

NATO's role in the protection of space

North Atlantic Council



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Issue: NATO's role in the protection of space

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Introduction

In the ever-evolving landscape of global security, NATO (North Atlantic Treaty Organisation), as a defensive alliance, has adapted to recognize space as a vital operational domain crucial for enhancing the defence and collective security of its member states. NATO has taken significant strides to integrate space into its overarching mission and operations. This recognition stems from the understanding that space plays a varied role, influencing communication, navigation, Earth observation, and global positioning. However, despite NATO's proactive measures, there are clear gaps that require closer examination. This research report delves into these gaps, employing a quantitative approach to scrutinize the contributions of each NATO member state in terms of orbital assets.

Through a meticulous collection and computation process, this report aims to shed light on the intricate web of space assets owned by NATO member states. By examining these numbers, we seek to identify patterns, variations, and potential areas of concern that merit NATO's attention. As the global landscape becomes increasingly interconnected, the recognition of space as a vital element emerges not merely as a technological concern but as a critical component in safeguarding the security and interests of the NATO alliance.

Definition of Key Terms

[Orbital assets]

Orbital assets are a mix of artificial satellites and space infrastructures that circle around Earth performing important jobs for a country's safety and communication. They come in different types, these types are: elliptical, low earth orbit (LEO), medium earth orbit (MEO), or geosynchronous orbit (GEO).

[Counter-space technologies]

Counter-space technologies are different ways and tools that are used in order to stop or damage other countries' satellites. These include things such as anti-satellite weapons, electronic tricks, and cyber attacks. These tools are used especially in the parts where countries compete.

[Astropolitical dynamics]

Astropolitical dynamics discuss the mix of space activities and how countries deal with each other in this regard. This covers the moves, partnerships and conflicts shaped by what countries can do in space. Astropolitical dynamics highlights the need for smart political decisions along with space considerations.

[Quantitative examination]

Quantitative examination means looking at things very carefully, especially using numbers. In space talk, it's about studying statistical data related to satellites, where they are, and the capabilities of spaceports. This way of looking at things helps us understand the practical details and numbers that influence decisions in space.

General Overview

Safeguarding the Vastness of Space

The dynamic interplay between security, technology, and the vastness of space has thrust the protection of this final frontier into the forefront of NATO's strategic considerations. A nuanced exploration of NATO's role in safeguarding space unfolds against the backdrop of evolving threats, technological advances, and the competitive nature of this cosmic expanse.

Measuring Contributions

The detailed scrutiny of NATO member states' orbital assets provides a detailed understanding of each member's contributions to space. Ownership of satellites, diversity of users (civil, government, commercial, or military), satellite objectives, orbital locations, and spaceport capabilities coalesce within a quantitative tableau. This meticulous approach reveals discernible patterns, variations, and crucial aspects that demand NATO's concentrated consideration, establishing a sturdy groundwork for strategic decision-making.

In this intricate assessment, the examination delves into the multifaceted dimensions of space contributions. The ownership of satellites is examined, encompassing civil, government, commercial, or military users. The diverse purposes of each satellite, whether for Earth observation, communication, navigation, or other functions, are meticulously catalogued. Additionally, the locations and classes of orbits, including elliptical, low Earth orbit (LEO), medium Earth orbit (MEO), or geosynchronous orbit (GEO), are precisely mapped. The evaluation extends to spaceport capabilities, categorising them by state.

This rigorous methodology illuminates intricate details that resonate with the strategic nuances of safeguarding space. It not only captures the quantitative aspects but also unveils the qualitative details that enrich the understanding of NATO's position in space. The meeting point of meticulous analysis and strategic observations provides a comprehensive insight that lays the bedrock for informed and decisive strategies in the ever-evolving theatre of space security.

Recognition of Opportunities and Risks

The strategic landscape, akin to the vast expanse of space itself, is in continuous change. NATO's nuanced acknowledgment of this dynamism is underscored by the dual nature of space outlined in the article. While space is a sphere ripe with opportunities, its exploitation

for aggression looms large. The potential for satellites to be hacked, jammed, weaponized, and the advent of counter-space technologies by strategic competitors like Russia and China, amplify the complexity of NATO's role.

The juxtaposition of the Russian war of aggression in Ukraine serves as a poignant case in point. The significance of space-based connectivity in military operations and the provision of public services becomes glaringly evident, elevating space to a territory where geopolitical conflicts and strategic imperatives align.

NATO's Collaborative Stance

NATO's response to the challenges embedded in the space domain is characterized by collaboration. The Alliance, as articulated in the article, functions as a crucial forum where Allies share vital information, enhance interoperability, and coordinate actions. The collaborative spirit extends to recognizing that, while space capabilities are integral, NATO has no intention of developing independent space capabilities. Instead, the reliance on national space assets is poised to continue, preserving the collaborative spirit while respecting international legal frameworks.

EU's Parallel Trajectory

The European Union has a parallel trajectory to NATO's recognition of the competitive nature of space. All EU member states have committed to adopt the EU strategy for security and defence. The Strategic Compass for Security and Defence' is a plan of action that will ensure the strengthening of EU's security and defence by 2030., The EU's commitment to developing a comprehensive space strategy for security and defence amplifies the gravity of space-related challenges. This recognition has led to an increase in the development as well as the use of space assets, for defence and security objectives over the past decade. Cooperative advantages are actively sought between civil, defence, and space industries, and the EU is increasingly engaged in global governance on space issues, strengthening partnerships with entities such as the United States and NATO.

The European Parliament's endorsement of the EU space strategy for security and defence, coupled with the Council's supportive conclusions, underscores the cohesive commitment within the EU to fortify its role in the space domain. The recognition of the interdependence between civil, defence, and space industries represents a holistic approach to navigating the complexities of space-related challenges.

Navigating the Cosmos in Unity

In summary, NATO's role in the protection of space emerges as a complex yet vital endeavour. The alliance navigates the cosmos awareness of the dual nature of space, where opportunities coexist with risks. The rigorous measurement scrutiny of member states' contributions unveils a roadmap for strategic decisions. NATO's collaborative stance, echoed in the EU's parallel trajectory, underscores the imperative of unity in addressing the competitive nature of space. As space cements its status as a frontier where geopolitical,

technological, and strategic considerations align, NATO's commitment to safeguarding this vast expanse remains steadfast.

Major Parties Involved

[The United States]

As a pioneer in space exploration, the United States stands as a dominant force in the realm of space capabilities. Boasting advanced technologies, a robust satellite network, and significant investments in space research, the US plays a leading role in shaping policies, conducting research, and fostering international collaborations in space.

[Russia]

Russia, with its rich space heritage, maintains a formidable presence in space capabilities. Despite economic challenges, it retains a substantial arsenal of space technologies, including satellite systems and launch vehicles. Known for its achievements in space exploration, Russia continues to be a pivotal player, contributing to both cooperation and competition in the space domain.

[China]

Emerging as a rising star in space exploration, China has made remarkable strides in advancing its space program. With ambitious missions to the Moon, Mars, and a rapidly expanding satellite network, China's space capabilities are expanding exponentially. The nation's efforts in developing cutting-edge space technologies position it as a key player, triggering both admiration and concerns among global counterparts.

[European Union (EU) and European Space Agency (ESA)]

The EU and ESA collectively represent a collaborative force in space exploration and governance. Comprising several member states pooling resources, expertise, and infrastructure, they foster joint initiatives, satellite programs, and space research, bolstering Europe's position as a significant player in space activities and innovation.

[NATO]

NATO, primarily a military alliance, acknowledges space as a vital domain for security and communication. While not developing its independent space capabilities, it leverages the space assets of member states for collective security. NATO serves as a platform for information sharing, enhancing interoperability, and coordinating actions in the space domain.

Timeline of Events

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| [2019] | [Members of NATO announced space to be an operational domain by taking on a new Space Policy] |
| [October 2020] | [NATO space centre introduced at Allied Air Command, Ramstein, Germany] |
| [2021] | [NATO stated attacks from, into or within space pose a direct threat to the Alliance's security and may trigger Article 5 at the Brussels Summit] |
| [15 November 2021] | [Russia tested an Anti-satellite missile in space, which was heavily condemned by NATO] |

[2022]	[Document submitted marking Space's key role for the defence of the Alliance]
[February 2023]	[NATO announced intentions to launch the Alliance Persistent Surveillance from Space (APSS)]

Previous attempts to solve the issue

NATO has agreed to not put weapons in space and has condemned its member states in doing so as well. They have promoted using space for purposes other than conflict such as research and peace instead. Along with this, they have also mentioned their disapproval of a further arms race in space and has backed international efforts to promote a clean use of space.

A strategic Space Situational Awareness system (3SAS) is being developed by NATO for member states to have a better idea about space as a whole including its environment and effect worldwide. Luxembourg has supported the addition of this system and has provided funding of 6.7 million euros for it to be successful.

As of a summit held in June 2022 in Madrid by NATO, its member states have agreed to improve their capability to prevent and respond to the broad range of threats in Space so that their collective defence and security is not compromised.

Possible solutions

There are multiple actions that NATO could take to further Protect space. For instance, they could improve training and stimulate scenarios related to space allowing member states to practice safe responses. This would help immensely as it could translate to more responsible behaviour of nations in space. In addition, training would call for better education of the environment in space, which would cause a more safe approach when it comes to development there by members of the alliance.

Another thing that NATO could potentially do is deter the use of arms in space. This could be done by acts of hostility towards powers that try and abuse the vast area in space as additional to their land.

Making alliances and pacts with member states and external organisations can also prove beneficial for the protection of space as they can share information and agree upon how activity in space should be managed. Not only can this tackle the issue at hand but it can also allow for better cooperation within the alliance as a whole.

Useful documents

The USC Satellite Database

Bibliography

Service, Members' Research. "EU Space Strategy for Security and Defence." *Epthinktank*, Epthinktank, 17 Nov. 2023, epthinktank.eu/2023/11/17/eu-space-strategy-for-security-and-defence/.

Clapp, Sebastian, and Clément Evroux. *EU Space Strategy for Security and Defence - Europarl.Europa.Eu*, [www.europarl.europa.eu/RegData/etudes/BRIE/2023/754598/EPRS_BRI\(2023\)754598_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/754598/EPRS_BRI(2023)754598_EN.pdf). Accessed 24 Dec. 2023.

Palombi, Emma. "NATO's Role in Space: How and Why NATO Member States Should Expand Their Purpose and Capab." *Air University (AU)*, www.airuniversity.af.edu/JIPA/Display/Article/3427995/natos-role-in-space-how-and-why-nato-member-states-should-expand-their-purpose/#:~:text=As%20a%20defensive%20alliance%2C%20NATO,that%20NATO%20needs%20to%20consider. Accessed 24 Dec. 2023.

Nato. "NATO's Approach to Space." *NATO*, 7 Oct. 2022, www.nato.int/cps/en/natohq/topics_175419.htm.

The UCS Satellite Database - Amazon Web Services, Inc., s3.amazonaws.com/ucs-documents/nuclear-weapons/sat-database/2-25-16+update/User+Guide+1-1-16+wAppendix.pdf. Accessed 24 Dec. 2023.

Nato. "NATO's Approach to Space." *NATO*, 7 Oct. 2022, www.nato.int/cps/en/natohq/topics_175419.htm.