue
- ☐ Exploration of advanced technologies
- ☐ Enhancement of data-related processes
- ☐ Evolution of application areas

### Project scope

- To maintain service operations support to existing implementations (EU OHQs and EUMM Georgia).
- To continuously improve the GeohuB application and its associated service catalogue according to evolving user requirements and technologies capabilities.
- To foster the involvement and participation of the end user community.

### SatCen role

- To coordinate technical and contractual activities.
- To lead the evolution of the platform.
- To interface with the interested SatCen user community.
- To ease the access and exploitation of the GEOINT products and services.

### Outcomes for SatCen

- Implement an updated version of the GeohuB, serving as a lean and intuitive Geospatial Data Management platform for Copernicus SESA service delivery and to manage geospatial data during EU crisis management and military exercises.
- Provision of GIS capabilities to the SatCen end users, including EU OHQs, missions and operations.

### Time span

• September 2023 – May 2025

### Framework

SatCen - EDA Joint Initiative

Catalogue Number: QO-01-25-000-EN-N

ISSN: 2443-6399

European Union Satellite Centre

Luxembourg: Publications Office of the European Union 2025

74pp. - 18,5 x 24 cm

ISBN: 978-92-95034-32-7

DOI: 10.2820/0048092







# Contributing **together** to a safer Europe



Publications Office  
of the European Union



**SATCEN**  
EUROPEAN UNION SATELLITE CENTRE

Apdo. de Correos 511  
28850 Torrejón de Ardoz  
Madrid - SPAIN  
[www.satcen.europa.eu](http://www.satcen.europa.eu)



00-01-25-000-EN-N ISSN 2443-6399