

Friends in space

NATO and Japan cooperation beyond the skies

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In July 2023, NATO and Japan signed an Individually Tailored Partnership Programme (ITPP), which includes space security as one of its 16 objectives. Indeed, outer space is now an arena for great power competition for national power. Space is critical to all facets of national power, encompassing security and defence, economy, diplomacy, intelligence, and science, technology and innovation.¹ At the same time, security in space is no longer guaranteed, with growing threats and risks. China and Russia are actively developing, testing, and deploying counter-space capabilities. As for risks, there are more space debris in orbit than operational satellites, making it difficult for functional satellites to avoid

Summary

NATO and Japan share compelling reasons for space security cooperation: worldwide ownership of space assets; Japan as among six most capable space powers; and the application of Article 5 to space.

Japan is attractive to NATO in terms of space technology, space capabilities, operation, and funding. NATO is attractive to Japan because NATO is becoming a backbone of space-based data hub contributing to the Alliance' Multi-Domain Operations.

NATO-Japan space security cooperation should be pursued through political, operational, educational, and industrial/commercial partnership, and joint training and exercises.

¹ The Space Development Strategy Headquarters, Japan: Space Security Initiative, June 2023, <https://www8.cao.go.jp/space/english/anpo/anpo.html>

collisions.² Moreover, security from space has become ever more indispensable. Capabilities provided by space systems underpin the functioning of our economic society, as well as our national security.

How can NATO and Japan cooperate in space? NATO Secretary General Stoltenberg said no partner is closer to NATO than Japan.³ In today's world, security is not a regional matter but a global one,⁴ and the security of the Euro-Atlantic and of the Indo-Pacific is closely connected.⁵ Space as a global commons has no national boundaries and no one nation can protect this final frontier alone. Among the four Indo-Pacific countries that NATO has a structured partnership with – Australia, Japan, New Zealand, and the Republic of Korea – NATO-Japan ITTP is the only partnership programme that includes space security. So why is space included in the NATO-Japan partnership? How can NATO and Japan, who are not formally allied, cooperate in space?

This policy brief proposes the concept of a purpose-driven, multifaceted partnership as a framework to examine NATO-Japan cooperation. Using this framework, it delivers a typology of five possible pathways for NATO-Japan cooperation in space security. The first section surveys what is happening in outer space. This will allow us to understand the context that raises the importance of NATO and Japan to operationalize cooperation in the space domain. The second section focuses on why NATO and Japan should cooperate in space security by looking at compelling reasons for cooperation. The third section discusses how NATO and Japan can cooperate, proposing a shift from the popular but not-so-useful concept of strategic partnership to a purpose-driven, multi-faceted partnership. The final section presents five possible pathways for NATO-Japan cooperation in space security. It concludes with some considerations for thinking about NATO-Japan space security cooperation.

What is happening in space?

In June 2023, Japan published its first-ever “Space Security Initiative.” This document provides a useful way of looking at challenges facing outer space affairs, focusing on two main aspects: security *in* space and security *from* space. Security in space is no longer guaranteed. The space domain has become an arena for great power competition, primarily between the United States (US) on the one hand, and China and Russia on the other. This competition spans multiple fronts: scientific,⁶ technological,⁷ commercial,⁸ and military.⁹ The dual-use nature of space assets motivates potential adversaries and competitors to invest in, develop, test, and deploy counter-space capabilities. These capabilities range from simple and affordable jammers to highly sophisticated anti-satellites weapons. From the military perspective, space is now one of the five operational domains, alongside land, sea, air and cyber.

Adding to this contested nature of space, the orbital environment is highly congested, posing a significant risk of collisions. A balance between the number of objects launched and those that decay or are actively deorbited will not be maintained, risking to reach a tipping point.¹⁰ Of the approximately more than 10,000 operational satellites orbiting at the time of writing, nearly 93% are in the low Earth orbit (LEO) as shown in Figure 1. Worse, there is more space debris in orbit than operational satellites¹¹ (ESA 2023). Understanding what is happening in space – referred to as space situational awareness (SSA) – is critical. Additionally, tracking and characterizing space objects and assessing the intent of actors, known as space domain awareness (SDA), are essential to support space operations, missions and other activities.

The second approach is security from space. More and more states and people around the world depend on and benefit from space technology, a phenomenon described as the democratization of space.¹² The European Union (EU) and NATO have identified space as one of the four critical sectors – alongside energy, transport, and digital

2 Caitlyn Eberle and Zita Sebesvari, “The 2023 Interconnected Disaster Risks: Technical Report Space Debris,” https://s3.eu-central-1.amazonaws.com/interconnectedrisks/reports/2023/TR_231115_Space_Debris.pdf

3 NATO website, “NATO Secretary General: no partner is closer than Japan,” 12 July 2023, https://www.nato.int/cps/en/natohq/news_217062.htm

4 Jens Stoltenberg, “What NATO Means to the World,” *Foreign Affairs* 3 July 2024, <https://www.foreignaffairs.com/europe/what-nato-means-world>

5 Joint Statement issued on the occasion of the meeting between H.E. Mr. Jens Stoltenberg, NATO Secretary General and H.E. Mr. Kishida Fumio, Prime Minister of Japan, 31 January 2023.

6 An example is the race to the moon between the US-led Artemis Accord and China-led International Lunar Research Station (ILRS). See Marc Julienne and Paul Wohrer, “Racing to the moon: China's Lunar Exploration Program in Competition with the United States,” *Reconnect China: Policy Brief 4*, October 2023, <https://www.reconnect-china.ugent.be/2023/11/13/reconnect-china-policy-brief-4-assesses-chinas-lunar-exploration-program-in-competition-with-the-united-states/>.

7 Sean Gorman, “America is Losing its GPS Dominance to China's BeiDou Satnav,” 8 April 2024, *SpaceNews*, <https://spacenews.com/america-losing-gps-dominance-china-beidou-satnav/>

8 An example of a commercial race is to dominate the low Earth orbit (LEO) with large constellations between Space X's Starlink and China's three projects: Guowang, G60 Starlink, and the Honghu constellation. See Andrew Jones, “Chinese firm files plans for 10,000-satellite constellation,” *SpaceNews*, 27 May 2024, <https://spacenews.com/chinese-firm-files-plans-for-10000-satellite-constellation/>

9 A 2019 agreement to transfer sensitive missile defence technology from Russia to China marks the beginning of a China-Russia space relationship characterised by a lack of transparency. See Kevin Pollpeter et al., “China-Russia Space Cooperation: The Strategic, Military, Diplomatic, and Economic Implications of a Growing Relationship” *CNA*, May 2023, <https://www.cna.org/reports/2023/06/china-russia-space-cooperation-may-2023>

10 Caitlyn Eberle and Zita Sebesvari, “The 2023 Interconnected Disaster Risks: Technical Report Space Debris,” https://s3.eu-central-1.amazonaws.com/interconnectedrisks/reports/2023/TR_231115_Space_Debris.pdf

11 ESA's Annual Space Environment Report 2023, prepared by ESA Space Debris Office, page 3.

12 Dave Baiocchi and William Welser IV, “The Democratization of Space: New Actors Need New Rules,” *Foreign Affairs*, May/June 2015, <https://www.foreignaffairs.com/articles/space/2015-04-20/democratization-space>

Operational Satellites by Orbit

As of Nov 2024

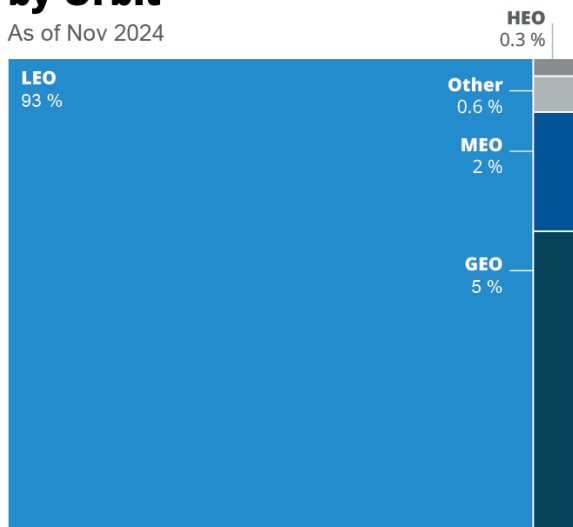


Figure 1. Source: Space Data AEI, <https://spacedata.aei.org/>

infrastructure – that form critical infrastructure of EU Member States and NATO Allies. Our modern society depends on essential services provided by space, which are critical to the well-functioning of a society. Space data, products, and services provide connectivity, facilitate precision timing, enable accurate positioning, support monitoring and forecasting, and enable earth observation.¹³ In military terms, the space domain has been a critical enabler for effective operations, missions and other activities.

Why NATO, Japan, and space?

So why should NATO and Japan cooperate in space security? Differences between NATO and Japan are obvious. Japan is a sovereign state, whereas NATO is a treaty-based international organization composed of 32 sovereign states. Japan, an island nation, lies off the east coast of Asia, facing the vast expanse of the Pacific Ocean. In contrast, NATO's territorial scope of its collective de-

fence commitment is limited to the North Atlantic area. Despite these differences, there are compelling reasons for cooperation.

When viewed through the lens of outer space, three similarities between Japan and NATO emerge. In terms of space assets, more than 80% of all satellites worldwide are owned by NATO member states at the time of writing (Figure 2). By country, the US dominates satellite ownership, followed by the UK, China, Russia, and Japan. Commercial assets such as SpaceX's Starlink (US) and OneWeb (UK) constellation satellites dominate these figures. As capable militaries rely heavily on capabilities from the private sector, having an overall picture is essential. NATO Allies and Japan share the interest to protect their space assets.

Japan¹⁴ is counted among the six most capable space powers, alongside the US, China, Russia, India, and Europe.¹⁵ They have significant or permanent foothold in the most critical capabilities they offer for military, political, economic, and intelligence needs. The most essential technological areas for autonomous action in space include:

- launch to the most useful orbits;
- secure Satellite Communication (SatCom);
- positioning, navigation, and timing (PNT);
- Earth observation (EO)/intelligence, surveillance and reconnaissance (ISR) industries; and
- LEO and GEO launch capabilities.

These powers are highly unequal. Some argue that the US and China (and possibly Russia) are in their own separate club. However, given the importance of globalized high technology supply chains and the significance of space governance and sustainability, which are relevant to all space-related activities, including the military, Japan is counted as one of them.

A legal aspect unites NATO and Japan. At the Brussels Summit in 2021, NATO recognized that “attacks to, from, or within space present a clear challenge to the security of the Alliance” and “such attacks could lead to the invocation of Article 5.” A decision of whether such attacks constitute an Article 5 matter is made on a case-by-case basis. Similarly, the Japan-US Alliance extends its security guarantee to space. At the Japan-US Security Consultative Committee in January 2023, the leaders of both countries declared that “attacks to, from, or within space present a clear challenge to the security of the Alliance, and affirmed such attacks, in certain circumstances, could lead to the invocation of Article V of the Japan-US Security Treaty.”¹⁶ The wording is strikingly similar.

¹³ EU-NATO Task Force on the Resilience of Critical Infrastructure: Final Assessment Report, June 2023.

¹⁴ Bledwyn E. Bowen, *Original Sin: Technology and War in Outer Space*, C. Hurst & Co. Ltd., 2022.

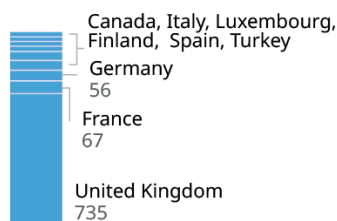
¹⁵ Europe, when counted individually, do not quite mark out as independent space power. Europe, refers to “collective capabilities via European Space Agency, the European Union, and to a lesser extent NATO enhance their individual capabilities into a more coherent whole” (Bowen, 2022).

¹⁶ Japan, Ministry of Defense “Joint Statement of the Security Consultative Committee (“2+2”),” 11 January 2023, <https://www.mod.go.jp/en/article/2023/01/e595130b273955f65e436fa3a8150eb06bfc42a3.html>

Global Space Assets

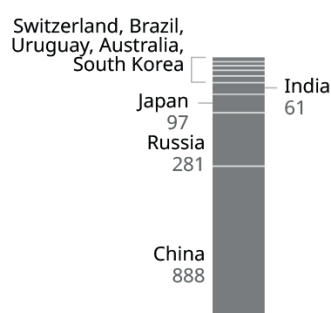
By country, as of Nov 2024

NATO member states



United States
7 578

Non-NATO member states



Why should NATO look to Japan?

Japan has added value for NATO in terms of space technology, space capabilities, operation, and funding.

Japan has long been a civilian space power, single-mindedly focused on space technology.¹⁷ While fully capable of using counter-space capabilities for military use such as rendezvous proximity operations, Japan has stayed the course of using such technology towards on-orbit servicing.¹⁸ This performance includes technological upgrades, repairs and refueling and inspection of satellites while orbiting. Due to the inherent complexity of defining a weapon in outer space owing to the dual-use nature of space objects, this disposition is an important quality as Japan is very much a shaper, rather than a taker, in the counter-space technology and in the norms- and rules-making of responsible behavior in outer space.¹⁹

As for space capabilities, facing constant and direct threats coming from its neighbors, Japan has been focusing efforts in strengthening various space capabilities especially since 2015. Specifically, the Space Security Initiative prioritizes in intelligence, missile defense, communication, PNT, space transportation, and SDA. Japan's decision to acquire long-range counterstrike capabilities, and the concomitant decision to develop an indigenous space architecture for acquiring target detection and tracking capabilities proves Japan's resolve to defend itself (Figure 3).

An operational aspect should also be appealing to NATO. Japan is an official member of the Combined Space Operation (CSpO) initiative. Although often described as a NATO-framed activity,²⁰ the CSpO is a US-led multilateral grouping of ten countries – the “Five Eyes” countries that are the US, UK, Canada, Australia, and New Zealand, plus France, Germany, Italy, Norway, Japan – a cooperation framework with the purpose of improving “cooperation, coordination, and interoperability opportunities to sustain freedom of action in space, optimize resources, enhance mission assurance and resilience, and prevent conflict.”²¹ Apart from Japan, Australia and New Zealand, which are non-NATO countries, the rest are NATO member countries. Given the

¹⁷ Nanae Baldauff, “Space and Strategy: Japan's National Security in Space and Europe,” CSDS Policy Brief 31/2023, Centre for Security, Diplomacy and Strategy (CSDS), Brussels School of Governance (BSOG) of the Vrije Universiteit Brussel (VUB), 13 December 2023 <https://csds.vub.be/publication/space-and-strategy-japans-national-security-in-space-and-europe/>

¹⁸ Saadia Pekkanen, “Thank You for Your Service: The Security Implications of Japan's Counterspace Capabilities,” in *Policy Roundtable: The Future of Japanese Security and Defense*, Texas National Security Review, 1 October 2020.

¹⁹ “Statement by Japan at the Meeting of the First Committee 75th Session of the United Nations General Assembly: Thematic Debate: Outer Space,” 29 October 2020, https://www.mofa.go.jp/press/release/press24e_000018.html

²⁰ “NATO Allies Enhance Space Coordination and Capabilities,” 11 December 2023, https://ac.nato.int/archive/2023/CSpO_and_SPACEFOREUR-AF

²¹ Ministry of Defense Japan, Joint Combined Space Operations (CSpO) Initiative participation, 5 December 2023, <https://www.mod.go.jp/j/press/news/2023/12/05a.html>

Figure 2. Source: Space Data AEI, <https://spacedata.aei.org/>

Japan's Space Architecture for National Security

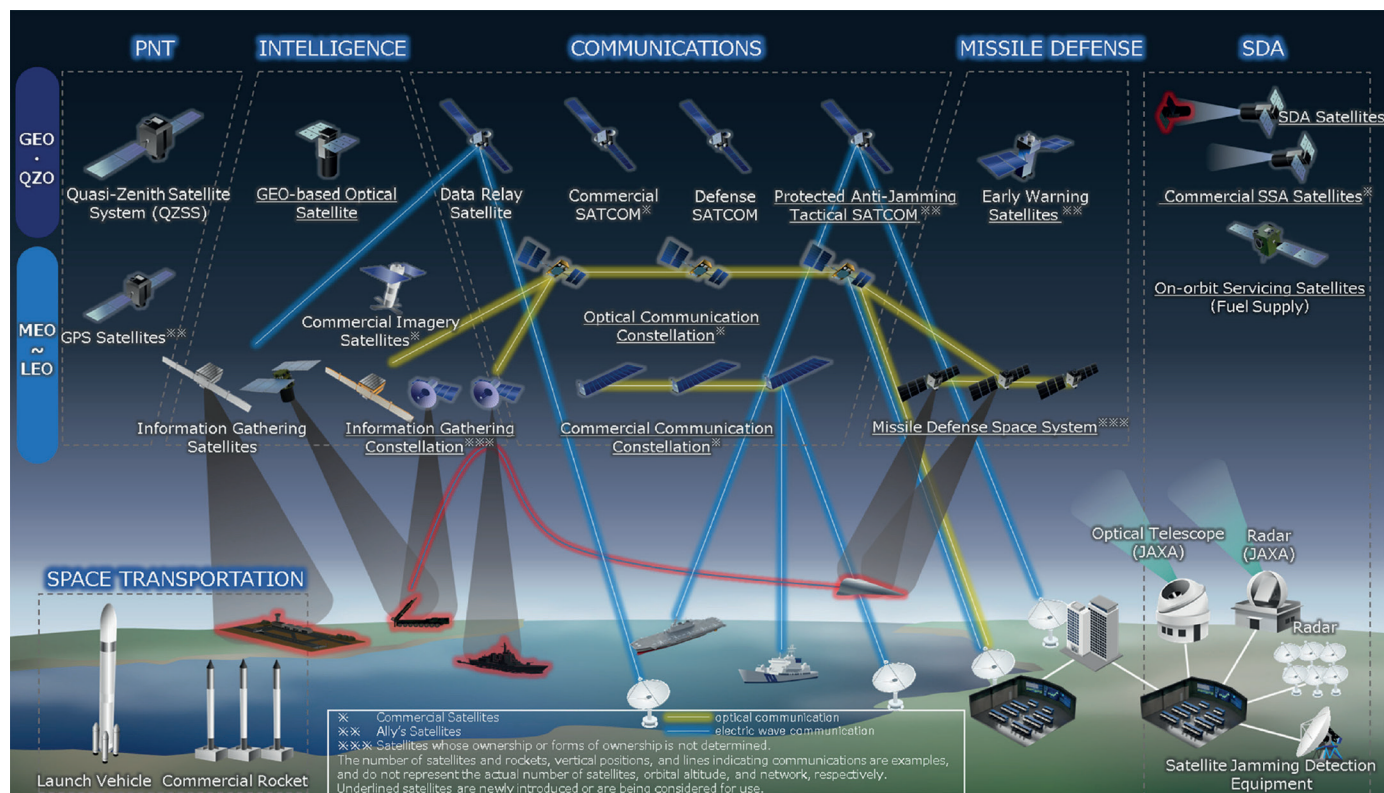


Figure 3. Japan's Space Architecture for National Security.

close relationship both Australia and New Zealand have with NATO respectively, NATO effectively becomes an important forum for space security cooperation for these non-NATO countries. It remains to be seen whether the membership of CSPO be extended to other members of NATO. Regardless, the fact that Japan is a CSPO member adds Japan's value to NATO.

Funding allocated for Japan's overall plan to enhance its space systems is another appealing aspect to NATO. Japan has established a 10-year Space Strategy Fund which is worth USD6.6 billion (1 trillion yen) to be managed by the Japan Aerospace Exploration Agency (JAXA). This Fund is an investment into three areas: space transportation, satellites, and space exploration. This is separate from the annual space budget allocated for the Ministry of Defense. For example, for the fiscal year 2024, USD 900 million (140.9 billion yen)²² is specifically allocated for defense projects including the deployment of SDA satellite, demonstration for hypersonic glide vehicle detection and tracking capabilities utilizing satellites, and resilience in space use. The establishment of the Space Strategy Fund is a demand signal from Japan's top leadership that it is serious about space in order to spur private sector inno-

vation and to deliver wider economic and space industrial benefits.

Why should Japan look to NATO?

Conversely, why should Japan look to NATO that does not own any space assets of its own? Since NATO's space policy was first adopted in 2019 and space was declared as a fifth operational domain, NATO has made significant decisions in terms of its political commitment, institutional and operational framework, and specific capabilities. Alongside its decision to extend the security guarantee to space, the 2021 Brussels Summit Communiqué states that space is essential for NATO's deterrence and defence posture.

For an organization that is not aiming to become an autonomous space actor, and is completely dependent on Allied space assets and capabilities, NATO seeks to

²² Japan Ministry of Defense, Progress and Budget in Fundamental Reinforcement of Defense Capabilities, Overview of the FY 2024 Budget https://www.mod.go.jp/en/d_act/d_budget/index.html

“complement and add value to the work of the Allies,”²³ effectively to become a hub, facilitator, and a forum for all things related to space security. For NATO to have baseline capabilities to anticipate and respond to threats, three ongoing projects stand out: the Alliance Persistent Surveillance from Space (APSS), the Strategic Space Situational Awareness System (3SAS), and the Global Commercially Contracted Satellite Communications Support Partnerships (GCC SATCOM SP).

The APSS is NATO’s first global ISR space initiative.²⁴ It is a multinational programme, and aims to increase space-based intelligence sharing across the Alliance, leading to a more comprehensive cross-domain intelligence. The objective is to help inform better and faster political-decision making and military operations. The APSS is supported on a tripod of actors: a political leg (managed by the International Staff at the Headquarters); a military leg (managed by SHAPE with an operational perspective); and a technical leg (the NATO Communications and Information Agency, NCIA, which is responsible for managing the program). The APSS will make use of existing and future national and commercial space assets of the Allied nations, connecting them together in a NATO virtual constellation called “Aquila.”²⁵ With seed funding of 16.5 million euros made available from Luxembourg, 17 Allied nations signed a MOU at the 2024 Washington Summit in order to accelerate “the processes for receiving and analyzing data gathered from space-based sensors, operated by Nations and commercial providers.”²⁶

While APSS was a project to look down from space, 3SAS focuses on looking up at space and is related to Earth observation / ISR capability. Being developed at NATO Headquarters, the objective of 3SAS is to “better understand the space objects and space events, and their effects across all domains,”²⁷ and to support decision-making at the North Atlantic Council and not as an operational tool.²⁸ On the SatCom side, the GCC SATCOM SP enables participating nations to jointly manage a full range of satellite communications services and generate synergies and economies of scale which would not be possible if done only at the national level. This partnership is about pooling and sharing of Allies’ space capabilities

managed through the NATO Support and Procurement Agency.²⁹ As APSS, 3SAS, GCC SATCOM SP, as well as other initiatives³⁰ within the Alliance are progressively implemented, NATO is effectively becoming a backbone of space-based data hub contributing to the Alliance’ Multi-Domain Operations³¹.

How: a framework to examine NATO-Japan relations

Shifting our focus to concepts of partnership, this section discusses how to conceptually frame NATO-Japan relations. This step allows us to think more effectively and efficiently about potential ways in which NATO and Japan can cooperate in space security.

The concept of strategic partnership has been widely used since the Cold War to study relations between states and actors that are not in a formal alliance.³² However, this concept is often criticized for its lack of utility in gauging the strength of such partnerships. The absence of a clear definition has led to inconsistencies in policy implementation.³³ For example, while the EU and China were bound by their strategic partnership, this framework could achieve little in international politics and security due to their fundamental differences in political values, geopolitical realities, priorities, and conceptions of world order.³⁴ Another example is Japan’s strategic partnership with Vietnam and Australia. Both strategic partnerships were upgraded, but while the partnership with Australia evolved into a “quasi-alliance,”³⁵ the level of institutionalization of defence cooperation between Japan and Vietnam remains low. Therefore, the concept of strategic partnership is not a useful framework.

Instead, this policy brief proposes the concept of a purpose-driven, multifaceted partnership. From Japan’s perspective, there is a growing body of literature that uses this framework to examine Japan’s relations with part-

²³ NATO’s overarching space policy, 27 June 2019 (last updated 30 May 2024), https://www.nato.int/cps/en/natohq/official_texts_190862.htm

²⁴ “Third NATO-Alliance Persistent Surveillance from space steering group concludes in The Hague,” NATO Communications and Information Agency, 24 November 2023, <https://www.ncia.nato.int/about-us/newsroom/third-natospace-steering-group-convenes-in-the-hague-.html>

²⁵ NATO, “Alliance Persistent Surveillance from Space (APSS),” Factsheet, February 2023.

²⁶ “Washington Summit: 17 Allies take further steps to boost NATO space capabilities,” 10 July 2024, NATO Communications and Information Agency <https://www.ncia.nato.int/about-us/newsroom/washington-summit-17-allies-take-further-steps-to-boost-nato-space-capabilities.html>

²⁷ NATO, “NATO and Luxembourg Boost Alliance Space Situational Awareness,” 15 June 2021, https://www.nato.int/cps/en/natohq/news_185365.htm

²⁸ Mathieu Bataille, “NATO and the space domain: coordinating national capabilities as a pathway to success?” in Nicolò Fasola et al, *Space: Exploring NATO’s Final Frontier*, 2024 SACT NATO HQ.

²⁹ US Embassy in Luxembourg: “The United States and Luxembourg Establish a New era of Space Cooperation Within NATO,” 31 October 2022, <https://lu.usembassy.gov/the-united-states-and-luxembourg-establish-a-new-era-of-space-cooperation-within-nato/>

³⁰ NATO, “Allies Launch Strategic Initiatives to Enhance Capabilities,” 9 July 2024, https://www.nato.int/cps/en/natohq/news_227472.htm

³¹ NATO Allied Command Transformation, “Multi-Domain Operations,” <https://www.act.nato.int/activities/multi-domain-operations/>

³² There is extensive existing literature. For example, Thomas S. Wilkins, “Russo-Chinese Strategic Partnership: A New Form of Security Cooperation?” *Contemporary Security Policy*, 29 (2), 2008, pp. 358-383; “The EU and Japan: Strategic Partners in the Indo-Pacific” *ECFR Madrid*, 4 April 2022 <https://ecfr.eu/madrid/article/the-eu-and-japan-strategic-partners-in-the-indo-pacific/>

³³ Jan Joel Andersson, “Delivering Together: Targeted Partnerships for a Secure World,” *EUISS Brief 7*, May 2024.

³⁴ Richard Maher, “The elusive EU-China Strategic Partnership,” *International Affairs* 92: 4, 2016, pp. 959-976.

³⁵ Graeme Dobell, “After Abe: Where to for Australia’s Quasi-Alliance with Japan?” *The Strategist*, ASPI, 2020, <https://www.aspi.org.au/after-abe-where-to-for-australias-quasi-alliance-with-japan/>

ners, including NATO,³⁶ the EU,³⁷ Gulf countries,³⁸ the Middle East,³⁹ and Kazakhstan.⁴⁰ Since the 2000s, the Japanese Ministry of Foreign Affairs has used the terms “multi-layered” and “multifaceted” relations to describe its ties with other nations, often using them interchangeably. It is defined as “relationships that are diverse in terms of channels and agendas across many domains.”⁴¹

Building on this multi-faceted partnership framework, this policy brief adds one crucial element: being purpose-driven. Beneath the abstract, overarching aspirations to “strengthen peace and security” or “to uphold the liberal international order,” there must be specific purposes for which cooperation is sought. This avoids cooperation for the sake of cooperation, a notion that might have worked in peacetime but is no longer sufficient. A purpose-driven, multi-faceted partnership will focus cooperation aimed at specific goals and targets.

Tsuruoka examined five facets of NATO-Japan relationship: political partnership; operational partnership; another venue for cooperating with the US; a tool to enhance interoperability and develop multilateral approaches to emerging security challenges; and defence equipment and industrial partnership. This paper applies this multi-faceted framework to the cooperation in space security and builds on these facets of NATO-Japan relationship. The following section presents five possible pathways: political and diplomatic partnership; operational partnership; educational partnership; an important venue for joint training and exercises; and industrial partnership.

Possible pathways for NATO-Japan space cooperation

As political partners, Japan and NATO can further strengthen political-military consultations and information sharing on space-related developments. The Japan-US Alliance and NATO are the two alliances which have expressly extended a security treaty to space. NATO and Japan share prioritized areas in intelligence, early warning for missile

defence, communications, PNT, and space situational awareness. Diplomatically, NATO and Japan should aim to shape world opinion against irresponsible space actors and those that are intentionally militarizing space, taking advantage of the absence of effective global space governance. This is all the more relevant given the lack of transparency and difficulty in understanding adversaries’ intentions in space.⁴²

NATO and Japan could be operational partners in space especially in SSA. For now, the APSS and 3SAS are designed for the Alliance. At the time of writing, only 17 Allies have committed budget and space assets to the APSS project and it will take some time for it to be a fully-fledged Alliance mechanism. Despite not being a formal ally, Japan is one of the most significant financial donors to NATO-led trust fund projects including the Partnership for Peace.⁴³ and to support Ukraine.⁴⁴ In fact, Japanese commercial company Synspecive provides detailed imagery to Ukraine⁴⁵ alongside Finland’s ICEYE and Canada’s MDA. If Japan has the political will, and if a consensus within the Alliance can be reached to include partners such as Japan, it would be possible for Japan to contribute either cash and/or commercial space assets to this intelligence gathering processes. Japan’s geographic location and its ISR capability should be attractive to NATO.

Japan’s objective for space security is to promote the peace and prosperity of Japan and the safety and security of its citizens through outer space, together with its ally, like-minded countries, and others to maintain the stable use of and free access to outer space.⁴⁶ NATO’s space policy specifies that NATO will engage with selected partners on space and space-related aspects where it adds value to NATO’s core tasks.⁴⁷ As Japan and NATO aim to deter and defend against threats to or attacks on their respective space systems, there is a clear convergence between Japan and NATO that compels cooperation in space.

For Japan, NATO is an important educational partner. As Japan is already an active member of the NATO Co-operative Cyber Defence Centre of Excellence in Estonia, it would be ideal for Japan to also be a member of the NATO Space Centre of Excellence (COE) in France. Since the COE is technically not a NATO organization that includes the whole Alliance but rather an organization based on a MOU, it may be possible for Japan to be a

³⁶ Michito Tsuruoka (2013), “NATO and Japan as Multifaceted Partners,” *Research Paper No. 91*, NATO Defense College, 2013, <https://www.ndc.nato.int/news/news.php?icode=517>.

³⁷ Tanabe Yasuo, “Promote Multifaceted Japan-EU Cooperation on Supply Chain Resilience,” Research Institute of Economy, Trade and Industry, https://www.rieti.go.jp/en/columns/a01_0728.html.

³⁸ Kazuto Matsuda and Nikolay Kozhanov (2023), “Not Just Hydrocarbons: Japan’s Multifaceted Foreign Policy Approaches Towards the GCC States,” *International Politics* Vol.60, 2023, pp. 1248-1269.

³⁹ Satoru Nakamura and Steven Wright (eds.), *Japan and the Middle East: Foreign Policies and Interdependence*, 2023, Palgrave Macmillan.

⁴⁰ Ministry of Foreign Affairs of the Republic of Kazakhstan, “Japan is Interested in Further Strengthening of Multifaceted Cooperation with Kazakhstan,” 13 January 2023, <https://www.gov.kz/memleket/entities/mfa/press/news/details/489009?lang=en>.

⁴¹ Nakamura and Wright, 2023.

⁴² Dimitrios Strokos, “NATO’s Space Policy and the Global Context: Issues and Challenges,” in Nicolò Fasola et al (ed.), *Space: Exploring NATO’s Final Frontiers*, NATO Allied Command Transformation, Università di Bologna, Istituto Affari Internazionali, 2024.

⁴³ NATO, NATO Trust Funds: Supporting Demilitarization and Defence Transformation Projects, “Summary of ongoing Trust Fund projects – February 2019,” https://www.nato.int/cps/en/natohq/topics_50082.htm

⁴⁴ Japan Ministry of Foreign Affairs, “Support for Ukraine through contribution to NATO’s Comprehensive Assistance Package (CAP) Trust Fund for Ukraine,” https://www.mofa.go.jp/press/release/press4e_003247.html

⁴⁵ Synspecive: Sevastopol / Ukraine, <https://synspecive.com/jp/gallery/sevastopol/>

⁴⁶ Prime Minister’s Office of Japan, Strategic Headquarters for Space Development, “Space Security Initiative,” June 2023.

⁴⁷ NATO, NATO’s overarching Space Policy, https://www.nato.int/cps/en/natohq/official_texts_190862.htm

member.⁴⁸ Within such a framework, the necessary linkage between cybersecurity and space security⁴⁹ could be one of the points of agenda. This venue may also be ideal for discussing responsible norms of behaviour in space. For Japan, being part of NATO's educational framework is essential as it helps Japan develop critical, creative, and strategic thinking on matters of space with partner nations in a multi-cultural setting.

NATO is also an important venue for joint training and exercises for Japan. This framework often overlaps with Japan's cooperation with the US, which has often resulted in unintended cooperation with NATO.⁵⁰ This is also true for matters of outer space. Japan already participates in the US-led *Schriever Wargame*, which is designed to explore critical space issues to include investigating military utility of new space systems, identifying solutions to common challenges and advancing space support within the air, land, sea, space, and cyberspace doctrine.⁵¹ Currently, it includes the Five Eyes countries plus France, Germany, Japan, and several commercial service providers.⁵² Japan participates in another US-led training called *Global Sentinel* which includes 25 partners in the 2024 iteration. This training promotes responsible behavior in the space domain. France leads another space exercise, *AsterX*, which takes place at the NATO Space COE in Toulouse. Japan and South Korea are official members of this exercise now. Conducting military training and exercises not only improve tactical-technical skills and expertise but also signal political-strategic messaging.

Japan has been an industrial partner for NATO, specifically in the NATO Industrial Advisory Group (NIAG). In 2023, as the only country from Asia, Japan joined the Multilateral Industrial Security Working Group. This group goes far beyond the remit of NATO but covers NATO nonetheless. It brings together representatives from national security authorities responsible for industrial security in their respective countries, consisting of member states of the EU and NATO, with NATO as one of the observers. Japan aims to align itself to the international standards "to protect classified information appropriately among ally and like-minded countries and proceed with international cooperative projects".⁵³ These steps are critical for Japan to gain credibility in taking industrial security seriously, which is foundational for industrial cooperation.

Recognizing the pressing need to maintain respective technological edge but also to create a space for discussing latest trends in the space economy, Japan and NATO, as

industrial partners, can serve as regional hubs for networks of military-technological innovation by involving their respective commercial space companies. This is already happening but separately. In Japan, an annual conference focusing on space business has been taking place.⁵⁴ Covering a wide range of space stakeholders from established industry to startups, government agencies, and defense communities of the Asia Pacific region, it has become one of the must-attend events not just for the region, but around the world.

For the Euro-Atlantic region, NATO organized a Space Reverse Industry Day for the first time in Brussels.⁵⁵ This event brought together startups, small- and medium-enterprises, and non-traditional defence companies to learn from each other on new technological developments, and how the industry addresses current and future space challenges. While this inaugural event only included companies established in the NATO member countries, there may be an opportunity for a NATO-Japan joint space reverse industry conference.

Conclusion

A few considerations warrant further thinking in potential NATO-Japan space security cooperation. First, as most of the NATO Allies belong to the EU, and given the important role the EU plays in space, the NATO-EU space security cooperation is likely to be prioritized over NATO's space partnership with Japan. The 2023 EU-NATO Joint Declaration highlights space is one of the priority areas.⁵⁶ However, this does not necessarily exclude Japan, as it has a longstanding space relationship with the EU. In addition to the EU-Japan space policy dialogue ongoing since 2014, Japan and the EU signed a reciprocal data sharing agreement of Earth observation data. Although this Copernicus cooperation framework is civilian in nature, the EU is studying the feasibility for defence application.⁵⁷

Another consideration is the significant gap within the Alliance among member countries with highly sophisticated space capabilities and the resources to operate them for a variety of missions, such as the US, and those with minimal capabilities. A priority should be to bring its smallest members 'up to speed' with the US.⁵⁸ Additionally, France, Germany, Italy and the UK have a big respon-

⁴⁸ The current membership of the NATO Space Centre of Excellence at the time of writing includes 15 NATO countries: Belgium, Czech Republic, France, Germany, Greece, Italy, Luxembourg, the Netherlands, North Macedonia, Poland, Portugal, Romania, Spain, Türkiye, the UK.

⁴⁹ Clemence Poirier, "Understanding Cybersecurity in Outer Space," Center for Security Studies, ETH Zürich, 2024, https://css.ethz.ch/en/publications/css-analyses-in-security-policy/details.html?id=n/o/3/4/no_343_understanding_cybersecurity_in_out

⁵⁰ Michito Tsuruoka, 2013.

⁵¹ US Space Operations Command, "Schriever Wargame: Critical Space Event Concludes," 4 November 2020, <https://www.spoc.spaceforce.mil/News/Article-Display/Article/2404914/schriever-wargame-critical-space-event-concludes>.

⁵² USSF, "Schriever Wargame 2023 concludes," <https://www.starcom.spaceforce.mil/News/Article-Display/Article/3350385/schriever-wargame-2023-concludes/>

⁵³ Japan Acquisition, Technology and Logistics Agency (ATLA), Defense Industrial Security Manual, <https://www.mod.go.jp/atla/en/dism.html>

⁵⁴ Spacetide 2024, <https://spacetide.jp/conference/tide2024/?lang=en#concept>

⁵⁵ NATO Space Reverse Industry Event, 20 Feb 2024, https://www.nato.int/cps/en/natohq/news_221639.htm

⁵⁶ Joint Declaration on EU-NATO Cooperation, 10 January 2023, https://www.nato.int/cps/en/natohq/official_texts_210549.htm

⁵⁷ Olivia Savage, "EU explores harnessing Copernicus for military applications," *Janes*, 29 January 2024, <https://www.janes.com/osint-insights/defence-news/security/eu-explores-harnessing-copernicus-for-military-applications>

⁵⁸ Bledwyn E. Bowen, "How to Approach NATO Deterrence and Defence Aspects," in Nicolò Fasola et al (ed.), *Space: Exploring NATO's Final Frontiers*, NATO Allied Command Transformation, Università di Bologna, Istituto Affari Internazionali, 2024.

sibility to train and integrate smaller European Allies into the NATO space framework which is integral to multi domain operations. Since Japan has gone through a similar process of trying to catch up with the US, especially since 2015, Tokyo can share its experience and knowledge with the Alliance in training and education.

Regardless, increased information sharing and a shared situational awareness in their respective regions serve the mutual interests of NATO and Japan. Both parties have a vested interest in supporting freedom of action in space and keeping space free from conflict. Guided by these common purposes, NATO and Japan have important work to do in protecting the global commons and preventing outer space from becoming a domain of conflict.

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