

SUPPORT OUR ABILITY TO ACCESS AND OPERATE IN SPACE IN A SOVEREIGN, SAFE AND EFFICIENT WAY

PUTTING THE EUROPEAN SPACE SITUATIONAL AWARENESS INDUSTRY AT THE FOREFRONT OF THE INSTITUTIONAL AND COMMERCIAL MARKETS

Preamble

Industry and institutions have a shared interest: to operate in space, and to promote space operations, in a sovereign, secure, safe and sustainable way.

The Earth orbit is today populated by a large amount of space objects¹; whether they are operational or not. With the evolving nature of the Earth orbit from a state to a commercial resource, the congestion of the space environment will worsen, thus increasing collision and interferences risks and the complexity of decision-making processes concerning the evasion and collision avoidance manoeuvres.

As the number of active orbital objects increase alongside the need for a more sustainable use of the space domain, **timely and accurate Space Situational Awareness (SSA) data is becoming a valuable asset of strategic and economic significance**. However, there is as of yet no purely commercially-driven market for SSA data, as the regulatory and anti-collision imperatives remain under the purview of institutional bodies.

There is thus a need for institutional anchor customers and contracts in order to sustain the ability of industrial actors to develop SSA capabilities (i.e., ground infrastructure, sensors etc.) and services answering to the strategic needs of institutional customers and those of the commercial market. While US companies benefit from frameworks contracts with the Department of Defence, the US Air Force and the Department of Commerce, **European SSA providers do not benefit from European public demand at such level**.

As the congestion of the space, especially in Low Earth orbit, is continuously increasing notably in the light of mega-constellations projects (already launched or in planning), the so-called “human in the loop” (i.e., defined as a model that requires human interaction) decision processes tend to become more difficult and riskier. Consequently, a new generation of services in support of decision making for manoeuvres and collision avoidance actions is needed. **This will be an accessible business for European companies as long as SSA data is also accessible in a sovereign way and without intermediaries**.

¹ ESA Space Environment Report 2025

https://www.sdo.esoc.esa.int/environment_report/Space_Environment_Report_latest.pdf

This Eurospace Position Paper represents an effort by the European space industry to provide recommendations for the evolution of European SSA, aiming to address the multifaceted challenges Europe faces in ensuring its safety and security in accessing and using orbit.

In a nutshell, Eurospace recommends to:

- 1) Increase the budget allocation for SSA activities in the next EU MFF;
- 2) Foster a favourable regulatory framework with the EU Space Act;
- 3) Increase the use of direct procurement & services from industry;
- 4) Establish clear market structure and service segmentation;
- 5) Set-up and support the establishment of funded programme lines to further develop European SST capabilities;
- 6) Deploy a ground- and space-based SSA/SDA Pilot demonstration project;
- 7) Address the export markets.

Recommendations

1) Increase the budget allocation for SSA activities in the next EU MFF

Space traffic monitoring capabilities currently available in Europe are **not enough** to answer the increasingly dense space traffic and are not adapted to deliver the level of performance required by a full operational monitoring space traffic within the current critical set timeframe. The European SST model needs to increase its ambitions with the necessity for the EUSST Partnership to make a significant leap forward (in budget and capabilities).

In this regard, further development and support to the emergence and profitability of a market of technologies and services in support to institutional assets is needed, targeting a range of [1.5-2.5B€] over the next MFF.

Concretely, [1.5-2.5B€] is the amount needed to:

- **Enlarge the budget allocated to the purchase of commercial SSA data via the EUSST** [470-720M€]
 - Today, this budget is still too low to be on a par with “heritage” sensors, which benefit from more substantial national funding. In the next MFF, it should aim at representing around 50% of the funding allocated to the EUSST (without endangering budget allocated to sensor development).
- Further increase, including R&D, **the deployment of more distributed and more performant SST capabilities** [600-960M€]
 - Prevention Capabilities: In order to prevent any misuse of space and allow for an optimised space traffic coordination, monitoring capabilities are very important. These include institutional and commercial ground- and space-based sensors (e.g., radars, telescopes, passive RF, laser stations) to monitor not only space objects but other critical elements such as frequencies; and might also eventually need the use of space-based sensors;
 - Protection Capabilities: Protection capabilities include all those related to STM services, such as e.g., sensor coordination and tasking, data processing and catalogue maintenance, collision avoidance, fragmentation analysis, re-entry analysis, tracking of ballistic missiles;
 - New designs to enhance safety: Promoting new designs at satellite and ground level and use of materials that offer a more sustainable use of space should be also one of the key elements in the mid-long term for Europe - New materials, components, new processes and protocols, new satellite and mission designs.

- Start the **development of a Space Domain Awareness pilot demonstration project**, as presented in the 2023 “EU Space Strategy for Security & Defence” [200-350M€] - see recommendation n°6
- Exploitation of the **synergies among the various components of the EU Space Programme** for enhancing the space safety and sustainability [200-400M€];
- Develop a **space-ISAC²-like for space safety** [30-70M€].

2) Foster a favourable regulatory framework with the EU Space Act

Developing a favourable regulatory framework can help lay the foundation for building a stable and recurrent market for European SSA companies.

In this regard, **the EU Space Act (EU SA) is a positive development in European leadership in space**, targeting the safety, security, and sustainability of assets and operators providing services and space-based data to the European market. Industry considers that the EU SA will help prevent fragmentation of the internal market where the Member States may have different legislative requirements to address safety and security issues. Furthermore, since space activities are inherently global, the industry considers that an EU-level approach offers a better chance of promoting the interests of the European space sector in international forums. Europe can lead by example in enhancing Space Traffic Management, debris tracking, mitigating orbital risks, and safeguarding its space infrastructure with explicit cybersecurity rules for the space sector.

The Act offers prospects for new technological solutions and market development and could be seen as a **driver for innovation and new markets**, particularly in areas like In-Space Operations and Services (ISOS) or Space Situational Awareness (SSA).

Improvements are however needed on SST/SSA (for instance, by prioritising only Collision Avoidance services, the Act overlooks the broader potential of SSA providers) and on the articulation between the role of the “EU SST Partnership” and the commercial actors of SSA/SST. This must be clarified to ensure complementarity of resources and preserve the complementary market of private actors.

Industry supports the position of EU SST as the central provider of collision avoidance services (Art. 64 of the EU Space Act). Yet, the EU SST should also promote **competitiveness of the European SSA industry** by leaving space for private actors supporting market diversity, innovation, and resilience. Industry needs clarification on the interplay between the role of EU SST and that of commercial actors in the field of SSA/SST. The prioritisation (and mandatory subscription) of EU SST services for Collision Avoidance, while strategically justified for space traffic management coordination, should not exclude capable private SSA/SST providers. The framework of the EU SST partnership shall evolve if it is made mandatory to use those services. Accordingly, it is important to consider SSA from a broader perspective, and not only the CA market, and foster and create additional opportunities beside (or on top of) the free CA services, such as supporting in-orbit manoeuvres, ISOS activities, in-orbit transfer, space event analysis and refinement and characterisation. Therefore, the European space industry proposes that the European Commission:

- Establishes a certification framework for SSA and CA service providers, enabling their formal recognition and integration into the EU space safety ecosystem;
- Defines SSA in Art. 5 of the proposal to clarify the scope and eligibility of SSA actors for participation in implementing acts and consultations;
- For the Union CA entity to develop and invest in the means to support and foster coordination among European space service providers (e.g., in a space-ISAC-like for space safety), while preserving a strong, central public CA capacity. With regard to Annex IV point 1, and considering Article 15, the role

² Information Sharing and Analysis Centre

of the EU SST could be more precisely defined as a technical authority among CA service providers, acting through a single dedicated platform managed by the European Commission.

At the same time, non-European operators are allowed to use public or commercial CA services of their choice, raising concerns about effective implementation of Annex IV. **Operators shall be granted access to certified European SSA services providers**, regardless of their country of establishment, to ensure consistent orbital coverage and risk mitigation. This is also key in order to promote high quality standardised SSA services for EU and non-EU operators, and to strengthen the internal market for European SSA commercial providers.

3) Increase the use of direct procurement & services from industry

Commercial players are currently the last link in a subcontracting chain largely controlled by public institutions, which still account for most of the demand.

In practice, a Coordinated Planner tasks the survey and tracking sensors (both institutional and commercial) based on the service and catalogue needs. Moreover, when the Operational Centres (FR and ES for CA, IT for RE and FG) detect an event meeting certain predefined conditions, additional on-demand tasking will be issued to the tracking sensors. Once in the operational chain, institutional and commercial sensors have the same opportunities to contribute to the services and the catalogue and are evaluated according to the same quality and operational Key Performance Indicators. However, the **contracting procedure suffers from certain inefficiencies that may affect the growth of the European SST data provision market**, such as the lack of medium- and long-term budget perspective, the duration of the contracts, the slow and cumbersome contracting process, etc. Therefore, on top of the already mentioned increase of the budget, additional measures are needed to promote a flourishing SST commercial market (e.g., creation of a Flagship program showing a level of ambition according to Copernicus, Galileo and IRIS2). The European space industry believes that private companies can respond more quickly to the evolving demands of operators (notably by GEO operators who show an increased interest in more regular SSA data, or launcher companies), and develop innovative technologies and services that keep pace with the increasing complexity of the ecosystem. The European space industry therefore recommends to **significantly increase the direct procurement of SSA data to the industry**.

In addition, beyond R&D or engineering services, the European space industry recommends that the EU SST procures services from the private industry, deemed to be more agile in tailoring services to the specific needs of operators compared to the one-size-fits-all model of public SSA services. This could indeed lead to more effective risk mitigation strategies for satellite operators and other space users, particularly for non-standard missions.

4) Establish a clear market structure and service segmentation

Today, the way the value of SSA data and services is shared is unfavourable to industry, which cannot develop its own services without running the **risk of competing with free public services from the EUSST**, including for commercial satellite operators, and on the export market.

It is therefore key, in the frame of the EU Industry and Start-ups Forum on STM (EISF), to continue the discussions towards **establishing a clear market structure and service segmentation** that will allow both the EUSST and the industry to strengthen Europe's global position and take full advantage of the market weight that it has in the world today. The following table is thus an attempt at distinguishing several types of services (that correspond to mandatory (for operators) public services, non-mandatory public services, mandatory complementary services and non-mandatory complementary services) and to whom they should/could be distributed.

Service	Public Service	Public service beneficiaries	Mandatory	Delegation to the industry	Traditional/new services
Uncontrolled Re-entry	Yes	Member States	No	TBD	Traditional
Controlled Re-entry	No	All satellite operators	No	Yes	New
Fragmentation	Yes	Member States	No	TBD	Traditional
Customised satellite protection service	Yes	Member States	No	TBD	Traditional
CDM+	Yes	All satellite operators	No	TBD	Traditional
Advanced COLA service	No	N/A	Yes	N/A	New
LEOP ephemerides	No	N/A	Yes	N/A	New
Proximity operations support	No	N/A	Yes	Yes	New
Launch screening	No	N/A	Yes	Yes	New
Launch detection and tracking	Yes	Member States	No	Yes	New
Object characterisation	Yes	Member States	No	Yes	New

In addition, the EUSST focus shall remain on civilian and strategic needs. Tactical or operational military requirements must be handled through separate national or intergovernmental mechanisms (e.g., EDF, EDA). Nonetheless a strategic vision between EUSST and the EDF framework as implemented by the Member States shall be sought.

In addition, since SSA and SDA capabilities are at least dual-use and can also serve purely military purposes (such as the characterisation of space objects), it is important to clarify project governance. Stakeholders should be encouraged to collaborate closely to determine where projects will be funded and how to ensure their interoperability. This will accelerate innovation and strengthen the capabilities of the SSA/SDA industry.

5) Set-up and support the establishment of funded programme lines to further develop European SST capabilities

Space traffic monitoring capabilities currently available in Europe are **not enough to answer the increasingly dense space traffic** and are not adapted to deliver the level of performance required by a full operational monitoring space traffic within the current critical set timeframe.

Further development and support in these areas as well as a more coordinated effort between the EU research & development programmes, the SSA Component of the EU Space Programme, and ESA would be needed to ensure a coherent and consolidated European output. In this regard, areas for further R&D identified by industry are:

- Sensors:
 - In order to prevent any misuse of space and allow for an optimised space traffic management, monitoring capabilities are very important;
 - These include innovative ground and space-based sensors covering traditional techniques like radars and telescopes and new ones like lasers and passive RF, both for surveillance and tracking operations;
 - Innovative techniques and technologies to support the development of additional services and capabilities key for supporting the future Space Traffic Coordination, such as ground- and

space-based sensors for Radiofrequency monitoring, on-board devices for accurate and real-time positioning of objects, Intersatellite links, traffic coordination frameworks, etc.

- Protection Capabilities:
 - Protection capabilities include all those related to STM services, such as e.g., collision avoidance, fragmentation analysis, re-entry analysis etc;
- Beyond SST, new designs to enhance safety:
 - Promoting new designs and use of materials that offer a more sustainable use of space should be also one of the key elements in the mid-long term for Europe:
 - New processes and satellite and mission designs (active systems e.g., ADS-B, beacons);
 - New materials, components.

Regarding intellectual property rules when developing specific services to the EUSST, the European space industry recommends that **intellectual property (for R&D) remains in the hands of industry**, as it is already being taken into account in the latest Horizon Europe Work Programme.

This could have a positive impact on the participation from companies that have proprietary sensors or have developed innovative software, for industry's engagement and participation in the different EU research programmes, and would not, if the EU implements appropriate rules against circumvention by foreign investors, jeopardise its own sovereignty.

6) Deploy a ground- and space-based SSA/SDA Pilot demonstration project

The idea of an SDA pilot demonstration project could be to **articulate an EU ambition regarding the more security & defence-oriented elements of SSA**, focused on protection of critical space assets and enhanced space intelligence capabilities.

The overall aim should be to articulate (taking into consideration that SDA and SSA differ both in scope and in the legal bases that govern them) a strategic vision between EU SST's more civilian-driven SSA roadmap focused on data and services and the capability development strategic actions carried out by Member States within the EDF framework (SAURON, INTEGRAL, EMISSARY, ODIN'S EYE II, BODYGUARD, SPRING, LUCID projects).

The pilot could demonstrate a comprehensive, end-to-end, enhanced, and secure SSA infrastructure, integrating both ground-based systems (such as optical telescopes, radar installations, and radio-frequency sensors) and space-based sensors operating in orbit. This would serve not only to showcase the technical maturity of individual components but also to highlight the strategic benefits of coordinating the diverse sensor and technology capabilities already available across Europe. **Such a demonstration would underline the importance of interoperability, real-time data integration, and sensor tasking coordination, all of which are essential to ensure timely and accurate detection, tracking, and characterisation of space objects and threats.**

The pilot should aim to present a representative picture of the state-of-the-art SSA and SDA data, capabilities, and services currently developed and operated in Europe. In doing so, it would help identify and map existing gaps (whether technical, operational, or institutional) that must be addressed to reinforce Europe's SSA/SDA posture. This gap analysis would be critical in informing future investments and policy decisions toward the development of a robust, resilient, and autonomous European SSA/SDA infrastructure.

Establishing such a sovereign infrastructure is essential for Europe to ensure the security, safety, and sustainability of its space assets, particularly in an increasingly congested, contested, and competitive space

environment. As dependence on space-based services continues to grow across all sectors, Europe must be able to independently monitor space activity, assess risks, and respond to threats without relying on non-European sources of data or decision-making support. A successful pilot would therefore not only demonstrate technological excellence but also reinforce strategic autonomy in space, aligning with broader EU objectives of resilience, sovereignty, and leadership in space.

7) Address the export markets

Considering that the European space industry strongly relies on the commercial business and export sales, a stronger support from the EU institutions to **actively promote European SSA providers' offers on the open markets should be a priority** (in complement and good coordination with national efforts) and with the objective to facilitate access to new markets by the active promotion of European capabilities. This should also include the establishment of a **marketplace for SSA within the EISF**, enabling greater visibility and accessibility of European SSA services.

A better integration of space in the international relations of the EU. This would suppose:

- A continued dialogue with the European space industry for the Commission to be aware of the industrial capacities/expertise it can rely and on capitalise upon (e.g. well-established reputation in the development of local capacities, technology transfer), as part of the EISF on STM;
- The creation of a "European SSA label". It would imply a further involvement of EU delegations in providing advocacy for European solutions, opening doors and providing support with the local decision-making bodies;
- Cooperation between different DG services around export opportunities ranging from:
 - Political support at higher level (e.g. at the level of a Commissioner);
 - Awareness-raising campaigns within the EU delegations and a more systematic involvement of the EU delegates;
 - Support to training in space-related activities within European industries or agencies.
 - Instrument to allow the European space industry to initiate early contacts with institutions of potential governmental customers.