

The European Space Situational Awareness Legal Framework as an Example of Top-Down Approach Applicable to Future European Space Traffic Management-Related Initiatives

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Abstract

The development of a Space Traffic Management (STM) international framework aiming at guaranteeing the security, safety, and sustainability of outer space activities is deemed crucial and undelayable. As a starting point, this paper will consider the development of a European “regional” approach to STM. Hitherto in Europe, most STM-related issues are addressed through a bottom-up approach, centred around the sovereign competence of national governments. Nevertheless, in the SSA/SST domain, the willingness of Europe to reach a degree of autonomy in the field and to contribute to global burden-sharing has led the European Space Agency first, and the European Union then, to adopt the first collaborative frameworks concerning the SSA. This paper aims to investigate the topical elements of such programmes, with a particular focus on the top-down elements of the regulatory frameworks to be considered in the development of a future European STM capability.

1. Introduction

The last years witnessed an increase in the number of space activities and a new class of space operations has emerged, including the deployment of large constellations of satellites in Low-Earth Orbit (LEO) and the launch of several hundred very small satellites. This trend will eventually lead to a congestion of the space environment. Indeed, orbits like LEO and GEO (Geosynchronous-Earth Orbit) offer an increasingly limited number of valuable orbital slots for satellites. Additionally, all objects in space must use

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portions of the electromagnetic spectrum to perform their functions and communicate with the Earth. The result is the increase in the risk of interferences and collisions in orbit and a more and more complexity of decision-making processes concerning the evasion and collision avoidance manoeuvres. The difficulty in tracking these space objects, and the fact that some of these are not equipped with any propulsion system capable of performing collision avoidances, elevate the concern.¹ At the same time, to tackle the space debris threat is deemed crucial as their continued creation would lead to the so-called “Kessler syndrome”.²

In this context, the regulation of space traffic is fundamental. Some countries have already paved the way for a national Space Traffic Management (STM) regulation. For instance, in Europe, there are already regulations on STM at the national level. STM is not mentioned in these documents but some of them provide directives, specifications or recommendations that apply to activities associated, directly or indirectly, with STM functions.³ Also, former US President Trump signed “Space Policy Directive-3. National Space Traffic Management Policy” (SPD-3) on 28 June 2018. The Directive articulates a reorganization of roles and responsibilities across US military and civil branches to, on the one hand, refocus the US Department of Defense on its military and national security mission and, on the other hand, to address STM as a civil framework with a public service and commercial-oriented mission under the responsibility of a civil agency, namely the Department of Commerce. The implementation process of SPD-3 is still ongoing. Nevertheless, such developments in the US can be considered one of the main drivers for the establishment of an STM system at the European level.

From a national perspective, it is important to have in place the proper regulations and oversight mechanisms to support both governmental and non-governmental space activities to ensure that States and their nationals act in accordance with international law. At the same time, it is also essential to consider the interactions among activities performed by different actors in the

1 C. Bonnal, L. Francillout, M. Moury, U. Aniakou, J.C. D. Perez, J. Mariez, S. Michel, *CNES Technical Considerations on Space Traffic Management*, in *Acta Astronautica*, Vol. 167, 2020, pp. 296-301; ASD-EUROSPACE, *Space Traffic Management (STM): An Opportunity to Seize for the European Space Sector*, 2021; National Academy of Public Administration, *Report for the United States Department of Commerce “Space Traffic Management: Assessment of the Feasibility, Expected Effectiveness, and Funding Implications of a Transfer of Space Traffic Management Functions”*, 2020.

2 This occurs when the density of objects in a given orbit is high enough that collisions between objects and debris create a cascade effect, thus increasing the likelihood of further collisions even if no new satellites are launched.

3 One of the most comprehensive space policies is the *French Space Operations Act* of 2008.

international context.⁴ At this regard, a global framework would be ideal to achieve space safety and sustainability objectives through STM, and the most suitable forum of negotiation would probably be the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) for its major role in the development and strengthening of international cooperation in the field of space exploration and use. Notably, in the context of UNISPACE+50, thematic priority 2(c) referred to the necessity to carry out a study of legal mechanisms to enhance the exchange of information on space objects and events, as well as to foster an international regime of responsibility and liability to cope with present and future challenges to the safety, security and sustainability of outer space activities and perspectives of space traffic management.⁵ Nevertheless, the geographical diversity and the even greater diversity of space capabilities within the COPUOS membership raises legitimate concerns about the capability to converge internationally on the implementation of an efficient system for safe space operations and space traffic management.⁶ It should be also considered that since the 1990s, the action of the COPUOS Legal Subcommittee (LSC) is mainly devoted to the assessment of the existing legal regimes and oriented towards the formulation of non-binding documents that are based upon the rights and obligations provided by the treaties already in force rather than to the adoption of new legally-binding instruments.⁷ A latter point to be considered is that an effective STM regime would include civilian, but also military space activities, thus rising national security concerns.

In this regard, the development of a European “regional” approach, built on already well-established cooperation arrangements will be considered in this paper. Such a joint European policy framework on STM should count on a broad political consensus among member States on shared goals and principles, productive and efficient coordination among stakeholders and a proper delimitation of roles and responsibilities and allocation of activities.⁸

4 S. Marchisio, *The Law of Outer Space Activities*, Rome, 2022, pp. 59-70; Hearing of the Subcommittee on Space and Aeronautics - U.S. House of Representatives, *Space Situational Awareness: Examining Key Issues and the Changing Landscape - Testimony of Dr Brian Weeden*, 11 February 2020.

5 UN COPUOS, UNISPACE+50: Thematic Priorities and the Way Ahead Towards 2018 - Note by the Secretariat, A/AC.105/2016/CRP.3, Vienna, 8 June 2016.

6 Secure World Foundation, *The UN COPUOS Guidelines for the Long-Term Sustainability of Outer Space Activities – Fact Sheet*, November 2019; M.E. Sorge, W.H. Ailor, T.J. Muelhaupt, *Space Traffic Management: The Challenge of Large Constellation, Orbital Debris, and the Rapid Changes in Space Operations*, in aerospace.org, 2020; See also P. Breccia, *The Need for a Space Traffic Management and its Legal Challenges*, in ‘Proceedings of the XXV International Congress of Aeronautics and Astronautics’, Rome, 2019, pp. 1027-1036.

7 S. Marchisio, *The Law of Outer Space Activities*, Rome, 2022, pp. 45-58.

8 European Space Policy Institute, *ESPI Report 75 - European Space Strategy in a Global Context – Full Report*, 2020.

2. Space Traffic Management. Overview

One of the first authoritative definitions of the concept of STM was formulated by the International Academy of Astronautics (IAA) as part of the *Cosmic Study* on Space Traffic Management published in 2007, followed by a second study on the issue in 2018 titled “Space Traffic Management - Towards a Roadmap for Implementation.” According to the IAA, STM can be defined as a «set of technical and regulatory provisions for promoting safe access into outer space, operations in outer space and return from outer space to Earth free from physical or radio-frequency interference». Such a definition recognises two dimensions of space traffic, namely, a scientific-technical area and the regulatory field, and three phases of space traffic: launch phase, in-orbit operation phase, and re-entry phase.

In Europe, the formulation of a commonly agreed definition of the concept has been referred to the recently launched Space Traffic Management Coordination & Support Action (CSA STM) initiative, financed under Horizon 2020 and composed by the EUSTM and SPACEWAYS Projects. However, some indications appeared in the non-legally binding outcomes of the European Space Traffic Management Conference titled “Fostering a European Approach on Space Traffic Management” held on 7 July 2021. In the document, STM is referred to as «a multi-dimensional concept encompassing legal, regulatory, policy, research and innovation, development of capabilities, legal and operational elements at different levels».⁹

STM is hence a multifaceted concept, which brings together both operational and regulatory elements. These include the sharing of information on Space Situational Awareness (SSA), enhanced registration procedures, mechanisms for the notification and coordination of launches, in-orbit manoeuvres and re-entry of space objects, and safety and environmental provisions. The future STM will thus consist of a mix of existing activities and programmes, emerging norms and best practices, and some degree of national (and ideally regional or international) regulation.

3. Towards a European STM System

In Europe, there are already regulations on STM at the national level, but the development of a common European legal framework for STM at the expense of isolated, national initiatives is deemed fundamental to avoid the increase of competitiveness imbalances between countries and their respective space sectors.¹⁰ Another driver for the development of a European STM

9 Outcomes of the European Space Traffic Management Conference of 7 July 2021 “Fostering a European Approach on Space Traffic Management”, p. 3.

10 European Space Policy Institute, ESPI Report 71 - Towards a European Approach to Space Traffic Management – Full Report, 2020.

capacity is its possible contribution to the achievement of strategic autonomy in the space sector.¹¹ The need for Europe to «remain ‘non-dependent’ regarding space technology» is already stressed in both the European Space Strategy and the European Defence Action Plan adopted by the European Commission in 2016.¹² The consolidation of the European strategic autonomy is also an objective of the new EU Space Programme.¹³ In particular, strategic autonomy in space relies on the safety and proper functioning of space and terrestrial infrastructure which can be guaranteed by the simultaneous consideration of three elements: situational awareness, technological advances, and regulation.¹⁴ Notably, the latter point refers to the importance of establishing proper rules governing space traffic to preserve European interests in accessing and using space, protect the space environment, as well as the vital network of satellites that support everyday life activities of European citizens.

The policy debate on the need to better define the positioning of the EU on STM commenced in 2015, following the submission by Germany of a proposal for a single issue/item for discussion at the fifty-fifth session of the United Nations COPUOS LSC on exchange of views on the concept of Space Traffic Management. The topic was then brought up in the context of the German EU Council Presidency initiative “Establishing Key Principles for the Global Space Economy” held in November 2020 in preparation for the 10th Space Council EU-ESA. The Council conclusions devoted particular attention to STM and the need for a coordinated European approach to foster European space autonomy, security and resilience. Indeed, a roadmap for developing a European approach to STM has been jointly prepared by the EU Council Presidencies 2020/2022 (Germany, Portugal, Slovenia and France) and the ESA Council Presidencies (France and Portugal), and it is designed up to the second half of 2022.¹⁵ Following a “hearing” of presentations from Member States of the EU and ESA, other third countries, academics and think tanks, the industry of European and third countries, and four

11 “[b]esides reaching autonomy in the launchers sector] the other element of Europe’s strategic autonomy is how we operate in space thanks to a Space Traffic Management system”, Speech by Commissioner Thierry Breton at the 13th European Space Conference, 12 January 2021.

12 V. Reillon, *European Space Policy. Historical Perspective, Specific Aspects and Key Challenges*, January 2017, p. 29.

13 Regulation (EU) 2021/696 of The European Parliament and of The Council of 28 April 2021 establishing the Union Space Programme and the European Union Agency for the Space Programme and repealing Regulations (EU) No 912/2010, (EU) No 1285/2013 and (EU) No 377/2014 and Decision No 541/2014/EU, Considerando 60.

14 D. Fiott, *The European Space Sector as An Enabler of EU Strategic Autonomy*, 16 December 2020.

15 Council of the European Union, *Towards a Better Positioning of the EU in Space Traffic Management*, Brussels, 17 May 2021.

preparatory meetings, the latter held in April 2021, the European Space Traffic Management Conference “Fostering a European Approach on Space Traffic Management” took place on 7 July 2021. The outcome of the Conference reflects the effort to achieve a common understanding of the importance of STM, the state-of-play and needs (from, *inter alia*, a technological and regulatory point of view), and the actors contributing to the STM position-making in Europe.¹⁶

Any STM-related initiative at the European level should be also carried out by the EU in cooperation with the other entities involved in the European space activities, especially the European Space Agency (ESA). Indeed, ESA provides essential contributions and programme expertise in research and collaborative development and implementation of European space systems and develops operational and precursor services in its Space Safety Programme.

Under the aforementioned EU Regulation 696/2021 establishing the EU Space Programme, STM is not considered among the EU flagship programmes. However, it is recognized that the increase in the number of space activities may have implications on the international initiatives in the area of the STM and that the Union should monitor those developments and may take them into consideration in the context of the mid-term review of the current multiannual financial framework.¹⁷ Nevertheless, the European Commission made a step forward by including STM in the set of the new EU flagship projects as part of its “Action Plan on Synergies” between the civil, defence and space industries. The aim of the Plan is to reinforce the competitiveness of EU industry at the intersection of these areas.¹⁸ On these projects, including STM, the Commission «will decide on possible follow-up steps, including legislative proposals where appropriate».¹⁹

3.1. The European Union Competence in the Space Sector

Any consideration on the development of an EU initiative on STM must refer to the features and limits of the competence of the EU in the space sector.

Under the so-called principle of conferral, the European Union may only act within the limits of the competences conferred upon it by the EU countries in the Treaties to attain the objectives provided therein. The Treaty of Lisbon, entered into force on 1 December 2009, clarifies the division of competences

16 See Outcomes of the European Space Traffic Management Conference of 7 July 2021 “Fostering a European Approach on Space Traffic Management”, cit., note 9.

17 Regulation (EU) 2021/696 of The European Parliament and of The Council of 28 April 2021, cit., note 13, para. 94.

18 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions “Action Plan on Synergies Between Civil, Defence And Space Industries”, COM(2021) 70 final, Brussels, 22 February 2021.

19 *Ibid.*, p. 15.

between the EU institutions and EU countries.²⁰ These competences are divided into three main categories: exclusive competences, shared competences, and supporting competences. Notably, the Treaty provided for the first time the EU with an expressed competence in the field of outer space, which can be qualified as a *sui generis* shared competence.²¹ Following Articles 4(3) and 189 of the Treaty on the Functioning of the European Union (TFEU), in order to promote scientific and technical progress, industrial competitiveness and the implementation of its policies, the Union shall draw up a European space policy. To attain these objectives, the European Parliament and the Council shall establish necessary measures, which may take the form of a European space programme. Such a competence has however two limits in respect to the general features of the shared competences. First, the Treaty excludes any harmonization of national laws and regulations in the field by the Union. Second, the application of the pre-emptive principle is excluded, so that the adoption by the Union of normative acts in the space sector does not exclude the competence of the Member States. This means that the Member States are the main actors in the European space sector, especially when coming to security aspects of space programmes as in the field of STM.

This framework is completed by the tasks conferred by the EU Treaties to the High Representative of the Union for Foreign Affairs and Security Policy to manage the Common Foreign and Security Policy (CFSP) and the Common Security and Defence Policy (CSDP) aspects of the EU's space activities and ensure the consistency of the EU's external action in the space domain. It is against this background that the possibility of the EU to act as a single voice in the international debate on STM needs to be considered.

3.2. A Top-Down Approach for the Development of a European STM Capability

With regard to the possible governance set-up of a future European STM capability, the publication and implementation of the US national STM policy demonstrated the importance of a top-down approach to achieve coherence and consistency among all entities involved. Notwithstanding the complexity of the European space governance, based on the interactions of simultaneous actions undertaken by the EU, the newly established European Union Agency for the Space Programme (EUSPA), the ESA and the Member States on their own, and the features of the EU competence in the space sector, some advantages can be defined in upholding a top-down approach to develop European STM initiatives.

²⁰ Treaty of Lisbon Amending the Treaty on European Union and the Treaty Establishing the European Community, C 306/1, 17 December 2007.

²¹ S. Marchisio, *The Law of Outer Space Activities*, Rome, 2022, p. 258.

“Top-down” refers in this context to the capability from the EU to make pressure to induce a change at the domestic level and pursue a Europeanization process in the field. In this sense, the attainment of a common approach to STM by EU Member States may be the result of either a mechanism of positive integration, which includes a certain set of rules or criteria set at the EU level which member States should follow or meet; or, through “framing integration”, which generally happens in areas of very limited EU competences, where the EU functions as a discussion forum and platform for policy transfer.²² The latter could be seen as a first step, to induce an evolution towards a positive integration. The instruments to achieve such a common framework can be of different nature, ranging from legally to non-legally binding instruments, but need to be in line with the margins of manoeuvre of the EU established in the EU Treaties.

4. The ESA and EU SSA Programmes. Topical Elements for a European STM Initiative

All the efforts to deal with orbital threats, i.e., debris mitigation, debris removal, and STM capabilities, rely on SSA. Indeed, the largest element of STM is the so-called conjunction assessment, which is a predictive process aimed at detecting and mitigating collisions between active satellites and other space objects. In particular, STM transforms SSA information into services that can be provided to space operators, while STM contributes on its side to SSA by improving in-orbit knowledge.²³ Besides the undeniable contribution from an operative viewpoint of SSA data and information to the development of an STM capability, this section will focus on some features of the legal framework and the governance model of the SSA programmes developed at the European level to be possibly transposed to the governance of a European STM capability.

In the SSA/SST domain, the willingness of European autonomy in the field, namely from the United States, and to contribute to global burden-sharing, led the ESA first, and the EU then, to adopt the first collaborative frameworks concerning the SSA. These are the European Space Agency Space Situational Awareness Preparatory Programme (ESA SSA- PP) launched in 2009 and the Space Surveillance and Tracking Support Framework (EUSST) set forth by Decision 541/2014/EU.

22 On the definitions of Europeanization see C. Knill, D. Lehmkuhl, How European Matters: Different Mechanisms of Europeanization, in *European Integration online Papers*, Vol. 3, No. 7, 1999; C. Radaelli, Europeanisation: Solution or Problem?, in *European Integration online Papers*, Vol. 8, No. 16, 2004.

23 C. Bonnal, L. Francillout, M. Moury, U. Aniakou, J.C. D. Perez, J. Mariez, S. Michel, *CNES Technical Considerations on Space Traffic Management*, cit., note 1.

4.1. An Insight on the Programmes

In 2006, in order to address the issue of providing Europe with an independent SSA capability «through a structured and top-down approach», the European Space Agency set up an SSA Users Group whose first achievement was the indication of a common definition and scope of an SSA system.²⁴ In the final report, SSA was defined as a comprehensive knowledge, understanding, and maintained awareness of the population of space objects, the existing threats/risks, and the space environment.²⁵

Over the same period, despite the still limited competence of the European Union in the space sector, developments in the field of space surveillance to provide the EU with an autonomous capacity to detect and identify space objects were encouraged.²⁶ In 2005, the European Commission convened a Panel of Experts on Space and Security to provide inputs for the elaboration of the first European Space Programme, based on the White Paper issued in 2003.²⁷ In order to protect the European space infrastructure, the Panel recommended to set-up a coherent European framework initiative to the space elements of global situation awareness through the elaboration of top-down dedicated projects complementing the national and intergovernmental actions and in support of Member States.

One of the main issues concerned the promotion of pan-European cooperation in the Space Surveillance and Tracking (SST) segment of the SSA, as SST systems are generally dual-use in nature, i.e., they can serve both civil and military users and are owned or operated by military organisations. In this regard, some Member States expressed concerns about compliance with defence and security requirements, as well as concerns related to national sovereignty that should be addressed through an adequate governance model. Between the ESA and the EU, the latter was deemed to be more suitable for complying with national concerns resulting from the specific nature of SST systems and data and, after a decade, the legal basis for the setting up of an EU SST support framework was established with Decision 541/2014. The Decision foresaw the creation of an SST Consortium currently composed of seven EU Member States, namely France, Germany, Italy, Poland, Portugal,

24 Council of the European Space Agency, *Space Situational Awareness Preparatory Programme Proposal*, ESA/C(2008)142, Paris, 12 November 2008, pp. 7-8.

25 *Ibid.*, p. 6.

26 In the absence of a legal basis in the European Treaties, the action of the EU in the sector was qualified as complementary to other sectors of the European range of action, such as the industrial competition, the research and technological development, the competition policy, the transports and the Earth environment monitoring.

27 European Commission, White Paper “Space: a New European Frontier for an Expanding Union. An Action Plan for Implementing the European Space Policy”, COM/2003/0673 final, Brussels, 11 November 2003.

Romania, and Spain, in order to provide, through the SST Service Provision Portal operated by the EU Satellite Centre (SatCen), a set of SST services.²⁸

4.2. The SSA EU Flagship Programme in Regulation 696/2021

Some provisions of Decision 541/2014, furthered by Regulation 696/2021, attribute a key role to EU institutions and in this paper are proposed to be considered for the development of an STM system at the European level. Notably, Regulation 696/2021 repealed Decision 541 with a retroactive effect to 1 January 2021 and provided for the evolution of the SST Consortium to an EU SSA flagship programme. The programme now encompasses all the three segments, or sub-components, of SSA, namely SST, Space Weather Events (SWE) and Near-Earth Objects (NEOs).

The first element considered is the legal basis for the setting up of an EU SST/SSA capability. At the origins, this was a Decision of the European Parliament and the Council, while now it is incorporated in an EU Regulation. A “decision” is a legal instrument adopted by the EU binding only on those to whom it is addressed – in this case these were the EU Member States under Article 14 of Decision 541/2014 – and is directly applicable. A “regulation” is a binding legislative act as well, but it is general in scope. Regarding the possible legal basis for the setting-up of initiatives for the management of the space traffic through an EU system, this could be the same as of the other EU flagship programmes, i.e., Articles 4(3) and 189 TFEU. However, specific considerations concern the several elements that make up an efficient and comprehensive STM system. For instance, standardisation is crucial to guarantee interoperability of the different technical references that exist today and coherence among the actions undertaken by all the entities involved in the system. The same European Commission in its Action Plan for Synergies referred to «develop STM standards and rules [...] to avoid the risk of non-EU standards becoming the norm».²⁹ The question is thus whether the EU should adopt standards – and in this case, define which are the instruments at EU’s disposal to adopt such standards – or should resort to other existing entities as, for instance, the European Cooperation for Space Standardisation (ECSS) to which the European Commission is currently an observer.

28 Decision No 541/2014/EU of the European Parliament and of the Council of 16 April 2014 establishing a Framework for Space Surveillance and Tracking Support; R. Peldszus, P. Faucher, European Space Surveillance and Tracking Support Framework, in K.U. Schrogl (ed.), Handbook of Space Security, Switzerland, 2020.

29 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions “Action Plan on Synergies Between Civil, Defence And Space Industries”, cit., note 18.

Second, the EU Member States managed to formulate a commonly agreed definition of SSA and its sub-components. The formulation of a definition allows to set up the limits of the range of actions required and guarantees the efficient implementation of the related policies by expressing the convergence of interest towards specific objectives. Remarkably, in order to meet coordination and interoperability requirements, the partners of the SST Consortium also agreed on joint definitions of relevant terms and concepts that guide the operational exchange of SST data and information.³⁰

Another relevant element concerns the security aspects of the programme. While it is the responsibility of the participating Member States to the EU SST Consortium to manage the security accreditation and provisions on the use and secure exchange of SST data and information, the EU SST will be at the same time integrated into the institutional security framework of the EU space programme. This requires that the Consortium Member States activities are performed on the basis of the risk and threat analysis elaborated for each Programme component by the European Commission and the potential security requirements to be adopted, under the new Regulation, by the end of 2023.

Furthermore, the creation of the Consortium allowed for the transference to the EU of a share of the financial burden of SST operation and coordination activities and the new Regulation allows to provide financial support for the development of new SST sensors, meaning that the SST infrastructure is expected to expand.³¹

The Regulation also recognizes new users of SSA/SST services by encompassing the possibility to have users from outside the EU. Notably, “third countries and international organisations not having their headquarters in the Union may have access to SST services by concluding an agreement, in accordance with the provisions on the conclusion of international agreements by the Union, laying down the terms and conditions for access to such SST services.³² It is an important new element, which expands the user base of the Programme.

Finally, the Regulation provided for the establishment of permanent Expert Teams, to be managed and staffed by the Constituting National Entities of the Member States which designated them in order to ensure the protection of SST data, information and services.³³ Such an established network could be exploited for coordinating future initiatives in the STM realm, with its possible expansion in the future.

30 M. Becker, P. Faucher, Recent Developments in the Implementation of European Space Surveillance & Tracking (EU SST) – Security and Data Policy, in *Journal of Space Safety Engineering*, Vol. 8, June 2021.

31 Regulation (EU) 2021/696 of The European Parliament and of The Council of 28 April 2021, cit., note 13, Considerando 90.

32 *Ibid.*, Article 8. See also Article 218 TFEU.

33 *Ibid.*, Article 58(6).

5. Conclusion

The paper reported on the elements of the governance of the EU SSA programme that can be possibly considered in the development of a future European STM capability. The programme evolved from the original EU SST Consortium to an EU flagship programme, allowed to leverage existing national capabilities and pool the efforts with the aim of providing Europe with an independent capability to monitor the near-Earth space environment. Notwithstanding the prominent role played by the individual EU Member States in the field, an EU “added value” in providing Europe with an SST system, precursor of a future STM capability, is registered. The SST support framework has given the Member States an incentive to cooperate in this nationally sensitive area and has helped to increase transparency and build confidence. As the level of ambition of the EU in the sector is growing, it can represent the drive for the strategic development of an STM capability. This should be based on the fundamental steps performed so far, from an operational as well as a governance model viewpoint.