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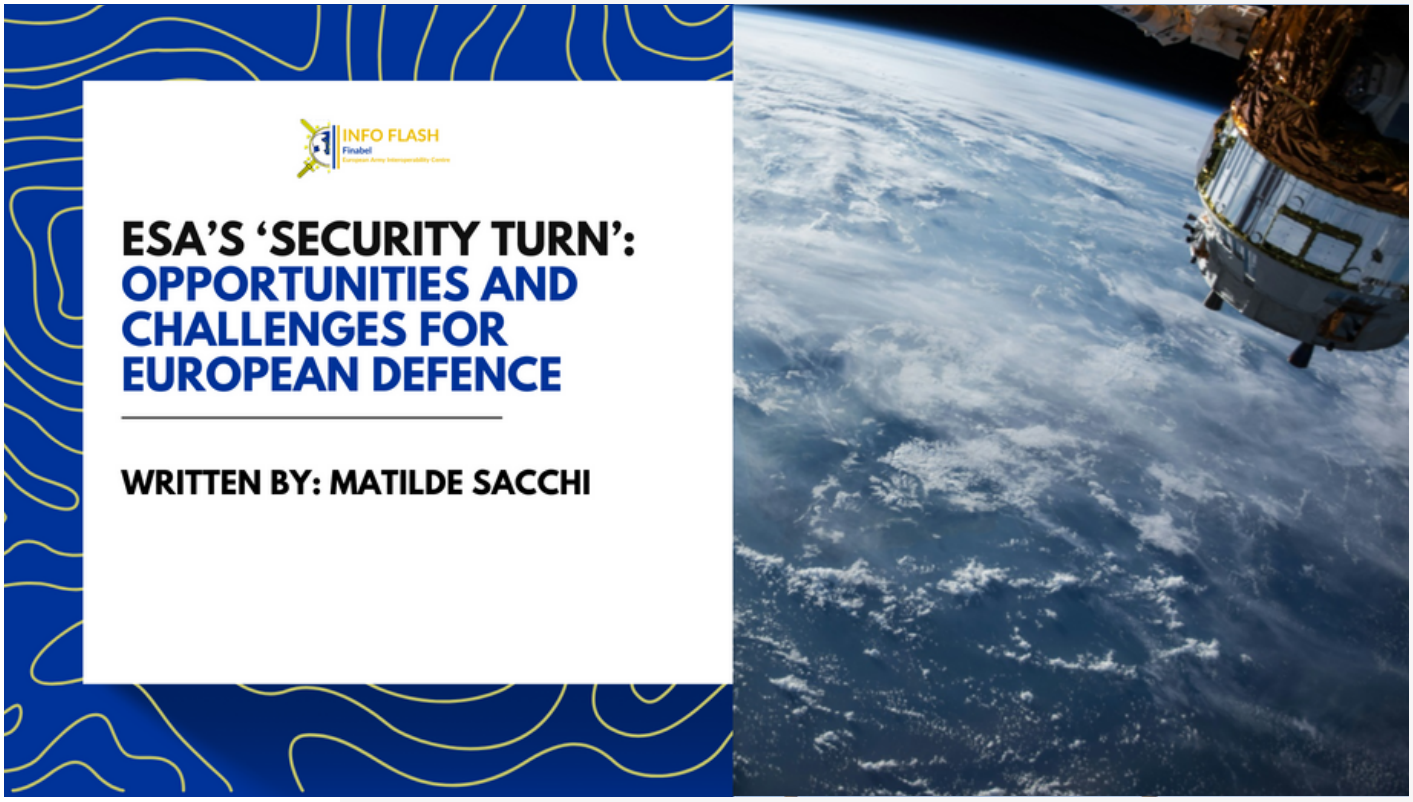

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Introduction

In recent years, the European Space Agency (ESA) has seen a gradual expansion in its mission to now include ensuring space security. Such a change may have been favoured by the evolving needs of the EU, which is one of the ESA's main partners and has become more and more concerned with the security and resilience of its space assets, as well as increasingly relevant in the ESA's funding. Accordingly, ESA might be transitioning from a purely civilian and scientific organization to an institution entrusted with developing the security of space facilities against natural hazards and collision with man-made objects, both deliberate and unintended. While ESA's new 'defence for space' approach has surely increased the institution's military relevance, it is still unclear whether such a transition will benefit or impede European defence. On the one hand, profiting from the consolidated technical expertise of the ESA could afford European the armed forces the opportunity to increasingly rely on high-quality space facilities. On the other hand, institutional overlap and ensuring coordination with other EU bodies could present serious challenges, ones which could eventually hamper the efficacy of European space assets for military activities.

This paper aims to assess the meaning of ESA's 'security turn' and its implications for European defence. Firstly, the historical evolution of the EU-ESA partnership will illustrate how the EU might have pushed towards the ESA's increased commitment to space assets' safety and security, backed by a reinterpretation of ESA's mission as delineated in its founding convention.

Secondly, it will be considered how the ESA itself has reshaped its role by embracing new concepts, such as the 'defence for space' one, and by reconceptualizing old notions, for example 'safety and security applications'. Moreover, an overview of the ESA's security-centred partnerships and projects will show the practical effect of such an abstract work. To conclude, the opportunities and challenges for European defence of the ESA's engagement in space security will be presented.

The ESA-EU Partnership

Founded in 1975 and made up of 22 countries, the ESA is an intergovernmental organisation outside the scope of EU institutions but has recently become a key partner of the EU in space affairs. The ESA can be considered both a forum of international cooperation between its member states and an actor of international cooperation. Therefore, 'states cooperate through ESA, and ESA cooperates with other partners' (UNCOPUOS, 2018, p.1). Amongst its partners, the EU has become prominent, with the two organizations sharing a joint European Strategy for Space and having jointly developed the European Space Policy. The cornerstone of the ESA's cooperation with the EU lies in the 2004 ESA/EC Framework Agreement. The agreement opened the possibility of EU participation in ESA optional programmes, as well as ESA management of EU space-related activities, as outlined in Article 5(1)(a) (EC/ESA, 2004). The ESA currently acts as the implementing agency for the EU space programme and manages some space-related activities on the EU's behalf, such as Galileo and the fleet of Copernicus, Meteosat and Metop satellites. On the financial side, EU contributions make up 23.4% of the agency's 2024 budget, which in all totals €7.8 billion (ESA, 2024).

The remarkable amount of funds and the relevance of the tasks attributed to the ESA by the EU make the latter very influential over the ESA's agenda. More specifically, the EU may have contributed to the gradual shift in ESA's priorities from conducting purely scientific research to developing space applications for safety and security. Since the beginning of ESA-EU cooperation, the range of shared interests has also included security. In Edinburgh, in November 2001, Mr. Romano Prodi invited the EU and ESA to draw more attention to security and, indirectly, defence. The Director General of ESA Mr. Antonio Rodotà responded favourably, saying that he would examine how space technologies could be used in the field of the Common Foreign and Security Policy (CFSP), without involvement in any military programme, since the ESA convention rules out any military activity (ESA, 2002). However, the interpretation of such prohibition has loosened over time. According to the former Belgian defence minister Mr. Jean-Pol Poncelet, the wording 'for exclusively peaceful purposes' enshrined in Article II of the ESA Convention (ESA, 2019, p.13) 'no longer has the meaning intended at the time by the founders in the context of the Cold War. The concept has evolved a great deal over 30 years. For us today, it basically comes down to 'non-aggressive", and 'peaceful purposes can very well mean security purposes too' (ESA, 2002). In light of such a new interpretation of the ESA's mission, the organization has been increasingly involved in EU efforts towards strengthening the resilience of space infrastructures, also military ones. In the 2016 'Joint Statement on Shared Vision and Goals for The Future of Europe in Space', the ESA and the EU agreed on 'strengthening synergies between civilian and security activities in the fields of navigation, communication and observation' (ESA, n. d. - a). In the 2023 EU Space Strategy for Security and Defence, the European Commission called on the ESA 'to put in place relevant measures and mechanisms to ensure the protection of the security interests of the EU and its Member States' (EC, 2023, p.6). On its part, the ESA well acknowledged the security concerns voiced by the EU and integrated them into the spectrum of its activities. In the ESA Agenda 2025, two of the five main priorities are to 'Strengthen ESA–EU relations' and 'Develop space for safety and security'. In this programmatic document, it is stated that 'ESA should become the natural technical partner for developing space infrastructure with safety and security purposes at European level' (ESA, 2021, p.9) and support the cause of Europe's strategic autonomy.

The ESA Reinterpreting its Role

The ESA is trying to balance the safety and security of space projects with its original commitment to the peaceful use of outer space. To do so, the ESA is framing its action in terms of 'defence for space', rather than 'space for defence' (ESPI, 2020, p.3). This means that the ESA is keen to increase the resilience of space assets against kinetic and non-kinetic attacks, such as jamming, spoofing, or cyber-attacks, through high technical standards rather than by supporting specific military activities with its space assets. Moreover, the ESA insists on a broad understanding of 'safety and security applications' in space that extends beyond the traditional military definition (ESA, 2024) and includes identifying risks, monitoring their evolution, informing the public and stakeholders, and mitigating their effects (ESA, n. d. – b).

In practice, the ESA is contributing to the unilateral, multilateral, and EU projects in space, including military ones, which are carried out for strictly non-aggressive purposes. In 2004, Europe's Ariane launcher was used to deploy military satellites such as Helios and Skynet with military payloads. The Franco-Spanish intelligence satellite Helios and its payload were even tested at ESA's Science and Technology Centre (ESTEC). Moreover, the ESA is engaging in close cooperation with the European Defence Agency (EDA) in several areas of joint interest, from R&D to concrete applications of space technologies. The EDA and ESA's joint project 'Cyber Defence for Space' aims to identify the risks that current and future space systems supporting military operations might face, as well as the specific space-based threats and security concerns (EDA, 2018). Other examples of the EDA and ESA working together on space projects include the Multinational Space-based Imaging System (MUSIS) and a satellite-based data transfer system (Mazurek, 2012). Together with the European Commission and the EDA, the ESA participated in the 'Critical Space Technologies for European Strategic Non-Dependence' exercise (JTF, 2016) in 2015 and again in 2023 so as to compile a new list of urgent actions to be implemented between 2024 and 2027.

Challenges and opportunities for European defence

Effective cooperation with the EU in space security matters by the ESA would represent a unique opportunity to boost the European space industry and capabilities in both the civilian and military domains. The demand for satellite services for military and security applications in Europe has recently increased due to the growing participation of European military and security forces in expeditionary operations overseas, peacekeeping, peace enforcement, as well as humanitarian missions under the Common Security and Defence Policy (Bryla, 2018). Applying ESA's R&D capacities to the military space industry can help meet such needs and optimise the available resources. In particular, synergies on dual use amongst civilian and military sectors make political, technological, and budgetary sense (EDA, 2017).

Nevertheless, problems might arise when coordinating ESA's space safety and security activities with those carried out by other EU bodies and such problems may hinder the usefulness of space assets for European military actors. In particular, ESA may overlap with the newly born European Union Agency for the Space Programme (EUSPA). Established by Regulation 2021/696, the EUSPA encompasses all EU space activities under one roof It advances the commercialization of Copernicus, Galileo and EGNOS data and services, engages in secure satellite communications (GOVSATCOM & IRIS2), and operates the EU Space Surveillance Tracking (SST) Front Desk. However, EUSPA is also responsible for accrediting the security of all EU Space Programme components (EUSPA, n. d.), for example, by managing the Galileo Security Monitoring Centre, and has a strengthened role in security matters. Although the new agency is not intended to overlap with the ESA, as the latter is more concerned about space technologies R&D and represents some non-EU countries, the risk of institutional overlapping and duplication of efforts remains, especially if the ESA undertakes some security tasks that are within the scope of EUSPA. Having multiple, potentially contrasting, safety and security standards for space technologies risks having a chilling effect on the development of space facilities.

Moreover, the absence of a programmatic division of tasks between the two organizations risks leaving uncovered some functions that will probably be fundamental for the future of the European military uses of space, such as training. The 2023 EU Space Strategy for Security and Defence states that 'By the end of 2024, the High Representative and the Commission, with the support of EDA, EUSPA and ESDC, should improve the skills of public administration and industry to further develop space services for security and defence' (EC/HR, 2023, p.14). However, it does not specify how military personnel will be trained on the security component of those non-military EU space facilities managed by ESA, which have military relevance as they are susceptible to dual use.

Concluding remarks

The ESA's long-standing technical expertise and research capabilities can revolutionize European space security. The agency's commitment to developing the safety and resilience aspect of European space assets and to increasing cooperation with the EU are necessary to increase space security. The ESA has brought forward a new concept of space security centred on reducing areas of vulnerabilities, which is strictly non-aggressive and, therefore, compatible with its mission to promote peaceful uses of outer space. This new conceptualization of space security as 'defence for space' rather than 'space for defence' has already been realised in some projects with the EDA, and the scope of cooperation is steadily widening. However, the practical implementation of the ESA's new role should also consider the potential problems posed by a still unclear attribution of competences between the ESA and other EU bodies, especially the EUSPA. Such problems concern the potential differences between safety and security standards promoted by the two organizations, as well as responsibilities for training military personnel on the security component of non-military EU space assets.

Bibliography

Bryla, J. (2018). The Importance of the European Space Agency's Activities for the Security of the European Union, *Przegląd Strategiczny, 11*, 81-94. https://doi.org/10.14746/ps.2018.1.6

European Space Policy Institute. (2020). Europe, Space and Defence – Executive Summary. ESPI Report 72. Vienna: European Space Policy Institute. https://www.espi.or.at/wp-content/uploads/2022/06/ESPI-Public-Report-72-Europe-Space-and-Defence-Executive-Summary.pdf

European Commission (EC) and European Space Agency (ESA). (2004, August 6) Framework Agreement between the European Community and the European Space Agency. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A22004A0806%2803%29

European Commission (EC) & High Representative of the Union for Foreign Affairs and Security Policy (HR). (2023, March 10). European Union Space Strategy for Security and Defence, Joint communication to the European Parliament and the Council. https://defence-industry-space.ec.europa.eu/eu-space-policy/eu-space-strategy-security-and-defence_en

Domecq J., Wörner J.D. (2017). Space and Security: Crucial Synergies for European Citizens, EuropeanDefenceMatters,13.www.eda.europa.eu https://eda.europa.eu/webzine/issue13/cover-story/space-and-security

European Space Agency (ESA). (2019). ESA Convention and Council Rules of Procedure. 8th edition. Noordwijk: ESA Communications.

European Space Agency (ESA). (2024, January 11). ESA Budget 2024. European Space Agency. www.esa.int https://www.esa.int/ESA_Multimedia/Images/2024/01/ESA_budget_2024

European Space Agency (ESA). (2002, June 20). European Union and ESA: the need for closer working relations. European Space Agency. www.esa.it https://www.esa.int/About_Us/Corporate_news/The_European_Union_and_ESA_the_need_for_closer_working_relations

European Space Agency (ESA). (n. d. - a). Joint statement on shared vision and goals for the future of Europe in space by the EU and ESA. European Space Agency. www.esa.int https://www.esa.int/About_Us/Corporate_news/Joint_statement_on_shared_vision_and_goals_for_the_future_of_Europe_in_space_by_the_EU_and_ESA

European Space Agency (ESA). (n. d. - b). ESA and safety & security applications. European Space Agency. www.esa.int https://www.esa.int/Space_Safety/Space_safety_applications/ESA_and_safety_security_applications

European Union Space Programme Agency (EUSPA). (n.d.) European Union Agency for the Space Programme: Linking space to user needs.
www.euspa.europa.eu https://www.euspa.europa.eu/about/about-euspa

Framework Agreement between the European Community and the European Space Agency (2004, August 6). https://eur-lex.europa.eu/legal- content/EN/TXT/?uri=CELEX%3A22004A0806%2803%29

Mazurek, K. Ł. (2012). Europejska Agencja Obrony. Działalność I perspektywy. Warsaw: University of Warsaw. https://wnpism.uw.edu.pl/wp-content/uploads/2019/08/Europejska- Agencja-Obrony.pdf

Sigalas, E. (2017, June 28). TheEuropeanUnionSpacePolicy.OxfordResearchEncyclopediaofPolitics. https://oxfordre.com/politics/view/10.1093/acrefore/9780190228637.001.0001/acrefore-9780190228637-3-183.

United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS). (2018, April 19).The European Space Agency as a mechanism and an actor of international cooperation. https://www.unoosa.org/res/oosadoc/data/documents/2018/aac_105c_22018crp/aac_105c_22018crp_20_0_html/AC105_C2_2018_CRP20E.pdf.