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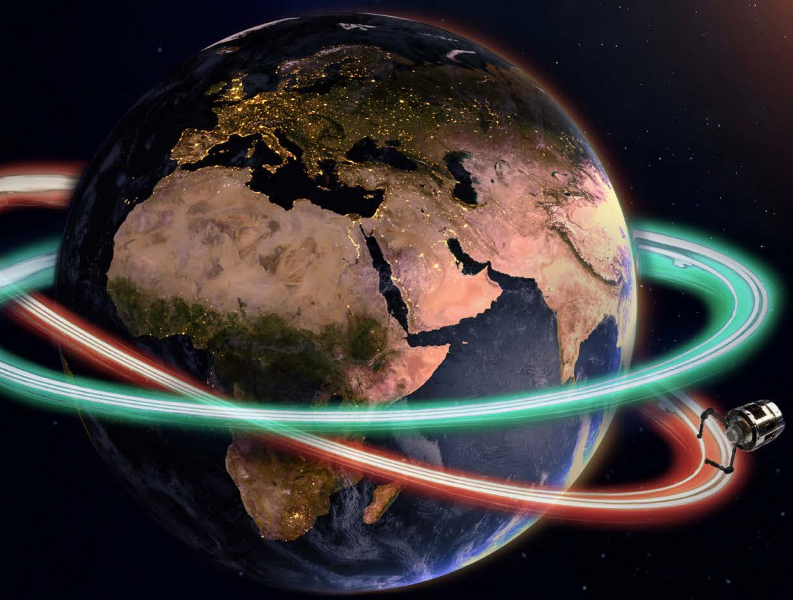
SURVEYING DUALITY IN SPACE

VOLUME II, EUROPE-EURASIA WORKSHOP INSIGHTS ON DEVELOPING, DEPLOYING, AND GOVERNING DUAL-USE SPACE SYSTEMS



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Summary

Nations and multilateral organizations today increasingly rely on space to perform both civilian and military activities. Recent years have seen a rapid expansion in the development and deployment of dual-use space systems—those capable of serving both purposes. The potential risks that these systems pose to the peaceful use of space and international stability remain poorly understood, and no formal international mechanism directly addresses these risks. Given the increasingly congested, contested, and competitive space environment, it is crucial to understand how dual-use space systems can advance exploration and the peaceful use of space while minimizing threats to security and stability.

To develop realistic policy options for the international community concerning global governance of dual-use space systems, RAND launched a three-year research project examining national and multilateral approaches to developing, deploying, and governing these systems. After an initial literature review, RAND researchers held three regional workshops to gather expert and stakeholder perspectives, establish a baseline of regional practices in defining and using dual-use systems, and identify governance challenges. This volume presents the findings of the Europe-Eurasia workshop, which was held virtually on June 18, 2025, and convened 15 space stakeholders representing the European Union (EU), the North Atlantic Treaty Organization (NATO), the United Nations, the United Kingdom, France, Italy, Norway, Sweden, Saudi Arabia, and several other Europe-based transnational entities.

Given the small number of participants, particularly from any one country or sector, the group was not representative of the broader space stakeholder landscape. Consequently, although these proceedings surface relevant perspectives, their results are not generalizable to the wider space sector or its stakeholders.

Key Findings

The Europe-Eurasia workshop surfaced key findings pertaining to definitions of *dual use*, drivers of system development and use, investment trends, and governance challenges and tools.

- **Definitional ambiguity contributes to governance challenges:** The region lacks a shared definition of *dual use*. Several factors could help guide a definition, including distinctions between civilian and military use, between use and purpose, and between capability and behavior. This definitional ambiguity complicates regulation, verification, and the development of effective governance frameworks.
- **Economic and strategic factors emerged as key drivers of system development and use:** Key motivations for developing and deploying dual-use space systems include economic efficiency, military capability, and strategic autonomy. Efforts to maximize civil, commercial, and defense synergies, although driven by budgets and innovation needs, also heighten challenges in protecting infrastructure and managing security risks.
- **European systems are broadly dual use:** Participants broadly recognized European on-orbit systems as dual use, noting increasing civil-military integration and reliance on commercial assets by national governments, the EU, and NATO.
- **Earth observation (EO)/intelligence, surveillance, and reconnaissance (ISR), satellite communications (SATCOM), and cost-efficient systems emerged as leading investment areas:** Dual-use space system investments in Europe and Eurasia prioritize EO/ISR, SATCOM, and other capabilities with cost-efficiency advantages.
- **Formal treaties and global bans may be ineffective in governing dual-use space systems:** Governance mechanisms commonly used in other domains, such as formal treaties and global bans on specified activities, may have limited impact on governing dual-use space systems, in part because of a lack of shared definitions and trust deficits.
- **Norms-setting and regional cooperation are favored for governance over international treaties:** Flexible, norms-based governance and regional cooperation may offer the most realistic and potentially effective paths for regulating the development and use of these systems. Such frameworks could help enhance transparency, build trust, and provide coherent multinational mechanisms for responding to crises in space.

Next Steps

The Europe-Eurasia workshop, along with parallel workshops on the Americas and the Indo-Pacific regions, concluded the first year of a three-year RAND project aimed at developing recommendations to the international community for a global governance regime for dual-use space systems. Follow-on activities will address research gaps identified in the baseline report and workshops and continue engagement with international experts and stakeholders.[1]

[1] Bruce McClintock and David Glickstein, eds., *Exploring Duality in Space: How Select Countries Approach Dual-Use Space Systems*, RAND Corporation, RR-A4003-2, 2026.

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CHAPTER 1

Background and Workshop Objective

Space plays an increasingly important role in helping nations and multilateral organizations pursue both civilian and military purposes. Recent years have seen rapid growth in the development and deployment of dual-use space systems—those capable of serving both types of operations. Despite their proliferation, the security and escalation risks that these systems pose—such as intent misperception that could fuel arms race dynamics—remain poorly understood, and no clear international governance mechanism exists to manage them and ensure the sustainability, safety, and peaceful use of outer space.

To build understanding of the risks of dual-use space systems and challenges in addressing them, RAND researchers began a three-year research effort in early 2025 to explore the current and future landscape of dual-use space systems and advance realistic policy options for the international community to govern these systems and manage potential risks. In an initial stage, the project team produced a baseline report consisting of a literature review of national approaches to dual-use space systems across the Americas, Europe-Eurasia, and the Indo-Pacific.[2] That report identified key information gaps that, if addressed, could inform a global governance regime for dual-use space systems that is likelier to gain broad acceptance among countries and be implementable. Table 1.1 summarizes these gaps and how addressing them could contribute to a more robust global governance framework.

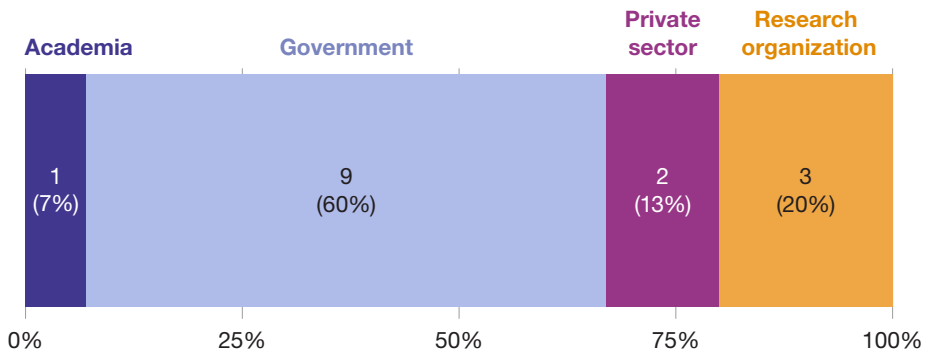
[2] Bruce McClintock and David Glickstein, eds., *Exploring Duality in Space: How Select Countries Approach Dual-Use Space Systems*, RAND Corporation, RR-A4003-2, 2026.

Table 1.1. | Key Information Gaps Pertaining to Global Governance of Dual-Use Space Systems

Theme	Description	Value of Addressing Gap
Dual use definition	How countries define *dual use* for space systems	Agreed-on definitions could ensure that countries have a shared understanding of a global governance regime and apply policies or norms consistently.
Driving factors	Factors driving countries to develop and deploy space systems	Identifying incentives could help design governance regimes that align rules with national motives, potentially making policies or norms more attractive and sustainable.
Significant space systems	Which systems countries consider most significant for advancing civilian and/or military objectives	Identifying significant systems can help a global governance regime avoid unduly restricting legitimate civilian and military use.
Investment trends	Short-term trends in countries' investments in space systems	Insight into investment trends would ensure that governance regimes can anticipate future developments and remain adaptable to evolving capabilities.
Governance challenges	Main barriers that countries see to global governance of space systems	Recognizing the main barriers would allow regime design to proactively address challenges to adoption and implementation, increasing feasibility.
Governance tools	Existing tools that countries perceive as underpinning global governance of space systems	Understanding which governance tools are currently used would help to build on proven mechanisms and identify gaps, promoting acceptance and effectiveness of new regimes.

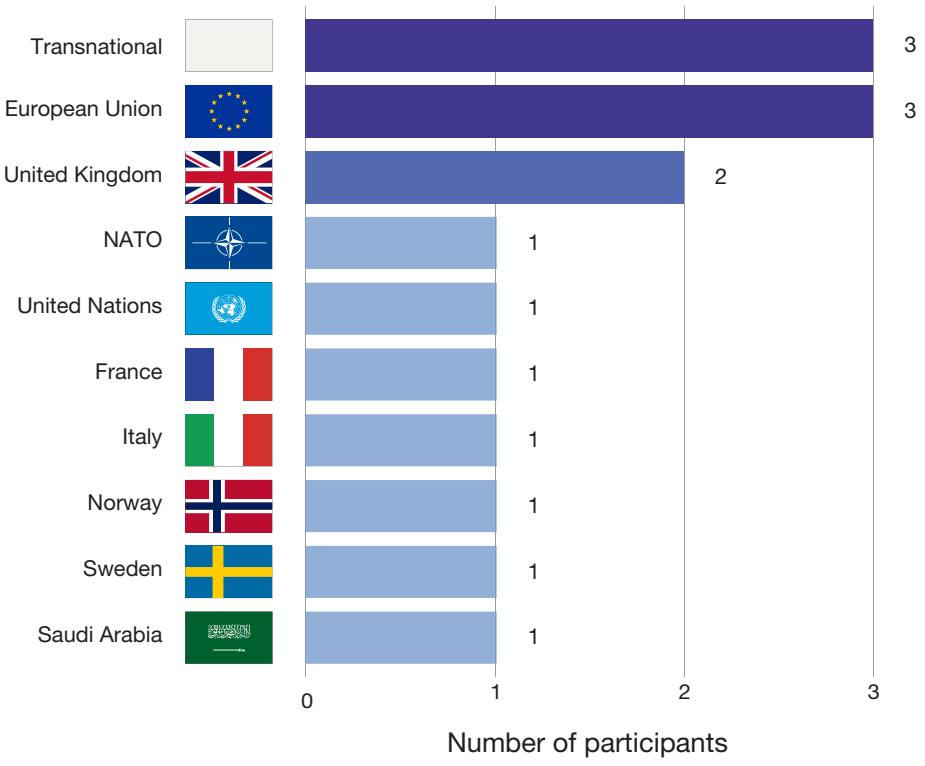
Aiming to close these gaps, RAND researchers organized three regional workshops with regional experts, governmental representatives (civilian and military), and private-sector stakeholders to collect their insights on definitions of *dual use*, drivers of system development and use, key operational systems, investment trends, governance barriers, and current governance tools. These proceedings summarize the June 18, 2025, workshop that virtually convened 15 space stakeholders from the European Union (EU), the North Atlantic Treaty Organization (NATO), the United Nations (UN), transnational bodies, individual nations, and Saudi Arabia, as well as separate interviews with experts on Russia who were unable to attend the workshop due to availability. Figures 1.1 and 1.2 illustrate breakdowns of participants by sector and country or multilateral organization.

Figure 1.1. | Workshop Participant Counts by Sector



NOTE: The government sector includes both civilian and military personnel.

Figure 1.2. | Workshop Participants by Organization or Country



Given the small number of participants, particularly from any one country, organization, or sector, the group was not representative of the broader space stakeholder landscape. Consequently, although these proceedings surfaced relevant perspectives, their results are not generalizable to the wider space sector or its stakeholders.

These workshop proceedings detail the key findings that emerged from the discussions (Chapter 2) and overview the next project steps (Chapter 3). These insights will inform subsequent in-person workshops with regional experts and stakeholders and serve as a foundation for later project phases, which will include additional analytical work on global governance regimes for managing dual-use space systems. A detailed methodological overview describing the workshop design and participant selection approach is overviewed in Appendix A, and workshop questions are included in Appendix B.

Regional Workshops on National Approaches to Dual-Use Space Systems

These workshop proceedings are part of a three-part series, with each volume corresponding to a RAND-hosted workshop focused on one of three regions: Europe-Eurasia, the Americas, and the Indo-Pacific. Because the workshops followed similar methods and structure, the volumes share some content, including descriptions of the approach, participant selection, context, terminology, and next steps, with some adjustments to reflect the regional specificity. In particular, this volume draws from the first volume in the series, *Surveying Duality in Space*: Volume I, *Americas Workshop Insights on Developing, Deploying, and Governing Dual-Use Space Systems*.[3] Although findings in this volume may parallel those in the other volumes, the insights here reflect discussions specific to the Europe-Eurasia workshop.

[3] Anca Agachi, Krista Langeland, Amal Altwaijri, Mélusine Lebret, David Glickstein, and Bruce McClintock, *Surveying Duality in Space*: Vol. I, *Americas Workshop Insights on Developing, Deploying, and Governing Dual-Use Space Systems*, RAND Corporation, CF-A4003-1, 2026.

CHAPTER 2

Key Workshop Themes

Workshop participants' responses and contributions surfaced key themes reflecting regional and sectoral perspectives on the core issues shaping the development, use, and governance of dual-use space systems in Europe-Eurasia. We organized these themes by the six information gaps identified in the baseline report.[4] Table 2.1 summarizes the main findings for each theme.

[4] McClintock and Glickstein, 2026.

Table 2.1. | Europe-Eurasia Workshop Findings

Theme	Finding
Dual use definition	The region lacks a shared definition of *dual use*, while several factors could help guide one, including distinctions between civilian and military use, use and purpose, and capability and behavior.
Driving factors	Economic and strategic factors emerged as key drivers of system development and use.
Significant space systems	European on-orbit systems are broadly understood to be dual use, with growing civil-military integration and national, EU, and NATO reliance on commercial assets.
Investment trends	Dual-use space system investments in Europe and Eurasia prioritize Earth observation (EO)/intelligence, surveillance, and reconnaissance (ISR); satellite communications (SATCOM); and other capabilities with cost-efficiency advantages.
Governance challenges	Governance mechanisms commonly used in other domains, such as formal treaties and bans, may have limited impact on governing dual-use space systems.
Governance tools	Flexible, norms-based governance and regional cooperation may offer the most effective paths for regulating the development and use of these systems.

Dual Use Definition: The Region Lacks a Shared *Dual Use* Definition, with Multiple Factors Potentially Relevant

The first workshop section focused on **identifying operative definitions of *dual use***. A shared definition provides a common baseline for understanding dual-use space systems and can reduce the transaction costs of coordinating their governance. Participants offered their perspectives on the definition and key characteristics of these dual-use systems, as well as their approaches toward building an operative definition. The discussion revealed a lack of consensus on how to define *dual use* and the need to include multiple criteria, including purpose, system capability, and operator behavior, in a potential definition.

There is no single *dual use* definition: The discussion on operative definitions of *dual use* reinforced the literature review finding that there is no established definition. One participant from Northern Europe said that such a discussion is largely academic, whereas their main focus is

on operational effect—namely, whether an entity can use a given system against an adversary or whether they should defend against it and how it can restrict or enable options, be it on orbit, on Earth, or anywhere in between. Overall, participants agreed that the distinction between military and civilian use ultimately depends on the practical functions that a space capability can perform. They further noted that such technologies may serve as enablers rather than weapons in some contexts, while in others, systems initially developed for benign purposes can be repurposed as weapons.

Distinguishing between dual use and dual purpose: Most participants agreed to distinguish between dual-use systems and dual-purpose systems. One government stakeholder from an international organization proposed to use definitions of *dual use* and *dual purpose* from the Space Security Lexicon:

> **Dual-use** refers to those space objects that can have (i) military and security, as well as (ii) civilian and commercial functions (such as, for example, GNSS [global navigation satellite systems][5]). These uses can be carried out either simultaneously or alternately (the latter is sometimes known as 'dual-capable'). Dual-use objects see the integration of military and civilian functions in one single object.
>
> **Dual-purpose** refers to those space objects that are designed to fulfil a benign objective (such as debris removal or on-orbit servicing), but they could potentially be repurposed to harm other space objects. Dual-purpose objects are in principle not designed or expected to perform military functions directly—although they may provide some form of support to military satellites through on-orbit servicing, for example—and they are also not intended to perform aggressive or hostile actions against other satellites.[6]

Distinguishing system capability from operator behavior: Participants offered additional criteria that an operational *dual use* definition should consider. A government representative from Northern Europe proposed two ways to define a dual-use system: by its *capabilities* or by the *behavior of the operator.* The latter, they argued, may offer a more practical basis for regulation; regulating systems classified as military could hinder their legitimate civilian use and benefits, especially when they serve both purposes simultaneously. This concern may also apply to technologies that could be repurposed as weapons, such as active debris removal (ADR) systems. Regulating capabilities rather than behavior

[5] Some examples of GNSSs are the Global Positioning System (GPS), Galileo, and GLONASS.

[6] Almudena Azcárate Ortega and Victoria Samson, eds., *A Lexicon for Outer Space Security*, United Nations Institute for Disarmament Research, 2023, p. 38.

could further pose challenges for verification, as some systems might have a dual-use appearance but serve an offensive function, such as a jamming system that resembles a communication system. Participants generally agreed that behavior-focused definitions and governance approaches can decrease the risk of overly restrictive regulation that might hinder space capability development.

Driving Factors: Economic and Strategic Factors Emerged as Key Drivers of System Development and Use

Next, participants examined **factors driving the development and use of dual-use space systems**, which may help align regulatory approaches with national interests to enhance a potential governance regime's appeal and durability. In response to a Likert scale question, they assessed the relevance of four predefined drivers—economic development, strategic autonomy, space sustainability, and strategic military capability—to their countries' decisions to develop and operate such systems and expanded on these perspectives in a follow-on discussion.[7] The discussion revealed the importance of economic development and strategic factors in driving space system development and use.

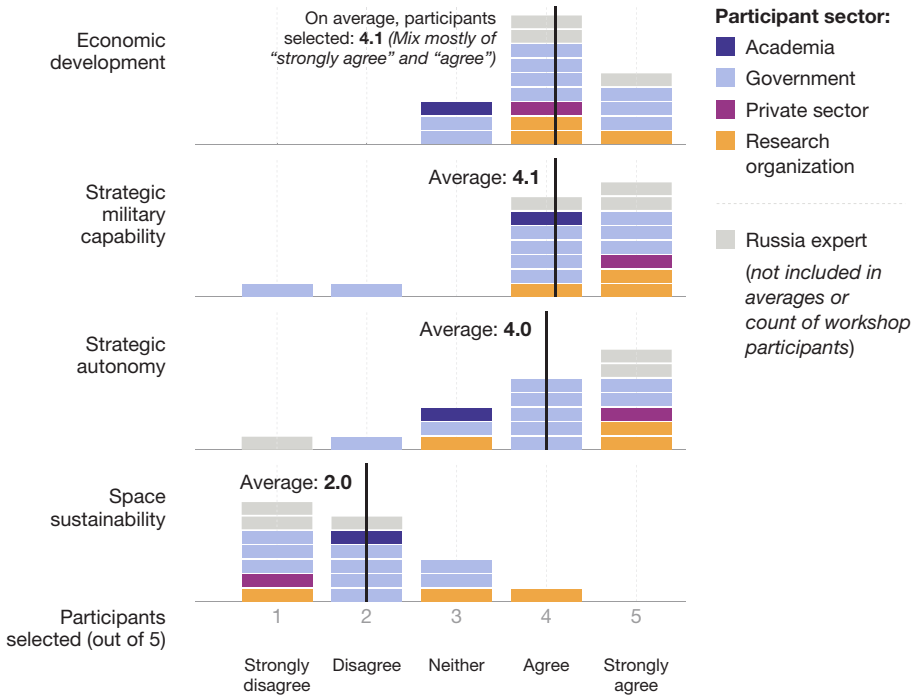
Participants view economic and strategic factors as key drivers: When asked to consider key drivers behind the development and operationalization of dual-use space systems, participants most strongly rated economic development, strategic military capability, and strategic autonomy, with markedly less focus on sustainability (see Figure 2.1). The latter, which refers to the responsible management of space activities to ensure the long-term safety, functionality, and accessibility of the orbital environment for current and future users, also received no attention in the subsequent discussion of other drivers. Participants across the academic, research, government, and private sectors agreed that economic development is a leading factor driving space system development and use. While most also identified strategic military capability and strategic autonomy as important, a small number—particularly from government—disagreed that they constituted key factors (see Figure 2.1). Specifically, a NATO representative, who refused the notion that the pursuit of strategic autonomy is an important driver of the dual-use space systems' development, expressed doubt whether any of the region's nations could achieve strategic autonomy. Therefore, they did not think that strategic autonomy is indeed a significant driver.

[7] To better understand how participants prioritized motivations behind dual-use space system development, the workshop used a five-point Likert scale, where 1 indicated "strongly disagree" and 5 indicated "strongly agree." This allowed participants to rate the relative importance of preselected drivers across a consistent scale. The resulting averages reflect the degree of consensus and relative weighting that participants assigned to each driver.

Figure 2.1. | Workshop Participant Responses on Dual-Use Space System Development and Operationalization Drivers

Question: In your view, what are the drivers behind the development and operationalization of dual-use space systems?

14 of 15 workshop participants responded to this question.



Other
Participants provided written response

- "Cost effectiveness; concealment."
- "Interest in blurring lines to discourage targeting (i.e. deterrence/ambiguity exploited for deterrence)."
- "For 'legal' reasons, meaning getting around institutional boundaries for European space cooperation, and because rising defence budgets (that's where the money is); support (defence) industry in developing value chains"
- "Long-term R&D interests (also related to efficient use of budget)."
- "Capability/technology development while keeping options open."
- "Create synergies between civil, defence and space industry (see action plan from EU in 2021)"

NOTE: Given the small sample size ($n < 30$), the responses may not be statistically representative. The graphics are intended for visualization purposes only and not for detailed quantitative analysis. R&D = research and development.

Cost-effectiveness has a role in developing and using dual-use systems: Among the economic considerations, most participants identified cost-effectiveness as a key incentive for investing in dual-use capabilities. One EU representative noted, "In a world of budget constraints, countries cannot invest in similar, but separate, capabilities for the civilian and military sectors." Several participants emphasized that many European nations aim to streamline investments and create synergies among the civil, defense, and space industries; this is also an explicit policy of the EU, as indicated by the 2021 EU Space Programme and 2025 EU Space Act.[8] One workshop participant emphasized that their government seeks to maximize the dual-use potential of capital assets in space by fully harnessing both private and public sector contributions and ensuring that both sectors benefit from downstream services.

Private industry sees advantages in dual-use over limited-use systems: Participants noted that both the civilian and military sectors are increasingly motivated to invest in dual-use capabilities, whether nationally or through multinational efforts. A government representative from Northern Europe noted that rising European defense budgets create opportunities for civilian industries to secure funding by proposing military-sponsored dual-use systems. Conversely, defense industries can expand their global reach and develop their value chains by developing systems with dual-use capabilities.

Changes in the security environment spurn dual-use system development: Participants highlighted that, while the EU has traditionally focused on civilian space technologies, Russia's 2022 invasion of Ukraine and heightened concern about transatlantic security has engendered a new focus on leveraging civilian technologies for military purposes—illustrated by the EU's new flagship space program, the Infrastructure for Resilience, Interconnectivity and Security by Satellite (IRIS²).[9]

Dual-use systems support research and development: Participants also highlighted that dual-use systems can support long-term research and development agendas by developing technical capabilities that have broad applications, as opposed to narrow use cases that can be outpaced by other innovations. This may become particularly important as new threats emerge in a changing geopolitical environment and technology landscape and where there comes the need to use existing assets in a novel way.

[8] EUR-Lex, "EU Space Programme (2021–2027)—European Union Agency for the Space Programme," webpage, last updated March 22, 2023; European Commission, Defense Industry and Space, "EU Space Act," webpage, June 25, 2025.

[9] European Union Agency for the Space Programme, "IRIS²," webpage, last updated April 25, 2025.

Some states use dual-use systems for strategic ambiguity: Participants noted that some adversary militaries across the globe may pursue dual-use systems because embedding military operations within civilian systems can conceal their operations and intent, increase ambiguity, and potentially deter targeting. It was argued that this approach could risk the civilian use of these capabilities by potentially increasing their vulnerability to military appropriation or regulatory restrictions.

Russia prioritizes state control amid limitations: According to the experts interviewed after the workshop, Russia's space program prioritizes state and military needs over commercial or cooperative goals amid technological, economic, and geopolitical constraints. Box 2.1 summarizes insights from these experts.

Box 2.1. Russia Insights on State Control of Space Systems

The Russian Federation's contemporary approach to space systems reflects a complex blend of state ambition, technological and industrial limitations, and economic necessity. Experts consulted for this study strongly emphasized that, from the standpoint of the Russian state, all space assets serve a dual purpose. As Russia faces continued sanctions and a loss of access to advanced foreign components, it is pushed to integrate its few commercial satellites into state use.

The state's primary drivers include strategic autonomy and military capability, while commercial entities pursue economic development with limited focus on space sustainability. In this context, Roscosmos, burdened by inconsistent funding, limited private-sector capacity, and a lack of venture capital, has shifted from a militarized framework to mixed use and is now moving back toward remilitarization. An expert mentioned that such projects as the Sfera satellite constellation, for communications and remote sensing, and ambitions for a polar space station highlight Russia's desire for augmented and resilient systems, despite struggles with miniaturization, radiation shielding, satellite production, and asset launching. Overall, technological pressures, geopolitical isolation, and profit motives intertwine, shaping a system focused less on global cooperation and more on internal survival and state leverage.

SOURCE: Russia subject-matter experts, interviews with the authors, July 2025.

EO/ISR Key Systems: Space Systems Are Increasingly Recognized as Dual Use with Growing Strategic Importance, Whether Nationally or at a European Level

Participants then shared their perspectives on the **on-orbit dual-use systems that they consider important for supporting civilian and/or military activities** in their respective countries. Accounting for these systems and their breadth when designing a global governance regime can help ensure that regimes account for systems perceived as key for carrying out both civilian and military functions. The discussion revealed a broad view of operational space systems as inherently dual use and growing recognition of their strategic value, including for defense and Arctic operations.

Dual-use systems have evolving strategic significance: When discussing the main on-orbit dual-use systems from Europe and Eurasia, participants consistently noted that all current EU space systems are dual use, although the strategic significance of this duality has evolved over time. Per the participants, shared EU space assets—such as the flagship Galileo and Copernicus constellations—were historically viewed as primarily civilian, with defense and security applications only recognized later. Since Russia's full-scale invasion of Ukraine in 2022, however, European governments have shown greater interest in the military use of these systems and greater awareness of the risks that they pose or may face, driving a more intentional design of dual-use systems. This more deliberate approach includes following different requirements for safety and security—for instance, radiation hardening, or defense against anti-satellite systems—and embedding military requirements in signals, communication, data governance, and payload specifications. Two technologists described positioning, navigation, and timing (PNT) and EO/ISR as systems with different technical requirements for military and civilian purposes, for example, in terms of accuracy and refreshment frequency. More broadly, given the heightened security challenges in Europe, participants observed that the European Commission now considers all space assets as sensitive and is working with EU member states to translate the "dual use by design" approach into technical specifications and definitions, including for IRIS².

NATO has integrated civilian and commercial systems in military operations: A government stakeholder flagged the Alliance's use of civilian and commercial systems for its military operations. NATO does not currently own any satellite system infrastructure itself but instead relies on members' assets and the EU's Galileo, having launched a Commercial Space Strategy in February 2025.[10] Such capabilities can be used for

[10] North Atlantic Treaty Organization, "NATO Commercial Space Strategy," webpage, February 13, 2025.

military purposes, including command and control, electronic warfare, environmental monitoring, and ISR.

Dual-use systems support Arctic operations: Another government representative from Northern Europe highlighted their country's focus on deploying new satellites to address the specific challenges of communication in the Arctic. They also highlighted the use of these satellites to carry payloads from European and U.S. defense actors alongside commercial and civilian payloads. This diversity within a single platform underscores the complex ways in which space systems can be dual use and can complicate policy, regulation, and escalation management.

Military systems can have civilian uses: With general support, the same government representative from Northern Europe observed the possibility of systems working in both directions, noting that although civilian capabilities can be used for military purposes, military assets can also be employed for peaceful purposes. For example, jamming assets—designed for military use—can be used to support humanitarian interventions to prevent attacks on civilian populations.

Investment Trends: European Space System Investments Prioritize EO/ISR, SATCOM, and Cost-Efficient Dual-Use Capabilities

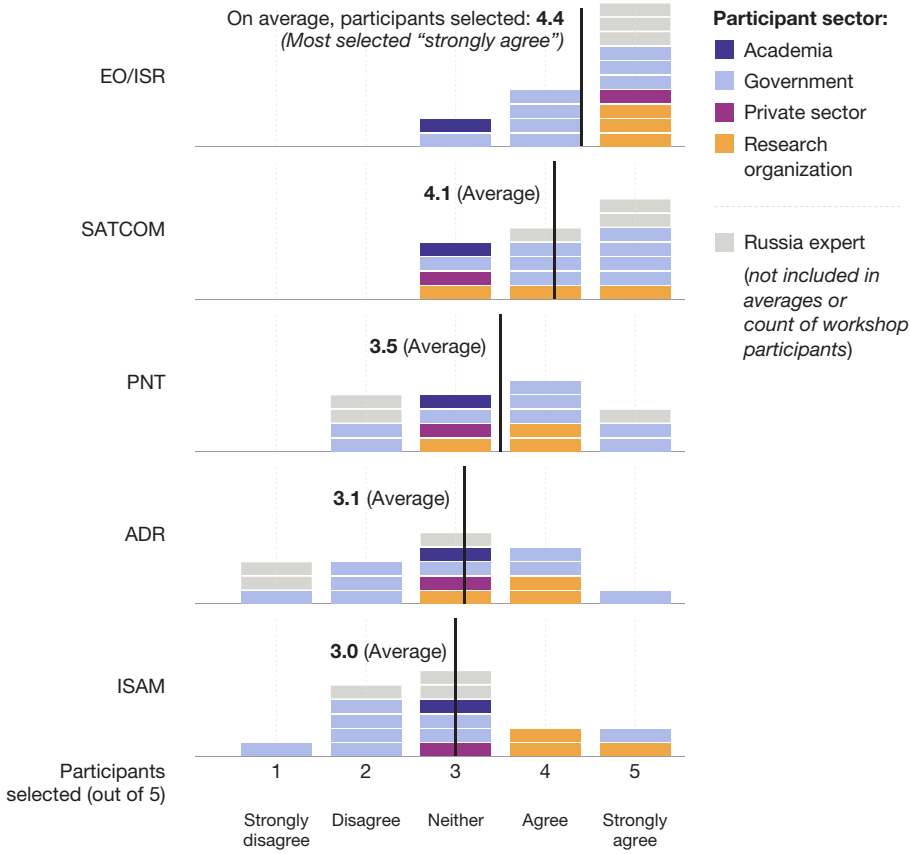
The workshop moderator then solicited perspectives on **drivers of national investments in dual-use space systems**, asking participants to indicate the extent to which they considered specific system types—ADR; EO/ISR; in-space servicing, assembly, and manufacturing (ISAM); PNT; and SATCOM—as key investment areas. The discussion revealed a regional prioritization of EO/ISR, SATCOM, and cost-efficient capabilities. Participants considered additional areas in the follow-on conversation. Understanding these investment trends can help governance regimes anticipate emerging developments and remain responsive to shifts in capabilities.

EO/ISR and SATCOM were perceived as receiving the greatest investments: Workshop participants identified EO/ISR and SATCOM as the key areas of investment for dual-use capabilities, closely trailed by interest in PNT, ADR, and ISAM systems (see Figure 2.2). No clear trend emerged across participant sectors—government, private industry, academia, or research organizations. Although government participants generally identified EO/ISR and SATCOM as key investment areas, they differed on other capabilities, with most (five of the eight government representatives who participated in the question) disagreeing or strongly disagreeing that ISAM was a major focus of investment.

Figure 2.2. | Workshop Participant Responses on Key Trends of Investment in Dual-Use System Capabilities

Question: In your view, what do you identify as the key trends of investment in a dual-use space system capabilities?

13 of 15 *workshop participants responded to this question.*



Other Participants provided written response

- "Space domain awareness (space traffic management, space surveillance and tracking, space situational awareness)."
- "Rendezvous and proximity operations (RPOs)."
- "Artificial Intelligence & edge processing in orbit."

NOTE: Given the small sample size ($n < 30$), the responses may not be statistically representative. The graphics are intended for visualization purposes only and not for detailed quantitative analysis.

There are trends of increased investments in SATCOM: Participants also highlighted new priorities in SATCOM investment. For instance, participants representing both national governments and multinational organizations highlighted that low Earth orbit SATCOM systems—such as the mostly European-owned Eutelsat One Web and the larger U.S.-owned Starlink system—offer advantages over geostationary orbit systems. These advantages include global reach, resilience against jamming, low latency, and reduced vulnerability to geolocation. As another area of increased investment, participants mentioned the use of laser beams for secure and rapid communication between satellites.

Key systems serve cost-efficiency goals: Participants described PNT, ADR, and ISAM as capabilities that are particularly important for European and Eurasian countries that are conscious of resource constraints. As a participant representing a multinational organization posited, refueling a satellite using ISAM might be cheaper in the long term than launching a new one, although this depends also on future trends in launch costs.

Additional investment areas were identified: Two technical experts from the public and private space sectors across Europe highlighted the importance of artificial intelligence and on-orbit edge processing of imagery and data. These tools can help reduce latency for both military uses (such as targeting) and civilian purposes (such as disaster response). The participant further stressed the importance of developing space domain awareness (SDA), as well as RPO, which could be a more appropriate investment than ADR because it may be less likely to be perceived as an anti-satellite weapon. Although proposed RPO systems are not explicitly military, they can help develop competencies and skills with defense applications, including proximity operations and complex maneuvers.

Russia prioritizes EO/ISR, with a strategic focus on launch and satellite capabilities: Russian investments in dual-use space systems focus on ISR and EO for both civilian and military purposes while sustaining state legacy industries, partnering with Iran and China, and pursuing nuclear propulsion projects. Box 2.2 overviews key takeaways from interviews with Russia experts.

Box 2.2. Russia Insights on Capability Trends

According to the Russia experts consulted, Russian investments in dual-use space systems currently prioritize ISR, particularly EO, driven by shortcomings in domestic capabilities and the need for improved military applications. However, persistent complaints from military and Roscosmos personnel further highlight ISR as a strategic gap. Russian SATCOM services also face challenges but are less urgent, and PNT is not seen as critical because of reliance on the U.S. GPS and Chinese Beidou systems. ADR and ISAM systems are largely disregarded, with interviewees reporting minimal commercial or governmental interest. Russia continues to support legacy industries through state-heavy initiatives and external partnerships with Iran or China, often blurring lines between commercial and military efforts. Importantly, the experts consulted urgently flagged that Russia has doubled down on nuclear propulsion technologies, including lunar reactor projects, making a return to past entrenched national security agendas—ironically, under the banner of innovation. In this context, launch capabilities and satellite deployment also emerge as key strategic focuses, particularly in relation to long-term military reconstitution in the wake of Russia's invasion of Ukraine and orbital weapons potential.

SOURCE: Russia subject-matter experts, interviews with the authors, July 2025.

Governance Challenges: Commonly Used Governance Mechanisms, Such as Formal Treaties and Bans, May Have Limited Impact on Governing Dual-Use Space Systems

Next, participants discussed the **key challenges in governing dual-use space systems**. Participants noted the limited impact of formal treaties and bans in governing dual-use space systems. Identifying these barriers can support recommendations for a global governance regime that proactively account for feasibility and the likelihood of adoption.

Treaties on dual-use space system governance face implementation challenges: Given the dual-use nature of many space systems and their importance to civilian life, participants argued that a treaty-based arms control approach—which has its advocates at UN forums, including, notably, Russia and China—might be difficult to implement. Participants stated that this difficulty, at least in part, may stem from the lack of shared

definitions for space weapons or hostile space behavior and issues of trust—essential prerequisites for any international treaty.

Technological developments outpace governance: A military stakeholder and a researcher also noted that technological advances frequently outpace legal and regulatory frameworks. This issue is exacerbated by the fact that technological innovation is increasingly driven by the private sector, with more-limited technical expertise at the cutting edge within governments. Given the difficulty of reaching consensus on any new international treaty—and the long lead times for negotiations that a treaty would likely require—participants identified a risk that inflexible governance arrangements could be left behind by new technological or market developments.

Regulating use could be a better approach than regulating proliferation: A government stakeholder made a distinction between governing the use of dual-use systems and limiting their proliferation. They contended that the goal should be to reduce risks and threats stemming from use to allow for broader solutions beyond traditional arms control approaches, which focus more on limiting access to capabilities in the first place—a goal deemed largely unrealistic by workshop participants. Relevant alternative frameworks could include broader technology governance or space sustainability efforts.

Implementing system bans comes with challenges: Participants offered differing views on a possible ban of certain dual-use space systems. Drawing from a potential regulation scheme for autonomous weapons, a government representative from Northern Europe noted the possibility of building a two-tiered approach in which some systems are banned while others are regulated. Participants disagreed on the viability of such a scheme; for instance, even if countries could agree on which systems to ban, countries could attempt to obscure banned systems as permitted ones and evade verification.

Governance Tools: Regional Cooperation and Normative Approaches Emerge as Possible Governance Tools

The final section of the workshop focused on **tools for governing dual-use space systems**. Participants indicated the extent to which they agreed that select governance tools—international treaties, regional cooperation, bilateral cooperation, norms, and market-driven approaches—today underpin the development and operationalization of dual-use space systems and considered additional tools in the follow-on conversation. The discussion showed strong support for flexible, norms-based frameworks over formal treaties and highlighted regional cooperation, espe-

cially within the EU, as the most feasible near-term governance approach amid geopolitical tensions. Understanding which tools are already in use can highlight existing strengths and gaps, informing the design of new regimes that are more likely to be accepted and effective.

Regional cooperation is important: When asked to assess which governance tool was the likeliest to underpin the development and operationalization of dual-use space systems, participants across sectors identified regional cooperation as the likeliest (see Figure 2.3). They described regional cooperation as the most realistic option at the current stage, especially within the EU, which already has a governance structure in place. Participants noted that regional cooperation could help implement decisions reached from bilateral negotiations, enhance transparency and trust by engaging many stakeholders, and set a normative example for other regions. The EU's shared understanding of space-related risks and its ongoing efforts to develop crisis-response tools can help increase European resilience. Once the EU position solidifies—potentially also with alignment from others, such as the United Kingdom and Norway—it could be leveraged in international cooperation to promote norms, rules, and principles of responsible behavior in space. In contrast, participants saw regional cooperation within NATO as more challenging because of disparities in military capabilities, which give some nations a greater stake and influence than others.

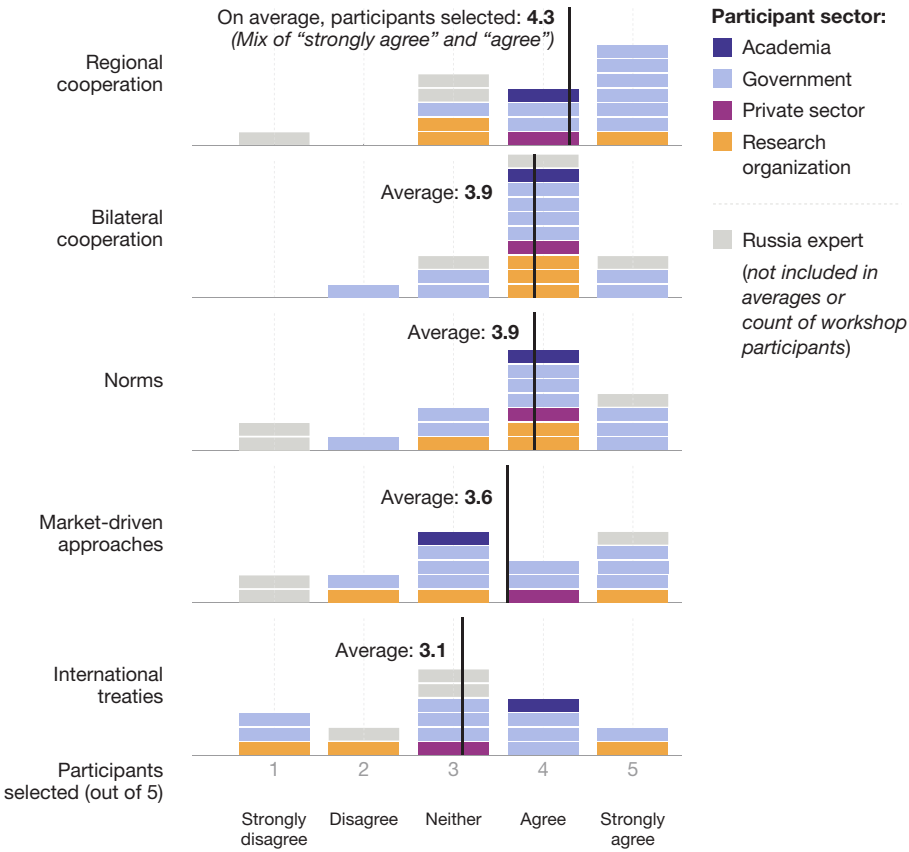
Diverse perspectives on market-driven approaches exist: While many participants agreed that market-driven approaches are today underpinning dual-use space system development and use, some participants expressed skepticism in their suitability, warning that they could perpetuate the current lack of foundational regulatory development.[11] Participants noted that technology development is increasingly shifting from the public to the private sector, offering a variety of technological and service options. However, the profit motive of private firms may give them little reason to avoid developing space-based weapons, especially if they expect governments to eventually procure them once these capabilities are available. At the same time, a researcher suggested that the space industry could self-regulate and develop standards to promote responsible use.

[11] *Market-driven approach* was defined, in the context of the workshop, as a less regulated approach whereby market-imposed standards, norms, and behaviors shape governance. Nonetheless, *market-driven approach* is an open-ended term, so different participants might have had different conceptual understandings and assumptions about its meaning, which, in turn, shaped their responses.

Figure 2.3. | Workshop Participant Responses on Governance Tools

Question: In your view, what are the main governance tools underpinning the development and operationalization of dual-use space systems?

14 of 15 workshop participants responded to this question.



NOTE: Given the small sample size ($n < 30$), the responses may not be statistically representative. The graphics are intended for visualization purposes only and not for detailed quantitative analysis.

There is a need for flexible, norms-based governance: Instead of international treaties, participants broadly supported developing norms of behavior to promote predictability, consistency, transparency, and trust around space activities without constraining civilian and commercial uses. They viewed this approach as preserving military flexibility while avoiding treaty limits that adversaries might ignore. Building on each other's comments, two military experts noted that norms incorporated in wider narratives can gradually build credibility and trust across stakeholders, helping lay the groundwork for eventual regulations. Still, participants acknowledged the

difficulties in establishing accountability for threatening behaviors in space; as a starting point, one participant mentioned transparency and confidence-building measures, such as inspection regimes and information-sharing, as practical steps to reduce tensions.

Russian unilateralism and absence from international dialogues are issues: Russia's unstable investment climate and unilateral approach to space leave it isolated from international norms and coalitions, prioritizing national control amid security concerns. Box 2.3 summarizes insights from Russia experts following the workshop.

Box 2.3. Russia Insights on Unilateralism

Interviewees noted that Russia's investment climate suffers from political unpredictability and a lack of legal safeguards, undermining innovation and dual-use commercial ventures. The experts explained that, after the recent turmoil in Libya and Russia's annexation of Crimea, NATO shifted its approach to managing space systems. Instead of acting alone, NATO now focuses on working together with other countries and organizations, using specific coalitions to govern and oversee space activities. Russia—outside those coalitions and currently waging war against Ukraine—remains skeptical of international norms, avoids antagonizing China, and leans toward unilateralism. Given threats emerging from Russian cyberattacks, anti-satellite capabilities, and the exploration of nuclear propulsion in space, the country remains largely absent from international, regional, or even bilateral norms-setting conversations, prioritizing national regulation beneficial to its strategic autonomy.

SOURCE: Russia subject-matter experts, interviews with the authors, July 2025.

CHAPTER 3

Conclusions and Next Steps

The Europe-Eurasia workshop underscored the need for further research on national and multilateral approaches to dual-use space systems. This dialogue among a select group of European and Eurasian participants revealed substantial differences in defining *dual use*, reflecting deep political, operational, and economic divides in how states, multilateral organizations, and industries understand the relationship between civilian and military space activities. The workshop further highlighted the challenges in establishing effective global governance to manage the security and stability risks posed by dual-use systems, given definitional ambiguity and the limited effectiveness of treaties or system bans. Participants favored flexible, norms-based governance and regional cooperation as practical means to promote transparency and trust.

Next Research Steps

This workshop, along with others examining the Americas and the Indo-Pacific regions, will inform further RAND research that aims to refine operative definitions of dual use, consider governance solutions that take into account the region's preferred governance tools—such as regional cooperation and normative approaches—and develop recommendations for global governance.

In the second year of this project, RAND researchers will conduct a series of workshops, including in Europe-Eurasia, to engage regional stakeholders on the policy implications of the insights surfaced in this document. These events will bring together spacefaring nations, commercial leaders, academics, and civil society stakeholders to explore pragmatic solutions for improving transparency, clarifying norms, and reducing risk in a

dual-use environment. The project will be attentive to regional variations in how dual-use technologies are developed, perceived, and regulated—recognizing that governance solutions must reflect both technical realities and political sensitivities. Through these engagements, RAND researchers aim to make progress toward the development of actionable, consensus-based recommendations for managing dual-use capabilities in a way that promotes the long-term sustainability and stability of space for all.

APPENDIX A

Methodological Approach

Understanding how nations approach the development, deployment, and governance of dual-use space systems is essential for shaping effective global policy. To build on an initial baseline report characterizing national approaches,[12] RAND researchers convened expert workshops that gathered deeper insights from government, industry, and civil society stakeholders to address information gaps that, if addressed, could help inform a feasible global governance regime. This appendix outlines the design and participant selection of the Europe-Eurasia workshop, which aimed to establish a baseline understanding of regional perspectives on dual-use space systems across Europe, Russia, and the Middle East.

[12] McClintock and Glickstein, 2026.

Workshop Design

The RAND research team determined that three-hour virtual workshops—one for each region—would provide ample time for participants to offer insights on the multitude of space systems and relevant issues. Each workshop planned on approximately 15 participants, representing a cross-section of stakeholders from the public sector, private industry, research organizations, academia, and the international community. The team determined this group size to be large enough to showcase a diversity of views yet small enough to allow for a structured moderated discussion. All discussions were covered by RAND Human Subjects Protection Regulations.

The workshop was structured into two parts:

1. an introduction to the project and presentation of findings from the baseline report
2. an interactive, moderated discussion with the participants, in which the team elicited responses to six questions, which RAND researchers provided in advance.

In advance of the workshop, the research team shared an initial draft of the baseline report and provided the six workshop questions. Table A.1 provides the question language. The research team adopted an interactive workshop format that included both open-ended questions and closed-ended, Likert scale questions. The **open-ended questions** allowed for nuanced characterization of responses and showcase the diversity of perspectives. The workshop moderator asked participants to provide their responses to these questions either verbally or by writing their responses in the Microsoft Teams chat. The **closed-ended, standardized questions**—collected on a platform called Mentimeter—allowed for more informational depth, as well as cross-comparative assessments by region and sector.[13] For each closed-ended question, participants selected a number pertaining to a Likert scale option: 5 for "strongly agree," 4 for "agree," 3 for "neither agree nor disagree," 2 for "disagree," and 1 for "strongly disagree." Participants could further provide additional thoughts beyond the listed sub-questions in the Teams chat. To avoid anchoring and bias, the answers to the Likert scale questions remained hidden until participants responded.[14] Once question responses were revealed, they were used as the basis for discussion, focusing particularly on areas of agreement and disagreement in the responses.

[13] Mentimeter, homepage, undated.

[14] Because the responses were voluntary, not all questions received responses from all participants. In some cases, participants had to depart the workshop early and were unable to respond. A separate, dedicated survey was sent out to only those participants who did not respond, for the specific questions they did not initially respond to, in order to get as many responses as possible per workshop. None of the originally received responses were changed.

Table A.1. | Workshop Question Types and Language

Topic	Question Type	Question	Sub-Questions (Likert responses; 5 for "strongly agree," 1 for "strongly disagree")
Definitions of *dual use*	Open-ended discussion	In your view, what is an operative definition for dual-use space systems?	NA
Drivers of space system development and use	Closed-ended Likert, with follow-on discussion	In your view, what are the drivers behind the development and operationalization of dual-use space systems?	▪ Economic development ▪ Strategic autonomy ▪ Space sustainability ▪ Strategic military capability ▪ Other (specify in Teams chat)
Systems perceived as significant for civilian and military objectives	Open-ended discussion	In your view, what are the main on-orbit space systems you identify as dual-use?	NA
Investment trends	Closed-ended Likert, with follow-on discussion	In your view, what do you identify as the key trends of investment in dual-use space system capabilities?	▪ ISR and EO ▪ SATCOM ▪ PNT ▪ ISAM ▪ ADR ▪ Other (specify in Teams chat)
Global governance challenges	Open-ended discussion	In your view, what are the main governance challenges posed by dual-use systems?	NA
Current governance tools	Closed-ended Likert, with follow-on discussion	In your view, what are the main governance tools underpinning the development and operationalization of dual-use space systems?	▪ International treaties ▪ Regional cooperation ▪ Bilateral cooperation ▪ Norms ▪ Market-driven approaches ▪ Other (specify in Teams chat)

NOTE: NA = not applicable.

At the onset of the workshop, the moderator informed participants that discussions would follow the Chatham House Rule, meaning that participants could use the information shared but not to attribute comments to specific participants. All inputs were anonymized and aggregated in the research.

Participant Selection

The research team aimed to include a broad cross-selection of government, private-sector, multilateral, and civil society or research organization representatives to ensure a diversity of perspectives on dual-use space systems. To the extent possible, the team sought to include one representative from each sector—public, private, and nongovernmental—from each country participating in the workshop.

The team invited participants from each of the countries examined in the baseline report—France, Germany, Iran, Italy, Luxembourg, Norway, Russia, Ukraine, the United Arab Emirates, and the United Kingdom—and three multilateral institutions: the European Space Agency, EU, and NATO. They invited individuals representing the UN, Finland, Sweden, and Saudi Arabia for additional perspectives.

Participants were selected using a combination of targeted outreach and snowball sampling, in which existing participants recommended additional knowledgeable individuals for the study. The research team used the baseline report as a guide for identifying institutions of interest, including government bodies responsible for space policy—or, where applicable, dual-use space system policy—as well as relevant research organizations and commercial space actors. The team identified individuals from these institutions as an initial list and then used snowball sampling to identify additional participants.

Supplemental Interviews

Because of the logistical challenges of convening everyone for the workshop, we held one-on-one interviews following the workshop with experts on Russia who were unable to attend. We conducted these interviews using the same questions provided in the workshop. One challenge of conducting an interview in lieu of the workshop was that the participant did not have the opportunity to engage with the content that emerged from the workshop discussion. To mitigate this challenge, we first asked the participant a question from the workshop, and then, after the participant provided their answer, we shared some of the

discussion on the topic that happened during the workshop and allowed them to react. This allowed us to capture both their own reactions to the questions and their reactions to the workshop content. One advantage of the interviews was that we were able to get deeper content from each individual interviewee. We integrated the data from the interviews into the workshop findings. When themes from workshop participants are discussed, this also includes those who provided their inputs in supplemental interviews.

APPENDIX B

Dual-Use Space Systems and Capabilities

During the workshop, participants identified a variety of dual-use space systems and capabilities. One workshop question pertaining to operational systems focused on five capabilities: ADR, EO/ISR, ISAM, PNT, and SATCOM. Table B.1 summarizes these capabilities and additional ones raised either during the workshop or in the baseline report that can serve both civilian and military objectives.[15] Because the discussion centered on existing, well-understood orbital technologies—rather than emerging capabilities or cislunar, lunar, or deep-space systems—the table reflects only a subset of potential dual-use capabilities.

[15] McClintock and Glickstein, 2026.

Table B.1. | Key Dual-Use Space System Capabilities

Origin	Abbreviation	Dual-Use Capability	Description
Raised by workshop moderator	ADR	Active debris removal	Systems designed to capture and de-orbit orbital debris
	EO/ISR	Remote sensing for Earth observation and intelligence, surveillance, and reconnaissance	Satellite systems that gather data about Earth's surface and monitor activities globally
	ISAM	In-space servicing, assembly, and manufacturing	Technologies enabling satellite life extension, on-orbit spacecraft repair, and microgravity processes
	PNT	Positioning, navigation, and timing	GNSSs providing timing and positional data for navigation and communication
	SATCOM	Satellite communications	Use of orbiting satellites to enable data, voice, and video transmission over long distances
Raised by participants or in baseline report	RPO	Rendezvous and proximity operations	Maneuvering spacecraft to approach and interact with other on-orbit objects
	SDA	Space domain awareness	Strategic understanding of space activity and threats, building on space situational awareness with military-relevant context
	SLVs	Space launch vehicles	Systems used to launch payloads into orbit, such as satellites and spacecraft
	SSA	Space situational awareness	Monitoring and characterizing objects in Earth's orbit to ensure safe space operations
	STM	Space traffic management	Coordination of space object movement to avoid collisions and interference
	(NA)	On-orbit servicing	Capabilities that allow repair, refueling, or upgrading of satellites while in orbit

Table B.1.—Continued

Origin	Abbreviation	Dual-Use Capability	Description
	(NA)	Planetary defense	Systems for detecting and potentially mitigating near-Earth object threats
	(NA)	Space weather monitoring	Observation and forecasting of solar and geomagnetic activity that can affect space and terrestrial systems

SOURCE: Adapted from McClintock and Glickstein, 2026.

NOTE: NA = not applicable.

Abbreviations

ADR	active debris removal
EO	Earth observation
EU	European Union
GNSS	global navigation satellite systems
GPS	Global Positioning System
IRIS^2	Infrastructure for Resilience, Interconnectivity and Security by Satellite
ISAM	in-space servicing, assembly, and manufacturing
ISR	intelligence, surveillance, and reconnaissance
NATO	North Atlantic Treaty Organization
PNT	positioning, navigation, and timing
RPO	rendezvous and proximity operations
SATCOM	satellite communications
SDA	space domain awareness
UN	United Nations

References

Agachi, Anca, Krista Langeland, Amal Altwaijri, Mélusine Lebret, David Glickstein, and Bruce McClintock, *Surveying Duality in Space*: Vol. I, *Americas Workshop Insights on Developing, Deploying, and Governing Dual-Use Space Systems*, RAND Corporation, CF-A4003-1, 2026. As of January 2026: https://www.rand.org/pubs/conf_proceedings/CFA4003-1.html

Azcárate Ortega, Almudena, and Victoria Samson, eds., *A Lexicon for Outer Space Security*, United Nations Institute for Disarmament Research, 2023. As of August 14, 2025: https://unidir.org/publication/a-lexicon-for-outer-space-security/

EUR-Lex, "EU Space Programme (2021–2027)—European Union Agency for the Space Programme," webpage, last updated March 22, 2023. As of November 20, 2025: https://eur-lex.europa.eu/summary/EN/4526706

European Commission, Defense Industry and Space, "EU Space Act," webpage, June 25, 2025. As of November 20, 2025: https://defence-industry-space.ec.europa.eu/eu-space-act_en

European Union Agency for the Space Programme, "IRIS²," webpage, last updated April 25, 2025. As of November 20, 2025: https://www.euspa.europa.eu/eu-space-programme/secure-satcom/iris2

McClintock, Bruce, and David Glickstein, eds., *Exploring Duality in Space: How Select Countries Approach Dual-Use Space Systems*, RAND Corporation, RR-A4003-2, 2026. As of January 2026: https://www.rand.org/pubs/research_reports/RRA4003-2.html

Mentimeter, homepage, undated. As of December 4, 2025: https://www.mentimeter.com/

North Atlantic Treaty Organization, "NATO Commercial Space Strategy," webpage, February 13, 2025. As of December 4, 2025: https://www.nato.int/en/about-us/official-texts-and-resources/official-texts/2025/02/13/nato-commercial-space-strategy

Schwindt, Karen, Amanda Kerrigan, Jeffrey W. Hornung, Kristina Novakovic, Amal Altwaijri, Nicholas Kong, David Glickstein, and Bruce McClintock, *Surveying Duality in Space*: Vol. III, *Indo-Pacific Workshop Insights on Developing, Deploying, and Governing Dual-Use Space Systems*, RAND Corporation, CF-A4003-3, 2026. As of January 2026: https://www.rand.org/pubs/conf_proceedings/CFA4003-3.html

About These Conference Proceedings

In early 2025, RAND launched a three-year effort to examine dual-use space systems—those capable of performing both civilian and military operations. The project began with a baseline report analyzing national approaches to developing, deploying, and governing these systems,[16] followed by three regional workshops in the Americas,[17] Europe-Eurasia, and the Indo-Pacific to fill gaps and further contextualize findings.[18] These proceedings focus solely on the Europe-Eurasia workshop, which was held virtually on June 18, 2025, and convened 15 space stakeholders from Europe and the Middle East across government, private, and research sectors, as well as additional experts on Russia's space sector who were interviewed after the workshop. These proceedings articulate key themes summarizing participant insights, emphasizing the lack of shared definitions, the role of economic and strategic factors underpinning system development and use, and regional preferences for norms-setting and regional cooperation over formal treaties or bans. Findings from the baseline report and workshops will inform recommendations to the international community for establishing a global governance regime for dual-use space systems.

[16] Bruce McClintock and David Glickstein, eds., *Exploring Duality in Space: How Select Countries Approach Dual-Use Space Systems*, RAND Corporation, RR-A4003-2, 2026.

[17] Anca Agachi, Krista Langeland, Amal Altwaijri, Mélusine Lebret, David Glickstein, and Bruce McClintock, *Surveying Duality in Space*: Vol. I, *Americas Workshop Insights on Developing, Deploying, and Governing Dual-Use Space Systems*, RAND Corporation, CF-A4003-1, 2026.

[18] Karen Schwindt, Amanda Kerrigan, Jeffrey W. Hornung, Kristina Novakovic, Amal Altwaijri, Nicholas Kong, David Glickstein, and Bruce McClintock, *Surveying Duality in Space:* Vol. III, *Indo-Pacific Workshop Insights on Developing, Deploying, and Governing Dual-Use Space Systems*, RAND Corporation, CF-A4003-3, 2026.

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NATIONAL SECURITY RESEARCH DIVISION

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