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MILITARY SPACE OPERATIONS VERSUS SUSTAINABLE DEVELOPMENT. LEGAL AND INSTITUTIONAL CHALLENGES

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Abstract
Militarization has been present in outer space since the start of its exploration and use. However, in recent years, it has clearly gained importance and become an undeniable necessity of our times. This involves launching government military missions and using satellite technology owned by governments or private entities for military purposes. This situation creates challenges that are not only political, but also legal, and institutional: Who should govern military space operations, and how? How the law and institutions manage military space operations may affect sustainable development goals, i.e., reconciling the needs of the present with those of future generations. This is due to the fundamental independence of military missions from the applicable legal framework and the authorities competent to supervise civilian space exploration. In this context, the author mainly refers to the impact that military space activities may have on space debris, i.e., the upstream phase. The issue is not only the threats posed by ASAT tests. It's also about how "daily" military operations in space are designed, conducted, and managed. The author's thesis is that the current legal and institutional approach to military missions in outer space does not align with sustainable development requirements. To change this, it is necessary to partially cover military space missions with a legal space regime and coordinate the management of these missions with authorities competent in civil space exploration regarding the application of technical safety standards. The study's research objective is to provide recommendations for the optimal approach to military space operations that align with sustainability goals from legal and institutional viewpoints. To achieve this objective, the author analyses international and European legislation and conducts case studies of selected national space legislation and strategies.

Keywords
militarisation of space, space law, sustainable development, responsible behaviour, EU space law, space defence strategy

Introduction

Although the military aspect has been a significant motivator for exploring outer space since its inception, it is evident that this domain has expanded significantly in recent years, as military space activities seem to be a simple continuation of terrestrial operations in this area (Bowen, 2019; Layton, 2019). As its importance and volume increase, so do the challenges it faces. These challenges encompass the institutional and legal dimensions pertinent to military operations in outer space. The impetus behind this study is the growing importance of achieving sustainability goals in space law and governance during the exploratory phase of civil operations.[1] At the same time, the limited application of sustainability instruments to military space operations, which are typically undertaken by governments[2], might be a cause for concern.

For the purposes of this study, the author defines "military operations in outer space" as the use of outer space for purposes permitted by international law, such as security and defence, excluding offensive uses. The author also recognizes anti-satellite (ASAT) tests as a type of military space operation that threatens sustainability goals (Bittencourt Neto, 2013; Cassotta, 2019; Williams, 2008; Cuddihy 2000). ASATs are space-based weapons designed to target, destroy, disable, or impair satellites, and they can target both military and civilian satellite networks. ASATs serve both offensive and defensive purposes (UNIDIR, 2023; Strobeyko, 2019; Koplow, 2009). Studies mapping the proliferation of anti-satellite weapons have shown that many countries have kinetic ASAT weapons designed to physically strike a target (Weeden & Samson, 2020; Harrison, 2020; Pepperkamp, 2020). Notably, the United States, Russia, China, and India have tested such weapons on their own satellites, generating significant space debris now orbiting Earth (SWF, 2025). Additionally, spacefaring countries are developing other counter-space capabilities with potential military utility (SWF, 2025). Of these, however, ASATs appear to be the most relevant to assess from a sustainable development perspective due to their destructive capabilities. The primary impact of ASATs is generating space debris, which increases the risk of Kessler syndrome (Kessler, 1978). This scenario predicts a high density of objects orbiting Earth, increasing the likelihood of collisions. Each collision generates additional debris, increasing the risk of further collisions. Since the first ASAT test in 1968, destructive ASAT tests have produced over 6,300 debris fragments (SWF, 2024).

The second fundamental notion for the study is the meaning of sustainable development of outer space operations, which the author adopts from United Nations Committee on the Peaceful Uses of Outer Space [COPUOS]. The Long-Term Sustainability Guidelines (hereafter referred to as "LTS") define it as "the ability to conduct space activities indefinitely into the future in a manner that achieves the goals of equitable access to the benefits of space exploration and use for peaceful purposes to meet the needs of present generations, while preserving the space environment for future generations." (United Nations Committee on the Peaceful Uses of Outer Space, 2018).

The intersection of military space operations and sustainability is a multifaceted issue that merits careful consideration. Depending on the perspective, the increased mil-

[1] Down-stream sector (exploitation phase) is not covered by this study due to the limited editorial frames and not raising such concerns as regards meeting sustainability goals.

[2] Though it should be noted that number of private satellites used for military purposes also increase (among many — use of Maxar satellites imagery in the war in Ukraine).

itary presence in space can be seen as either a dangerous challenge or an opportunity to promote sustainability in space. From an objective standpoint, space military operations appear sustainable, as their ultimate goal is to protect fundamental human rights, such as life, health, and freedom (Karska, 2021). However, regulatory and institutional frameworks raise doubts. Challenges primarily arise in the application of technical safety standards to upstream military activities. While civil operators are in principle subject to restrictive licensing and supervisory requirements, the regulatory landscape applicable to military space activities is far less clear. Interpretation often depends on the priorities of specific governments, leading to ambiguity in application (Larsen, 2018). This raises questions about integrating military elements into space law and their compatibility with the fundamental principles of international space law. As a result, achieving the goal of sustainable development may become more difficult.

Sustainability has become a key principle that guides space strategies and regulations. This concept has been expressed in documents at various levels, including those adopted by the United Nations and the European Union, as well as by national rule makers, such as spacefaring countries like the USA, France, China, Russia, the UK, and a few others. Although the legal framework primarily emphasizes requirements for private commercial operators, the concept of sustainability in space does not distinguish between civilian and military operations. While aligning with civilian regulations seems obvious, concerns have been raised about the military's use of space. Typically, military activities are excluded from authorization regimes under national space laws. Consequently, questions have been raised about applying safety standards to the design, manufacturing, and launching of military satellites, as well as about responsible behaviour in outer space aimed at reducing space debris. These concerns were confirmed by the remarks of the U. S. Secretary of Defense, who acknowledged that: "for decades, the U. S. military conducted space activities with little regards for how they polluted orbits with debris that posed threats to existing and future space -based assets" and "in the past, the focus was primarily on achieving military objectives, which not much considerations given to the long-term sustainability of space environment" (Erwin, 2023).

In this regard, one might question whether the existing regulatory and institutional framework for space military operations is sufficient to address the needs of sustainable development goals. The intensification of military space activities also raises questions about the proper institutional architecture, particularly regarding the coordination of competencies between the bodies responsible for military and civilian space activities.

The author's thesis in this study is that the current legal and institutional approach to military missions in outer space does not align with the requirements of sustainable development. To achieve this, it is necessary to partially cover military space missions with a legal regime and coordinate these missions' governance with authorities competent in civil space exploration. The study's research objective is to provide recommendations for an adequate approach to military space operations that meets sustainability goals from legal and institutional viewpoints.

To fulfill this objective, the study examines the applicable regulatory and institutional aspects of military operations in outer space. The first aspect concerns the regulatory regime for military space activities and will be discussed mainly at the international and national levels, as well as the prospective EU space act. The second institutional aspect concerns the governance of military space activities and the role of national space agen-

cies. The author applies a dogmatic method by studying international and European legislation, as well as conducting case studies of selected national space legislation and strategies. This approach is reinforced by an examination of specific national space defence strategies. The author also considered international initiatives that may shape international standards, good practices, and, ultimately, binding customs as sources of international law (Art. 38 of the ICJ Statute). The author also reviewed the limited literature on the subject and noted a lack of research on the sustainability aspect of military operations in space beyond literature on ASAT tests.

Concept of sustainability and its application to military space operations

Although sustainability is a mature concept that was first used in relation to environmental issues, its axioms have always been much broader. The concept gained prominence with the publication of the 1987 Brundtland Report, "Our Common Future" and the 1992 United Nations Conference on Environment and Development (UNCED), also known as the "Earth Summit" (Pisani, 2006, pp. 83–96; Bohlmann & Petrovici, 2019). For the first time, it acknowledged the necessity of integrating economic development, environmental protection, and social justice and inclusion. The report defined sustainable development as meeting the needs of the present generation while ensuring that future generations can meet their own needs. The European Union (EU) adopted a similar concept in its Sustainable Development Strategy, though it was initially focused on terrestrial aspects, stating that it is about protecting the Earth's capacity to sustain life in all its diversity (European Council, 2006).Of particular interest is the concept of boundaries, which represent global Earth systems and processes within which there is a safe living space for people and wildlife. Some argue that crossing one or more of these boundaries can create a tipping point at which the global Earth system changes to a permanently less hospitable state. There are nine recognized thresholds, none of which relate directly to outer space (Steffen et al., 2015). Given the growing significance of space exploration for life on Earth and the increasing amount of space debris, the natural course of action was to design a sustainable architecture that responds to the specifics of space exploration. The first work on the concept of sustainability in relation to space exploration began in the early 2000s with the Active Debris Removal initiatives (Toussaint & Dumez, 2022). Space stakeholders, such as the EU, the International Telecommunication Union (ITU), the European Space Agency (ESA), and the International Civil Aviation Organization (ICAO), have begun to analyse ways to prevent orbital pollution and consider the needs of future generations (EU Code of Conduct, 2004). Numerous provisions of the Outer Space Treaty, such as Article I (which establishes the principle of exploring outer space as the province of mankind), Article III (which imposes an obligation to act in accordance with international law, including the Charter of the United Nations, in the interests of maintaining international peace and security, and fostering international cooperation and understanding), and Article IX (which incorporates protection of the space environment into space activities of any nature), demonstrate the origins of regulating the sustainable use of space (Yang, 2023). However, none of the treaties, in particular Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon, and Other Celestial Bodies (1967) (the ‚Outer Space Treaty' or 'OST'), have explicitly used this notion.

The European Code of Conduct, proposed in 2008, was the earliest document explicitly referring to the sustainability imperative for outer space (Council of the EU, 2008). The Code aimed to raise public awareness of the nature of the threat and the necessary measures to ensure sustainability in space. Although unsuccessful, the Code initiated discussions on the need for coherent action in this area by ITU (International Telecommunication Union [ITU], 2022, 2023), ICAO (International Civil Aviation Organization [ICAO], 2025) and ESA (European Space Agency [ESA] 2023) resulting in developing its first recommendations in this respect. These documents gradually set the stage for a more comprehensive approach adopted by the UN, European legislators, and national legislators, which went beyond just space debris.

The next international document to directly address the concept of sustainability was the UN Committee on the Peaceful Uses of Outer Space's (COPUOS) 2019 Guidelines for the Long-Term Sustainability of Space Activities, which define sustainability (UN COPUOS, 2021). The guidelines are based on the premise that states' and international organizations' interests and activities in space should be consistent with preserving space for peaceful exploration and use, as well as with its status under the Outer Space Treaty and the relevant principles and norms of international law. This idea has become a central axiom of the contemporary regulation of space activities. While none of the aforementioned documents explicitly address military space activities, they also do not limit their application to civil space operations solely. In fact, several guidelines A.1, A.2 and A.5 emphasize the importance of applying these standards "regardless of the physical and operational characteristics of the space object" (UN, 2019).

One of the most recent documents worth mentioning in the context of sustainability is the European Economic and Social Committee's opinion European Economic and Social Committee, 2022). It identifies the management of space traffic, including debris, as a top priority and calls for the practical implementation of a Space Situational Awareness (SSA) system to ensure long-term stability in space for all member states. The EU space law (EUSL) is based on the concepts of the security, resilience, and sustainability of space activities (European Commission, 2025, p. 15). The EUSL's sustainability pillar aims to ensure the long-term sustainability of space operations and, consequently, the EU's ability to depend on space as a key enabler of services and economic growth. This concept aligns with the March 10, 2023, Joint Communication on an EU Space Strategy for Security and Defence (Cesari, 2024). Analysis of public documents, including binding and soft law, shows that the concept of sustainability is not linked to a specific category of space activities or objects; thus, it is undoubtedly applicable to both civilian and military uses.

The rule of law in sustainable military space operations

For a long time, military space missions have followed a distinct trajectory, existing outside the established regulatory framework. As mentioned in the introduction, the U.S. Secretary of Defense acknowledged that the military has conducted space operations for decades with little regard for contaminating orbits with debris that threatens existing and future space assets (Erwin, 2023). Although the issue of ASAT testing is one of the most important, it is only a symptom of a wider problem concerning the overall regulatory framework for military space operations. Despite the strengthening of the links between space and defence in recent years, particularly due to the war in Ukraine, which has solid-

ified the critical role of space services in modern warfare (Swedish Ministry of Defence, p. 11), private and civilian space operations tend to follow a siloed approach with regard to the regulatory regime, as do military ones. All space treaties establish fundamental principles for space exploration in all its forms and for all purposes. This lack of distinction is evident in the Outer Space Treaty (Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, 1967) (OST), the Registration Convention (Convention on Registration of Objects Launched into Outer Space, 1975), the Rescue Agreement (Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, 1968), and the Liability Convention (Convention on International Liability for Damage Caused by Space Objects, 1972; Karski 2020). However, experts increasingly emphasize that international space treaties are an insufficient mechanism for regulating military space operations, particularly with regard to ensuring their sustainability. This creates a legal vacuum that is filled by increasing anarchy and narrow, unilateral geopolitical goals (Al-Rodhan, 2023; 2022a, b; see also Erickson & Ortega, 2022). This can be seen in ASAT tests, for example, which are not explicitly prohibited according to prevailing views (Strobeyko, 2019; Schellekens, 2008). This interpretation stems from Article IV of the Outer Space Treaty (OST), which only prohibits the placement of nuclear weapons in space. Additionally, there is no prohibition on testing, developing, or deploying weapons systems on Earth for use in space or against space objects. Documents such as the LTS Guidelines, issued by COPUOS (UN COPUOS, 2021), or the UNGA Resolution A/RES/77/41 (United Nations General Assembly, 2022) remain unenforceable soft law with respect to shaping international custom in the long term. In this situation, the burden of guarantying sustainable military operations is now on the shoulders of the national legislators. OST is not supportive in this endeavour either, as its Art. VI only regulates non-governmental space activities. Consequently, states are not bound by the treaty to establish standards for ongoing oversight of government-run space operations. From a political perspective, this gap may seem insignificant because states are liable for damage caused by governmental and non-governmental space missions. However, the international liability regime only concerns damage that has actually occurred, not damage that is merely threatened, such as producing space debris in orbit. To prevent this, national licensing regimes set technical safety requirements for space missions (Bennett, 2025; Malinowska, 2025). However, the majority of these requirements do not apply to military space operations. This problem becomes more significant during times of geopolitical tension, when the potential for using commercial missions for military government purposes increases. This creates a legal duality between enforcing sustainability in civilian and military operations and in governmental and non-governmental missions. This trend may be reversed through the forthcoming EU space legislation, one of the initiatives outlined in the EU Space Policy (Karski, 2020). In 2023, the Strategy for Security and Defence followed (Bartoky-Gonczy, 2024, pp. 265–266; European Commission, 2023), to address issues such as security and defence, space traffic management (including the problem of space debris), and space cybersecurity. The concept of an EU regulatory framework for space was introduced in 2022. The framework's main focus is to increase the security, resilience, safety, and sustainability of space operations and services in the EU (Kozioł, 2022; ESPI, 2020). The framework recognizes space as a strategic domain and shows that security and sustainability are directly linked, including both military and civilian space activities. These concepts revealed

plans to increasingly use EU space programs for security and defence while retaining their civilian nature. However the draft EUSL published in June 2025 (European Union, 2025) explicitly excludes its application to military space operations, stating in article 2 sec. 2 that "this Regulation does not apply to: (a) space objects exclusively used for defence or national security purposes, irrespective of which space services provider carries out the space activities; (as well as) (b) space objects that have been temporarily placed for defence purposes under a military operation and control, for the duration of the respective space mission". This entails the natural exclusion of state-operated military missions from the authorization regime and its scope. This includes Space Traffic Management, which could be managed in a coordinated way, regardless of whether the mission is military or civilian. This approach reinforces the separation between space and defence issues present in European treaties. EU space policy is among EU competencies, while security and defence remain the exclusive competence of Member States (Treaty on European Union, 2012, Art. 4[2]). Although the Commission has questioned this siloed approach to regulating civilian and military space operations and acknowledges its artificial nature, it has only been overcome in strategy documents thus far and has not penetrated the regulatory framework of the EUSSL (Cellerino, 2023).The final level of studying the regulatory approach to military space operations is national legislation**.** Of the many countries active in regulating space activities, the author selected France, the United States, the United Kingdom, and Russia as examples of legal approaches to regulating military activities in space. These examples could potentially inform conclusions about their sustainability. It is also worth mentioning the space legislation of Central European countries, which are rapidly entering the European space sector and taking vigorous regulatory action. The French approach to military space activities is a good place to start. Although well established, the French space law adopted in 2008 (French Law on Space Operations No. 2008-518, 2008) focuses on commercial applications and does not set requirements for government military space activities. The Act does not apply to the launch of space objects for national defence purposes, or to vehicles whose trajectory is in space – particularly ballistic missiles. The Ministry of Defence's activities as the main operator of space data are not subject to the Act's provisions either. In turn, private satellites, which potentially have a dual-use capacity for military purposes, are subject to regular space law requirements. Another example comes from US space law included in the Code of Federal Regulations ("CFR"). Essentially, it regulates non-governmental space activities (see, for example, the Commercial Space Act of November 2023)[3], so military activities are not subject to its requirements. The military component precludes the use of regulatory measures under the CFR for all forms of space activities, which also means that the safety standards preventing the generation of space debris are not applied. However, learning from the past, in July 2021 the Department of Defense adopted a set of ‚Principles of Responsible Behaviour in Space' (Memorandum for Secretaries, 2021). These principles include reducing the creation of

[3] The US national regulations with respect to the use of outer space, consist of several acts regulating this domain, which start with NASA Act of 1958, and Commercial Space Launch Act of 1984 and includes one of the most recent — the U.S. Commercial Space Launch Competitiveness Act of 2015, supplemented by some others including the Land Remote Sensing Act, etc. One of the most recent laws implements the Defense Space Strategy and establishes the U.S. Space Force within the U.S. Air Force. The act identifies the new military service's mission set, composition, general duties and chain of command (National Defense Authorization Act of 2020). Apart from that. In November 2023, the US also revised its laws on licensing space activities in the form of a Commercial Space Act.

long-lived debris, operating with due respect for others and in a professional manner, reducing the generation of long-lived debris, avoiding the creation of harmful interference, maintaining safe separation and a safe trajectory, and communicating and making notifications to enhance domain safety and stability. Consequently, in April 2022, the US announced a unilateral moratorium, committing ‚not to conduct destructive direct ascent anti-satellite (ASAT) missile tests' and stating that ‚the United States seeks to establish this as the new international norm for responsible behaviour in space'. This was followed by a call for other countries to make similar commitments and collaborate to establish an ASAT ban. Since then, several countries have made national pledges, starting with Canada in May 2022 and most recently including Costa Rica and Norway in October 2023. This brings the total number of participating countries to 37 (Sooi, 2023). Shortly after the moratorium was announced, on 7 December 2022, the UN General Assembly adopted resolution A/RES/77/41, which supports the moratorium on destructive DA-ASAT testing. Although these documents are not legally binding and were adopted on a voluntary basis, they represent significant progress, especially given the broader context of the impasse in space security negotiations, such as those on preventing an arms race in outer space (PAROS) (Sooi, 2023). Similar considerations apply to space legislation in the UK, where significant developments have occurred in recent years. The UK adopted the Space Act in 1986, which was subsequently amended by the Space Industry Act 2018 and supplemented by the Space Industry Regulations 2021 (UK, 2018; UK 2021). This legal framework primarily applies to civil and commercial space missions, excluding military operations in space. Military space matters fall under the jurisdiction of the Ministry of Defence, which collaborates with the UK Space Agency on space policy and international coordination. A different approach has been taken in Russian space legislation, which explicitly regulates space activities conducted for defence and security purposes in the Russian Federation. This legislation applies to both civilian and military missions (Russian Law on Space Activities, 1993, art. 7). Emerging space legislation in Central European countries is developing its own approach to regulating space activities. This can be seen in Poland, where the draft Space Act exempts government missions from authorisation but imposes obligations to ensure sustainability and compliance with safety standards. Similarly, in Slovakia, an operator conducting regulated space activities in the interest of the defence and security of the Slovak Republic may apply for an insurance exemption, but must still ensure compliance with safety standards. Given the regulatory approaches at the international, regional, and national levels regarding military space operations, the importance of academic initiatives is important. Currently, two groups of experts are actively developing manuals on space warfare. Notable examples are the Woomera Manual on the International Law of Military Space Operations, maintained by the University of Exeter and Adelaide University (Beard & Stephens, 2024), and the MILAMOS Manual (Manual on International Law Applicable to Military Activities in Space) developed by McGill University in Canada (Jakhu & Freeland, 2022). Although these manuals are not strictly enforceable, their impact is widely recognised and governments and armed forces rely on them. They have the potential to shape space policy and military doctrine, helping to prevent the hostile use of space weapons.

Institutional architecture of military space activities

In terms of institutional governance, it is almost universally accepted that space activities are subject to anachronistic rules that do not align with current security and sustainability needs (Tepper, 2022). This is primarily due to the absence of an overarching administration to coordinate activities of different natures undertaken by various stakeholders (Larsen, 2013; Tepper, 2022, p. 490). The deficiencies in this regard extend beyond the regulatory framework itself to encompass the institutional architecture. At the international, regional (e.g., the EU), and national levels, a complex matrix of bodies with space defence competencies can be observed (Erickson & Ortega, 2022), as well as a tendency to compartmentalise military and civil space activities. At the United Nations forum on space-related military issues, these are discussed within the framework of the UN Disarmament Forum, while civilian issues are managed at COPUOS. Such a silos approach to the dual use nature of space technologies causes (Government Offices of Sweden, 2025) for example, that LTS Guidelines have been drafted by COPUOS and are not present in the works of UNIDIR, where sustainability has been noted only in the Report of Secretary General no A/76/77 of 2021 (Erickson & Ortega, 2022). Various initiatives at the UN forum that have addressed the issue of sustainability in the military context do not (yet) have had sufficient results. In this regard, it is worth noting, among other things, the work of the expert group associated with the PAROS initiative and the OEWG (Reajagopalan, 2024, p. 11).

A similar silo-based approach to institutional governance of civilian and military space activities is evident within the European Union. EU-level space governance is highly diverse and based on several institutions due to the intertwining of supranational and national elements within parallel competences. The European space sector is governed by three main actors, i.e., the ESA (Due to the independence of the ESA from the EU structures its technological nature, the ESA has been excluded from further analysis[4], the EC, and its operational agency in charge of the space programme, the EU Agency for and Space Programs (EUSPA) (European Parliament & Council of the European Union, 2021). Additionally, the European Defence Agency (EDA) (Council of the European Union, 2015) has to be noted due to its increasing role in space military operations.

The publication of the EU Space Strategy for Security and Defence marked a milestone in the unification of space activities at EU level. It highlights the EC's role in synchronising and coordinating critical space technology activities with the EDA, ESA, and EUSPA, and emphasises the necessity of cooperation between these bodies. Furthermore, the governance of the EU Space Programme is defined by a division of tasks and responsibilities between the parties involved in implementing each programme component. The Directorate-General for Defence Industry and Space leads the EC's activities in the defence and space sectors. EUSPA oversees civil programmes, recognising their dual-use potential, while the EDA is involved in various aspects of the space domain, such as identifying common military requirements and defence user needs for space systems. The newly established ‚Defence in Space Forum', which reports to the EDA, plays a pivotal role in identifying military requirements and setting capability priorities, as well as fostering cooperation in space between EU member states. Due to the circumstances and threats that have

[4] Due to the independence of the ESA from the EU structures its technological nature, the ESA has been excluded from further analysis.

emerged over the last few years[5], the role of EDA has increased significantly in the context of providing a resilient space infrastructure. EDA's programmes address these challenges by filling gaps in European defence capabilities (European Defence Agency, 2024).

In terms of the responsibilities of national space authorities, it appears that military space operations typically fall outside the remit of civilian ministries or space agencies. Where defence and security issues arise in the context of civilian space missions, military administration tends to prevail. Furthermore, pure military space operations tend to be under the exclusive control of the armed forces and often involve the establishment of specialised space command branches, as seen in the United States, France, and the UK. However, it is important to note that the national space legislation examined is unclear in defining administrative tasks and powers in this area. Those countries with a well-established approach to space activities may be particularly relevant. The origins of space administration in France can be traced back to 1958, when several space research committees were founded. This was followed by the establishment of the ‚Comité d'études spatiales' (‚Space Studies Committee') in 1959 and the ‚Centre national d'études spatiales' ('National Centre for Space Studies') (CNES) in 1961. The CNES acts as the French national space agency, conducting its activities under the supervision of three different ministries depending on the nature of the space mission (Achilleas, 2010, p. 113). According to the Research Code (Government of France, 2024), the CNES is responsible for defining and implementing French space policy in five main areas: launchers, science, Earth observation, telecommunications, and defence (Achilleas, 2010, 110). The CNES is responsible for defining and implementing French space policy in five main areas: launchers, science, Earth observation, telecommunications, and defence (Achilleas, 2010, p. 110). Regarding the latter area, the CNES cooperates closely with the Ministry of Defence on the basis of the French Space Defence Strategy announced in 2019 (CNES, 2022). The CNES's powers derive from the French Space Act and include competencies in the licensing process that fall within the remit of the Ministry of Economy. As mentioned in the previous section of this study, however, French space law does not apply to the launch and control of military space objects, which fall under the supervision of the Ministry of Defence. This means that the civil and military space administrations in France operate in parallel, coordinating primarily through the Space Defence Strategy.

In the UK, the 2021 National Space Strategy and 2022 Defence Space Strategy set out institutional space governance, with various authorities operating at various levels to ensure the implementation of both strategies. In particular, in 2019 the government introduced the National Space Council (Department for Science, Innovation and Technology, UK Space Agency, Smith, & Wallace, 2023), a government committee chaired by the Prime Minister to provide strategic direction for the cross-government approach to space and to formulate strategy. Other relevant bodies include the Department for Business, Energy, and Industrial Strategy, which is responsible for coordinating civil space policy, as well as the UK Space Agency and UK Space Command, both of which are part of the Ministry of Defence. Key bodies at the implementation level include the UK Space Agency (UKSA), the Civil Aviation Authority (CAA) and Space Command. Significant changes to governance structures will follow the planned integration of the UKSA with the Department for Science, Innovation, and Technology (DSIT) by April 2026 (Department for

[5] Such as Russian aggression against Ukraine, increased development of counter-space capabilities and threats in the form of DA-ASAT tests or cyber attacks on space infrastructure.

Science, Innovation and Technology, UK Space Agency & Bryant, 2025). In accordance with the Defence Space Strategy, the UK Space Command was established to oversee military space operations. This initiative is overseen by the Ministry of Defence, and a key element of the changes is the formation of a unified military and civilian National Space Operations Centre, as set out in the Defence Strategy (Retten et al., 2022).

In the US, the National Defense Authorisation Act of 2020 established the US Space Force as a branch of the US Air Force. Furthermore, military aspects are evident in commercial space law, where the powers of the Department of Defense prevail over the authority of the civilian administration if security or defence aspects are involved in the mission. In some cases, competencies are shared with the Department of Transportation with regard to space situational awareness data. US space law designates the Office of Space Commerce (DOC/OSC) within the Department of Commerce as the sole authority responsible for authorising and supervising civil space operations, while the FCC regulates spectrum and telecommunications satellites, and the FAA regulates launch and re-entry operations. However, the military component excludes the competency of the above authorities for all forms of space activities.

The specificity of the Russian space governance architecture stems from the explicit regulation of space activities conducted for defence and security purposes in article 7 of the Russian space law. The Ministry of Defence is responsible for overseeing these activities, as well as coordinating with other ministries and departments to implement long-term programmes and annual plans for the development and use of military and civilian space technologies. The Ministry of Defence is also responsible for providing normative technical documentation, participating in the certification of space technologies through contracts, ensuring the safety of space activities in collaboration with other state services, and undertaking other functions as determined by the Council of Ministers – the Government of the Russian Federation. Furthermore, the Ministry of Defence is authorised to mobilise any space infrastructure object, including space technologies, as explicitly stipulated by Russian legislation.

When it comes to the CEE space governance model, most countries rely on joint coordination between several ministries and various related public agencies. It seems that the new CEE countries are following the example set by Western European countries in that space agencies are typically executive agencies of various civilian ministries. For example, in Poland, the space agency (POLSA) reports mainly to the ministry responsible for the economy and, in security matters, to the Ministry of Defence as well. In Slovakia, direct supervision of space authorities is exercised by the Ministry of Transport and the Ministry of Defence, while the Slovak Space Office is a joint body of two Ministries and focuses on the support of the space industry in Slovakia. In the Czech Republik, the main authority coordinating space activities is the Ministry of Transport, but the country has not established space agency. The role of space agencies, which are usually under the administration of civilian governments, is unclear when it comes to the application of space legislation. While legal regulations on the use of space are being developed, primarily at a national level for civilian applications, the role of space agencies is clearly defined in these contexts. However, the situation becomes ambiguous when military issues are involved.

Conclusions

An analysis of space strategies and legislation at the international, regional, and national levels reveals an ongoing development of strategic documents specifically tailored to the military domain of space. This process involves the institutionalisation of activities and the delineation of responsibilities between the bodies overseeing military and civil space matters. The analysis shows that legal regulations introducing sustainability requirements in the form of safety standards, which could have universal value, usually exclude military operations from their scope. Government military space operations are not subject to licensing, so there is no clear obligation to comply with safety standards – including sustainable behaviour – and consequently, there is no clear obligation to do so. This results from the direct link between sustainability standards and licensing requirements, which creates a legal gap when no licensing is required for government missions. Consequently, a discrepancy may be observed between the political commitments made by states and the regulatory regime of military space missions. Although international declarations are important, they lack binding force, such as UN General Assembly (UNGA) resolutions, UN COPUOS documents or the 2022 ASAT Moratorium. National laws impose sustainability obligations only for non-governmental civilian missions. The absence of a comprehensive regulatory framework for military applications, such as a ban on ASATs and the generation of space debris, poses a threat to the security of space assets and to security on Earth in the future. Analysis of European and national space administration suggests emergence of a somewhat more integrated approach at an institutional level achieved through the gradual coordination of civil and military administration. This suggests that a solution to the regulatory gap in the context of sustainability could be the partial integration of military space operations into technical safety legislation. Entrusting control over technical safety standards for military and civilian missions to joint bodies could significantly contribute to ensuring sustainable development requirements, regardless of the nature of the mission operator (governmental or non-governmental) and its purpose. An example of such an approach can be found in Poland's draft Space Act, which exempts government missions from authorisation while ensuring they are conducted in accordance with safety regulations to guarantee sustainability. A similar approach could be taken by the draft EUSL, which seems to prioritise safety standards, resilience, and sustainability regardless of the type of operation. Unfortunately, however, the EUSL's first draft totally excludes military missions from its scope, which weakens the sustainability assumption. In this context, multi-level governance of space activities becomes increasingly important, and it could eventually be achieved more easily than a consistent regulatory approach to civilian and military operations at national or international levels. We can already observe the first signs of such an approach in various countries. For example, the UK has created a National Space Operations Centre, and in France, the CNES serves as a technical expert in applying safety standards to both the civil and defence ministries. Finally, the concept of creating a politically neutral, specialised, professional international body dedicated exclusively to space should be consistently promoted. This approach is in line with the recommendations of many experts, who point to the success of both the International Civil Aviation Organization (ICAO) and the International Maritime Organization (IMO).

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