REACTION PAPER: EU SPACE STRATEGY FOR SECURITY AND DEFENCE

EUROSPACE REACTION TO JOINT COMMUNICATION TO THE EUROPEAN PARLIAMENT AND THE COUNCIL "EUROPEAN UNION SPACE STRATEGY FOR SECURITY AND DEFENCE"

A MAJOR AND POSITIVE EVENT FOR THE SECTOR, KEY IN MAKING EUROPE A REAL (UNIFIED) SPACE POWER

On March 10th, the European Commission (EC) and the High Representative of the Union for Foreign Affairs and Security Policy published the Joint Communication "EU Space strategy for Security & Defence"[1].

The purpose of the EU Strategy for Security & Defence is to find the right balance between continuing to preserve a safe and secure environment and the peaceful use of outer space, and enhancing the strategic posture and autonomy of the EU in this strategic domain.

The **priorities highlighted in the Eurospace Position Paper** "*Industry contributions to the ongoing reflections about an EU Space Strategy for Security and Defence*" are **very well reflected in the Joint Communication "*Space strategy for Security & Defence*".**

There is a common understanding of the new geopolitical context, the criticality of space assets and services, and the necessity to develop measures aiming at protecting and defending them. Before even enhancing the resilience and protection of space systems and services, the recurrent update of threats identification is a priority shared by Industry, whose inclusion in the mapping and recommendations exercise needs to be foreseen by institutions. In order to adequately allocate priorities and efforts on the space sector, threats should be also be evaluated in the prism of their consequences on non-space sectors, which value is much larger than on space assets by themselves.

Enhancing the resilience and protection of space systems and services in the Union is a must and the **Strategy largely embarks ideas and concepts for the development of technologies/capabilities listed in our Eurospace Position Paper and our industry's inputs to the European Defence Fund (issued in March 2021)**. An underlying challenge to this objective is the **capability to increase the low-level of public investment currently limiting the ability of the European space industry to compete on equal footing with its competitors, particularly across the Atlantic, who benefit from a larger, more cohesive and captive domestic market**. Despite recent progress, the limited scope and fragmented nature of the EU's internal market for military space remains a limiting factor for the development of a more robust and competitive European Defence and Technological and Industrial Base (EDTIB) fully able to address the strategic challenges highlighted in the Joint Communication.

Enhancing the resilience and protection of space systems and services in the Union also means implementing measures to support technological sovereignty and resilience of critical industrial value chains to ensure non-dependence; in this regard, the **key role of industry in the identification of dependence issues (and mitigation measures) needs to be much more promoted than it is in the Strategy**.

More generally, when it comes to the way industrial policy is addressed in the Joint Communication, one can however regret (once again…) the nearly exclusive focus on "New Space", that lacks a clear definition and has regretfully become a loose concept amongst several institutional actors in Europe promoting policy measures aiming at unclear policy objectives, increasingly prone to divert the attention of decision-makers from clear and concrete objectives. Continuing to insist on the theoretical difference between so-called "traditional" industry and "New Space" actors refuses to acknowledge the fact that the measure of success for start-ups is whether or not they manage to become full-fledged industrial actors with the means to translate their ideas into concrete industrial developments. Ultimately, collaboration between all stakeholders of the space sector is the only way forward, but only if it develops organically within industry, rather than being artificially imposed. It is worth noting that Eurospace membership itself (see Annex) demonstrates the artificiality of this distinction as our members represent the whole span of the European space industrial sector.

[1] https://ec.europa.eu/transparency/documents-register/detail?ref=JOIN(2023)9&lang=en

The **necessity for all the actions related to Industry (competitiveness, critical technologies, security of the supply chain…) to be integrated as part of a coherent and European-wide industrial policy is very much absent in the text**. Imagining a "Space Strategy for Security and Defence" without mentioning the need for an industrial policy, and not even describing the particular situation if the European space industry and its strong dependence on the very limited open markets, is extremely worrisome.

Finally, regarding partnerships or interoperability outside the EU framework, indeed **very much needed**, it will be of course key to ensure that they do not risk to undermine **European sovereignty and autonomy**, with reciprocity and mutual benefits as common rules.

EUROSPACE POINTS OF ATTENTION

The European space industry is fully mobilised to support the initiative with its long-standing expertise in the provision of infrastructures and services of "dual use" nature and is looking forward to help improving our technological non-dependency and the contribution of space to European defence capabilities, enhancing the resilience of European space assets, and preventing the proliferation of sensitive technologies and capabilities.

Eurospace therefore wishes European institutions to consider the following points of attention.

INTRODUCTION – SPACE AS STRATEGIC DOMAIN

The European External Action Service (EEAS) and the European Commission recognise the **absolute criticality of space** as a key asset for the independent and informed decision-making and action-taking of European policymakers in crisis management and security, which is – as hoped for by Industry for certainly two decades – the indispensable step to devise a serious European-wide space policy.

Eventually, the EU sees as increasingly vital that Europe's growing reliance in space-based services is accompanied by **measures aiming to protect and defend its space-based capabilities and services.**

1. THE SPACE THREAT LANDSCAPE

This chapter aims at providing an overview of the threats that would be responsible for the disruption, degradation or destruction of space systems. In this regard, the EC and the EEAS will prepare an annual analysis of space threat landscape that should encompass the three dimensions of to-space, in-space and from-space treats. **The European space industry can actively contribute to this yearly analysis cycle** by providing useful insights into the reality of day-to-day space operations, from the point of view of space manufacturers, operators or service-providers.

Such an assessment, called for by the European space industry, would help to avoid having sensitive capabilities (including skills, technologies, assets and building blocks) being acquired by potentially hostile countries or organisations. In addition, it would allow industry to:

- **Work on new R&D priorities** specific to already-known threats or a new type of threat that would be arising;
- **Raise awareness** among customers and institutional players of the need for preventive approaches;
- **Define new standards** for crisis response and mitigation measures;
- **Exchange best practices** between private and public players;
- **Adapt approaches** used to protect ground infrastructures to protect space ones.

Besides, **the European space industry would represent a key partner** both in the elaboration of this analysis and in the identification of the recommendations and measures that will result from it.

Similarly to what is being done in the field of cyber, specific real-world events could be analysed jointly between industry and institutional stakeholders to provide a dynamic assessment of evolving threats and vulnerabilities and determine appropriate mitigation measures. This would in turn provide the basis for space exercises aimed at enhancing readiness and interoperability (see below).

2. ENHANCING THE RESILIENCE AND PROTECTION OF SPACE SYSTEMS AND SERVICES IN THE EU

This chapter identifies four broad families of action (i.e., Collaboration and exchange of information on threats including cyber-security; Support to technological sovereignty, resilience and non-dependence; Addressing risks to security in the space sector in the EU; and Technologies and capabilities for resilience).

- The possible future "EU Space Law" to cover safety, security & sustainability very much goes **in the direction of an EU approach to Space Traffic Management (STM) promoted by the European space industry**.
    - Regarding (cyber)security of the systems, the European space industry fully agrees that the "security by design" requirement is essential for resilience. Common European security standards are also key as long as they are used in a practical way, as the definition and adoption cycles are often too long in the competitive market we are facing. This means that:
        - They need to be developed in parallel to the development of the technology;
        - An agile certification process needs to be foreseen;
        - **The inclusion of the whole space value chain (in particular start-ups and SMEs that lack such competence) in their ability to meet security requirements requires a better institutional support and collaboration within the supply chain**;
        - The definition and approval of "Common European security standards", appears to be on the very critical path to achieve cyber-security by design.
            - While it is recognised that postponing the (cyber)security by design to the availability of stable and shared normative framework could entail a huge and critical delay, it should also be noted that the development of these standards in parallel to the development of the technology entails the risk to achieve limited/late endorsement by manufacturers, due to the 'uncertain' normative baseline. **Therefore, this action becomes essential, very urgent and to be promoted by a specific funding action**;
        - It needs to be noted that the CER Directive ("on the resilience of critical entities") and the NIS 2 Directive ("on measures for a high common level of cybersecurity across the Union ») are, as far as we know, only applicable at Member States level but not at EU institutions level. How, and if, the EU intends to apply these Directives to its own assets remain to be seen.

- Measures to **support technological sovereignty and resilience of critical industrial value chains** to ensure non-dependence have also been called for by the European space industry:
    - An **increased budget of the European Defence Fund (EDF) and Horizon Europe (HEU) is very much welcome** as when it comes to the latest stages of development (from TRL5 and above) the EU seemed so far unable to align its budget – and related financial instruments – with its stated ambitions to bring advanced technologies to the required readiness level. Space, like digital and cyber, is seamlessly embedded in lot of important and strategical non-space domains;
    - In the context of the "re-energisation" of the Joint Task Force, it is key that a **single process** leading to a single agreed and shared repository of critical situations is foreseen, as is the **presence of industry as a key stakeholder of the process.**
        - **Dependence reduction is key to support the competitiveness of the European space industry** provided that it does not only focus on the pure development of European alternatives but is also accompanied by a strategy to make the developed material and chips sustainable over time from a commercial standpoint; This can be

done through a stringent industrial policy but also by putting clear competitiveness requirements into such development;
        - Besides, the sentence "*the activities of the JTF will also feed into the EU Observatory of Critical Technologies*" remains to be better explained, especially about the future respective roles of the JTF vs the OCT (and more generally about the ultimate role of the OCT);
        - The exercises run by EDA in the frame of their Strategic Research Agenda elaboration need to be harmonised with the JTF work to avoid parallel streams of actions addressing overlapping topics.
    - The **establishment of Important Projects of Common European Interest (IPCEI)** related to technologies relevant for space and defence could contribute to increase the level of funding and the development and sustainability of double sources in Europe.

- Addressing risks to security in the space sector in the EU via the protection of its supply chains and procurement rules that fully guarantee security of supply is of course very much welcome; the **necessity for all these actions to be widely integrated as part of a coherent and European-wide industrial policy is however key**.

- Technologies and capabilities for resilience:
    - Self-protective payloads, responsive launchers, space situational awareness capabilities, in-orbit servicing, secured sovereign cloud dedicated to space applications are as much technologies/capabilities for resilience listed by the Joint Communication; the development of which to be accelerated in the frame of the EDF, HEU, and the Space Programme. **This largely echoes the technologies/capabilities listed in the Eurospace Position Paper coupled to industry's inputs to the European Defence Fund (March 2021)**.
        - As proven on battlefields, logistics is key. This very much applies also for space, meaning that "in orbit servicing" should be extended to space logistics as a whole (including re-supply, maintenance & repair).
    - As promoted by industry, the EU also recognises the need to ensure **long-term EU independent access to space:**
        - However, when explaining the proposed way-forward, the Communication only addresses the issue of "***responsiveness and versatility in access to space***" (via the development of "*European complementary launch system capabilities based on synergies among the different launch vehicles being developed in Europe*" in order to significantly reduce payload launch times), which is certainly important but **only a portion of the broader responsive space puzzle** which warrants an integrated approach involving all actors of the space value chain, from launch service providers and satellite manufacturers to military end-users. Beyond wishful thinking, responsive space can only be apprehended as an end-to-end system-of systems approach in response to clearly identified concept of operations (CONOPS);
        - **European preference regarding the procurement of launch services for European institutional missions** should be recalled as an explicit requirement. The EU should also grow its own domestic demand in order to fully sustain a sovereign European launch industry.

As a general note, the European space industry recalls **the need to promote actionable measures taking into account the potential for concrete and timely application** rather than generic calls for action not backed by a pragmatic industrial policy in support of the overall objective of enhanced resilience at European level.

3. RESPONDING TO SPACE THREATS

Detecting threats goes along with **developing a fully-fledged and autonomous STM architecture** relying *inter alia* on the set-up and support to the establishment of funded programme lines to **further develop European STM capabilities (Space Surveillance and Tracking[2], Space Domain Awareness[3])** and the speed up of the deployment of commercially viable, competitive and scalable European SST and STM capabilities.

In this sense, the strong focus of the Joint Communication on Space Domain Awareness capabilities is very much welcome, provided that:

- It **relies on industry's support, expertise and capabilities** all along the way according to the principle of non-duplication and performance at European level. As such, EU SST needs to expand its willingness and ability to acquire European commercial SSA data and services at a much quicker pace; as a reminder, EU SST has only started to open up to industry at the end of 2022, after more than 5 years of existence. Furthermore, EU SST should be used as tool to openly stimulate the emergence of a commercial SSA market at EU level;
- The efforts of the EU Member States need to be **strongly coordinated at EU level** in support of the objective of increased European strategic autonomy (and possibly preparing the way for a capability at EU level fully leveraging industrial capabilities and service offerings);
- The "pilot for the delivery of initial SDA services in support of EU response and to explore synergies with the SST subcomponent of the Space Programme, with a view to future developments" clearly defines the areas to be considered and the targeted outcomes; in particular Industry recommends to launch already by the end of 2024 this pilot project, that will be key to support the preparation of adequately funded future developments within the next EU Space Programme.

As promoted by Industry, the Strategy also recognises the **importance of space exercises**; coordination between Europeans is needed to be stronger, more efficient and have more weight with respect to our allies, in particular the USA. This supposes to **build a common culture of space operations** and the establishment of joint tactics, techniques and procedures (TTPs) for operational efficiency.

4. ENHANCING THE USE OF SPACE FOR SECURITY AND DEFENCE

Improving the contribution of space to European defence capabilities also means relying on already-existing European Flagship Programmes, and improve them with a security and defence dimension.

On Copernicus, the Strategy foresees a complementary intelligence and surveillance space-based system to provide a fully reliable, highly resilient, and continuously available situation awareness service[4]. If such a complement would **allow industry to leverage past investments done in the frame of national security programmes and offer an opportunity to open new markets**, an extension of Copernicus towards Security capabilities would mean a significant **increase of the programme objectives** and should be carefully assessed (according notably to the risks associated for the **Copernicus Programme funding capacities**, the current open data policy of Copernicus and its impact on established private operators).

[2] *To be understood as the capability to monitor space objects and to predict and alert about risks of collision (including the operation of space surveillance sensors and the processing and analysis of orbital data to provide information and services)*
[3] *To be understood as the military counterpart of SSA i.e., the detection, identification and characterisation of space objects of interest in near real time (including the description and understanding of their behaviours) and connecting this information to underlying doctrines and related space systems.*
[4] *In this respect, it must be unambiguously clarified if "the advanced payload technologies and data processing techniques, […] highly reactive small satellites for space-based Intelligence, surveillance, and reconnaissance" are here to serve this new Copernicus service.*

On Galileo, and as promoted by Industry, the Strategy seems to acknowledge that **Navwar shall be at the heart of European preoccupations and that Galileo PRS shall continue to evolve quickly** to be continuously turned more robust. However, one must not forget that **Galileo needs to continue evolving towards upgraded services in line with a fast-growing demand in terms of accuracy, availability and resilience**. In order to address the coming challenges, Galileo could be thought as a multilayer system where multiple components, such as LEO PNT, contribute to enhanced flexibility, high accuracy, resilience as well as new services like two-way communications for short messaging exchanges and additional capacity to disseminate critical information to the European citizens all over the world, like emergency messages.

On IRIS², the European space industry is, since the beginning, a **strong supporter of the initiative** as it will, in an area where European industrial and design capabilities have already been demonstrated, help the Union remain a leading international player with freedom of action in the space domain.

Now, regarding EU's assessment of the importance for Europe to have a competitive Industry, and the level of ambitions found in the proposed "ways forward", the "Joint Strategy" is, very worryingly, extremely weak. **It remains for instance to be explained by the Commission why the objective of "competitiveness" seems to be exclusively associated to "New Space companies" and consistently ignoring (/glossing over) the fact that the European Industry is able to make between 35%-50% of its turnover on the commercial markets (which it needs to actually exist) and is contributing for more than 1.5B$ net to the European commercial balance.**

On education and skills, while the European space industry fully supports the ambitions of the Strategy regarding skills, as industry regularly highlights its difficulties in recruiting highly-skilled workers, the **STARS*EU Workforce and Skills Report** that was recently delivered to DG DEFIS already aimed at providing an overview of the fields of activity as well as of skills needs in the space sector. It can therefore be **the starting point for European Defence Agency (EDA)** in its mapping of space security and defence training activities.

5. PARTNERING FOR RESPONSIBLE BEHAVIOURS IN OUTER SPACE

To ensure secure, sustainable and reliable use of space-based capabilities, partnerships with other regions or entities are deemed essential.

Cooperation is indeed key. However, **preserving European sovereignty and autonomy** should be included as a must while promoting collaboration and interoperability, with reciprocity and mutual benefit as common rules, with the US and other like-minded third parties.

The absence of a mention to the European Space Agency (ESA) in this chapter is a bit surprising (at least it would have been interesting for the EU to express recommendations about the expected evolutions of ESA to address security/defence matters).

THE KEY DIMENSION OF IN-SPACE MOBILITY AND LOGISTICS

In-space mobility & logistics (encompassing corresponding satellite platforms, certain platform capabilities, payloads, ground infrastructure and architecture), paired with access to space, is today **considered an integrated function of any modern space power** as it enables responsiveness and agility in space.

In-space mobility and logistics capabilities are also powerful means to enable increasing the resilience of space infrastructure. These encompass the ability to inspect, relocate, upgrade (or augment through technology upgrades) and repair, refuel satellites in orbit, so that they can be maintained and kept in service for longer. Moreover, these kinds of technologies can be used to improve safety of operations in space, through the cleaning of orbits with removal of debris.

As such, the **Strategy would benefit from an expanded view of space mobility as a dual function** with specific challenges and opportunities for the development of strategic and economic opportunities in line with European priorities in the field of energy, environmental sustainability as well as space security & defence.

WAY FORWARD FOR THE IMPLEMENTATION OF THE STRATEGY

The publication of the EU Strategy for Security and Defence is a very first (and welcome) step towards making Europe a real (unified) space power.

This means that we must give ourselves the means to achieve our collective ambitions and implement the strategy in the most far-reaching way possible.

In this regard, **the European space industry will be working on concrete recommendations regarding the implementation of the Strategy in addition to this "Reaction Paper".**

Without prejudging the elements that will be put forward by the European space industry at a later stage, and as ambitious as the implementation will be, it will have to rely on:

- The necessity for all the actions related to Industry (competitiveness, critical technologies, security of the supply chain…) to be **integrated as part of a coherent and European-wide industrial policy;**
- **A policy-driven approach** with the creation of a global forum to follow the implementation of the strategy to include different stakeholders at EU level (i.e., EC, EEAS, EUSPA, EDA, EU MS and industry). This platform would be tasked to provide specific inputs for the full implementation of the strategy within the current and next MFF. Inputs shall address *inter alia* the evolution of the current space programmes to serve at best the priorities of the strategy, shaping new programmes, user requirements, dialogue with EU MS Ministries of Defence (to be able to ensure that true EU Space for defence capabilities are created, are operational and serves the EU and its MS), standardisation, dependencies, technology gaps, industrial policy issues, governance, sovereignty;
- **A sound financial capability** to support the implementation of the strategy. The budget will be used to fund enlarge existing and fund new programmes, address current capability gaps, ensure EU industry competitiveness, and respond at best to user requirements.

ANNEX – EUROSPACE MEMBERS STATUS

Company	Country
Air Liquide Advanced Technologies	France
Air Liquide France Industry	France
Airbus Defence & Space Gmbh	Germany
Airbus Defence & Space Ltd	United Kingdom
Airbus Defence & Space Netherlands B.V.	Netherlands
Airbus Defence & Space Sas	France
Airbus Defence & Space Sau	Spain
ALTEC	Italy
ALTER Technology-TÜV Nord France	France
ALTER Technology-TÜV Nord S.A.U.	Spain
ALTER Technology-TÜV Nord UK	United Kingdom
AntwerpSpace N.V.	Belgium
APCO technologies	Switzerland
Arianegroup Gmbh	Germany
Arianegroup Sas	France
Arianespace	France
Avio Spa	Italy
Azur Space	Germany
Beyond Gravity AB	Sweden
Beyond Gravity Austria	Austria
Beyond Gravity Swiss	Switzerland
CGI France SAS	France
CGI Deutschland B.V & Co. KG	Germany
CS Gmbh	Germany
CS GROUP - France	France
CS Romania	Romania
Dassault Aviation	France
Deimos Engenharia	Portugal
Deimos Space	Spain
Deimos Space Romania	Romania
Deimos Space UK	United Kingdom
eGEOS	Italy
Elecnor Infrastrutture e Aerospaziale	Italy
GMV Aerospace & Defense S.A.U.	Spain
GMV GmbH	Germany
GMV Innovating Solutions B.V	Netherlands
GMV Innovating Solutions S.R.L. (B)	Belgium
GMV Innovating Solutions S.R.L. (RO)	Romania
GMV Innovating Solutions SARL	France
GMV Innovating Solutions Sp.z o.o.	Poland
GMV NSL Limited	United Kingdom

GMV Soluciones Globales Internet S.A.U.	Spain
GMVIS Skysoft S.A.	Portugal
Indra Sistemas SA	Spain
Kongsberg Defence & Aerospace	Norway
Loft Orbital	France
MOLTEK	Netherlands
MT Aerospace AG	Germany
Neuraspace	Portugal
OHB ITALIA	Italy
OHB Systems AG	Germany
Pangea Aerospace	Spain
REOSC	France
RHEA Group	Belgium
SABCA	Belgium
Safran Aero Boosters	Belgium
Safran Aircraft Engines	France
Safran Data Systems	France
Safran Electrical & Power	France
Safran Electronics & Defense	France
Safran Engineering Services	France
Safran Filtration Systems	France
SENER Aeroespace and Defence	Spain
SITAEL S.p.A.	Italy
SpaceAble	France
ST Engineering iDirect Europe CY NV	Belgium
Telespazio Belgium SRL	Belgium
Telespazio Germany Gmbh	Germany
Telespazio Italy Spa	Italy
Terma A/S	Denmark
TESAT Spacecom GmbH&Co. KG	Germany
Thales Alenia Space Belgium	Belgium
Thales Alenia Space France	France
Thales Alenia Space Germany	Germany
Thales Alenia Space Italy	Italy
Thales Alenia Space Luxembourg	Luxembourg
Thales Alenia Space Poland	Poland
Thales Alenia Space Spain	Spain
Thales Alenia Space Switzerland	Switzerland
TNO	Netherlands
TTTech Computertechnik GmbH	Austria