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MNATO
BACKGROUND GUIDE
MILITARY COMMITTEE

- Equipment Lifecycle Management and Interoperability
- Outer Space Defence Planning
- Environmental Concerns in Military Planning and Exercises

Introduction: the Military Committee

The Military Committee (MC) is the senior institution of military authority in NATO, the oldest permanent committee in NATO after the North Atlantic Council (NAC), and one of the three principal committees of the Alliance alongside the NAC and the Nuclear Planning Group (NPG).[1] The Military Committee is the primary source of advice on military strategy and planning to the NAC and NPG. It also provides guidance to the two Strategic Commanders of the Alliance: Supreme Allied Commander Europe and Supreme Allied Commander Transformation. Critically, the advice of the MC is sought prior to any authorization of military action by the Alliance and the MC is an essential link between NATO's political decision-making process and military command structure.

The Military Committee is charged with translating the political decisions of the Alliance into military action by taking the direction of the NAC and finding practical ways to implement it. The MC also provides recommendations to the political authorities of NATO on actions necessary for the common defence of the Alliance and the NATO area. Delegates will therefore address some of the pressing practical questions currently facing NATO, and will be expected to provide both practical solutions and appropriate and realistic recommendations to the decisions made by NATO's political authorities.

As a delegate on the Military Committee, you represent a senior general or admiral from your respective country's armed forces and act on the behalf of your country's Chief of Defence. Delegates are expected to apply professional military judgement, developed over years of military service, to decisions collectively undertaken by NATO. Delegates therefore serve as a liaison with their counterparts from all other Alliance member states in the MC on matters of military planning,

[1] "Committees," (Topic, North Atlantic Treaty Organization, 17 March 2020). https://www.nato.int/cps/en/natohq/topics_49174.htm.

strategy, and doctrine, and also serve as the chief military authority for civilian members of their delegation in the other committees.[2]

[2] "Military Committee," (Topic, North Atlantic Treaty Organization, 28 May 2019). https://www.nato.int/cps/en/natohq/topics_49633.htm.

Topic A: Equipment Lifecycle Management and Interoperability

Simply put, NATO defines interoperability as: "*the ability for Allies to act together coherently, effectively and efficiently to achieve tactical, operational and strategic objectives."* In a more practical sense, interoperability is the ability for NATO forces from various countries to work together at all levels, both materiel and doctrinal.[3] Across the entire Alliance, this can be difficult to accomplish, but the benefits of effective interoperability are remarkable.

NATO uses the Standardization Agreement (STANAG) to specify agreed-upon standards.[4] The primary bodies issuing policy and guidance for standards include: The Committee for Standardization (CS), the NATO Standardization Office (NSO), and the NATO Standardization Staff Group (NSSG).[5] CS is a senior NATO committee operating under NAC to help guide standardization policy. NSO and NSSG help facilitate and coordinate all standardization activities.

Interoperability goes hand in hand with lifecycle management. Defence products are expensive and can take years to build, so the management of NATO defence services is crucial to ensuring that all equipment is cost-effective and has as long a working life as possible. The NATO Support and Procurement Agency (NSPA) currently supports more than 9 weapon systems and 170 projects from concept development to retirement.

NATO Interoperability faces several challenges going into the future, both at the tactical and strategic level, which need to be addressed to ensure alliance coordination remains effective. The Military Committee has a key role in this process given its role in providing military direction and advice, as and advising on political considerations. This committee may address logistic, doctrinal, and interoperability issues at any level, but particularly at the strategic level.

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[3] https://natolibguides.info/interoperability#:~:text=NATO's%20interoperability%20policy%20defines%20the,tactical%2C%20operational%20and%20strategic%20objectives.

[4] https://www.nato.int/cps/en/natohq/topics_69269.htm

[5] https://www.nato.int/cps/en/natohq/topics_69269.htm

One of the most publicized examples of a country failing to meet these standards is the recent case of NATO member-state Turkey. In purchasing the S-400 missile defence system two years ago, Turkey opted out of NATO member state-made options in favour of a Russian-made system.[6] This is an issue not only on a diplomatic level, but also on an interoperability one. Russia is explicitly a NATO adversary, and the purchasing of Russian weapons systems has led to the US suspending Turkey from F-35 production and threatening sanctions due to fears of Russian intelligence activities.[7] Turkey's point of view is that the conditions of purchasing the American Patriot system were either too onerous, or not generous enough.[8] Whatever their reasoning, it is clear enough that Turkey was willing to risk quite a bit to ignore NATO equipment purchasing conventions. This naturally raises questions of whether other NATO member states will flout the Alliance's purchasing conventions, and what this means for military exercises and knowledge training among members.

This issue quite neatly folds into another main area of issue for interoperability going forward, in technological disparity. The United States has some of the most advanced military equipment in the world, while other NATO allies are not as fortunate. Using battle tracking as an example, there are about a dozen different systems that NATO uses, most of which are not interoperable.[9] The workaround at present is to use simpler systems such as vehicle markings, liaison officers, and FM radio.[10] The downside is that this means advanced tools such as the Blue Force Tracker and Unmanned Aerial Systems cannot be used to their full potential. With technology consistently being an important part of modern military strategy, it would behoove NATO to address these issues.

Most states' military assets suffer from aging hardware in need of refurbishment or, more often than not, replacement. Even NATO-owned assets such as the AWACS

[6] https://www.bloomberg.com/news/articles/2020-10-22/turkey-puts-missiles-spat-at-nato-s-door-on-eve-of-key-meeting
[7] https://www.bloomberg.com/news/articles/2020-10-22/turkey-puts-missiles-spat-at-nato-s-door-on-eve-of-key-meeting
[8] https://www.worldpoliticsreview.com/articles/29319/for-nato-turkey-s-400-crisis-has-no-easy-solutions
[9] https://www.nato.int/docu/review/articles/2015/06/16/enhancing-interoperability-the-foundation-for-effective-nato-operations/index.html#
[10] https://www.nato.int/docu/review/articles/2015/06/16/enhancing-interoperability-the-foundation-for-effective-nato-operations/index.html#

surveillance aircraft are in need of modernization, as shown by the recent $1 billion contract awarded to Boeing.[11] Historically, the alliance may not have played a large public role in the procurement of goods, but in the discussion of inventory lifecycles, member-states would be remiss to ignore the threat of rapidly aging hard assets.

Overall, inventory management and interoperability is a crucial, if unexciting, part of the alliance's continued management. The reluctance of NATO allies to purchase NATO equipment raises issues not only of interoperability, but also for intelligence security. The technological disparity between allies can, at best, limit the alliance's potential, and at worst be actively detrimental at both the strategic and the tactical level. The continued replacement and refurbishment of old hard assets is important to keep members' militaries active and able to function together on the ground. As it always has, the alliance will continue to work together to meet these challenges and demonstrate NATO's continued commitment to interoperability.

Questions to Consider

1. How can NATO address the concerns of states unwilling or unable to purchase NATO equipment?
2. How can NATO address the growing technological gap within the alliance?
3. How can NATO incentivize states to modernize their equipment?
4. Are there any current standards that can be updated to either better the alliance or better reflect modern circumstance?

Further Reading:

NATO Interoperability
https://natolibguides.info/interoperability#:~:text=NATO's%20interoperability%20policy%20defines%20the,tactical%2C%20operational%20and%20strategic%20objectives.

Commentary on Turkey and the S-400s

[11] https://www.nato.int/cps/en/natohq/news_171307.htm

https://www.worldpoliticsreview.com/articles/29319/for-nato-turkey-s-400-crisis-has-no-easy-solutions

NATO Standardization

https://www.nato.int/cps/en/natohq/topics_69269.htm

Some Challenges Facing Interoperability

https://www.nato.int/docu/review/articles/2015/06/16/enhancing-interoperability-the-foundation-for-effective-nato-operations/index.html#

Topic B: Outer Space Defence Planning

Commonly referred to as the "final frontier," space has been a critical component in military operations and affairs since the launch of Sputnik I in 1957, and is an increasingly contested and militarized domain.[12] The recent adoption of the NATO Space Policy included a commitment to uphold international law in space and to not place weapons in space.[13] Article IV of the UN Outer Space Treaty explicitly bans "any objects carrying nuclear weapons or any other kinds of weapons of mass destruction" from being placed in space or on celestial bodies such as the Moon.[14] Overall, space plays a critical and growing role in NATO military operations in areas including command & control, intelligence gathering, communications, navigation and tracking, weather monitoring, and ballistic missile defense.

The adoption of the NATO Spacy Policy in 2019 was followed by the London Declaration that recognized Outer Space as the Alliance's fifth operational domain alongside Land, Sea, Air, and Cyberspace.[15] More than 2,000 active satellites currently orbit the Earth, of which approximately 50% are owned by fifteen of NATO's Member States, with eight Alliance members operating dedicated military satellites.[16] In total, some fifty states, multinational organizations, and non-state actors own or operate

[12] Todd Harrison et al., "Space Threat Assessment 2019," *Center for Strategic and International Studies* (April 2019), 1. https://aerospace.csis.org/wp-content/uploads/2019/04/SpaceThreatAssessment2019-compressed.pdf.
[13] "NATO's approach to space," (Topic, North Atlantic Treaty Organization, 23 October 2020). https://www.nato.int/cps/en/natohq/topics_175419.htm.
[14] "Treaty on the Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies - Article IV," (Treaty, United Nations General Assembly, 19 December 1966). https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html.
[15] "NATO's approach to space." *See Also* North Atlantic Treaty Organization (NATO), "London Declaration - Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in London 3-4 December 2019," *NATO Press Release (2019) 115* (4 December 2019). https://www.nato.int/cps/en/natohq/official_texts_171584.htm.
[16] Canada, France, Germany, Italy, Spain, Turkey, the United Kingdom, and the United States of America operate dedicated military satellites. "Chapter Four: Europe," *The Military Balance* 120, no. 1 (2020), 104-157. https://doi.org/10.1080/04597222.2020.1707964. *See Also* "Chapter Three: North America," *The Military Balance* 120, no. 1 (2020), 43-46. https://doi.org/10.1080/04597222.2020.1707963.

satellites, and that number continues to grow as space capabilities become less expensive and more accessible. The critical role satellites and space assets play in both military and civilian spheres means that the reliance on them presents both opportunity and risk. Dependence on space assets makes this equipment vulnerable as a strategic target for opponents.[17] While NATO itself does not directly own or operate any satellites, the Alliance has taken a number of steps to respond to these risks and vulnerabilities. Specifically, NATO has committed to investing over €1 billion in satellite communication services by 2034. The NATO Space Centre is also being created within the Allied Air Command to coordinate Alliance activities in space, support NATO operations using space assets, and coordinate the protection of Alliance space assets through information sharing.[18] How NATO manages the growing vulnerability of satellites and space assets, and whether or not additional measures to mitigate that vulnerability should be taken, will therefore be critical in the coming decades.

In addition to the growing vulnerability of Alliance satellites and space assets, the threat of aggression in space is increasing. Threats from anti-satellite weapons, electronic warfare, and cyberwarfare have escalated exponentially in the past few decades. Anti-satellite weapons (ASAT) are commonly defined as systems designed to damage or destroy satellites or other "on-orbit spacecraft," and include kinetic-energy weapons, co-orbital 'interceptor' satellites, and directed-energy weapons. Nuclear ballistic missiles and ballistic missile defence systems have also been experimentally repurposed as ASATs.[19] Since 2007 the United States, the Russian Federation,[20] the People's Republic of China, and India have all successfully tested various ASAT

[17] Kestutis Paulauskas, "Space: NATO's latest frontier," *NATO Review* (13 March 2020). https://www.nato.int/docu/review/articles/2020/03/13/space-natos-latest-frontier/index.html.
[18] "NATO's approach to space."
[19] Brandon L. Hart, "Anti-satellite weapons: threats, laws and the uncertain future of space," (Thesis, McGill University, July 2007), 26-46. https://escholarship.mcgill.ca/concern/theses/xg94ht77j.
[20] Sean O'Connor and Anika Torreula, "Russia's ASAT development takes aim at LEO assets," Jane's Intelligence Review (2 July 2018). *See Also* Malcolm Claus, "New Russian missile likely to be part of anti-satellite system," Jane's Intelligence Review (9 November 2018).

systems.[21] The use of ASAT systems also risks adding to the approximately 30,000 pieces of space debris that pose a danger to all space assets in orbit.[22]

In addition to ASAT systems, electronic and cyber warfare pose a substantial threat to the satellites that NATO and its Member States rely on. Global navigation satellite system (GNSS) networks are particularly vulnerable to these threats. From 2016 to 2019 almost 10,000 cases of GNSS 'spoofing,' a form of electronic warfare that mimics legitimate GNSS signals in order to confuse and disrupt navigation systems, have been attributed to the Russian Federation, and are estimated to have affected over 1,300 civilian ships in several locations worldwide.[23] Iran and North Korea have also been accused of 'spoofing' or jamming GNSS signals.[24] Meanwhile, the People's Republic of China has been accused of launching cyberattacks that disrupted US weather satellites used for civilian and military purposes in 2014.[25] The ability to 'spoof' GNSS signals and conduct other forms of electronic and cyber warfare against satellites therefore poses a substantial and critical risk to NATO Member States, as these capabilities can be used to disrupt military operations, commercial trade, and the satellites themselves. Furthermore, electronic and cyber warfare systems are more accessible to non-state actors than ever before. Numerous non-state actors including the religious group Falun Gong and the Liberation Tigers of Tamil Eelam terrorist organization have demonstrated the ability to hijack commercial communications satellites for their own uses, while Mexican drug cartels and Al-Qaeda have been accused of 'spoofing' and jamming GNSS signals.[26]

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[21] Harrison et al., "Space Threat Assessment 2019," 8-18. *See Also* Ashley J. Tellis, "India's ASAT Test: An Incomplete Success," *Carnegie Endowment for International Peace*, 15 April 2019. https://carnegieendowment.org/2019/04/15/india-s-asat-test-incomplete-success-pub-78884.
[22] Paulauskas, "Space: NATO's latest frontier."
[23] "Above Us Only Stars: Exposing GPS Spoofing in Russia and Syria," *C4ADS* (2019), 3. https://static1.squarespace.com/static/566ef8b4d8af107232d5358a/t/5c99488beb39314c45e782da/1553549492554/Above+Us+Only+Stars.pdf.
[24] Harrison et al., 28-34.
[25] Mary Pat Flaherty et al., "Chinese hack U.S. weather systems, satellite network," *The Washington Post* (13 November 2014). https://www.washingtonpost.com/local/chinese-hack-us-weather-systems-satellite-network/2014/11/12/bef1206a-68e9-11e4-b053-65cea7903f2e_story.html.
[26] Harrison et al., 39-40.

Overall, NATO faces many challenges in developing and maintaining its position in outer space. The ambiguity of international law surrounding the 'militarization' and 'weaponization' of space remains a challenge as various states seek to develop anti-satellite capabilities in an attempt to gain a strategic advantage over their rivals.[27] The proliferation of low-cost anti-satellite capabilities such as electronic and cyber warfare further underlines how the growing dependence of NATO and its member states on space-based systems comes with growing risk. As outer space becomes a more contested domain with more actors involved than ever before, the Alliance faces difficult choices as it develops its Space Policy and doctrine.

Questions to Consider:

1. Should NATO continue to rely on the national military space capabilities of its members, and are those capabilities sufficient to support modern military operations? Should NATO endeavor to develop its own military space capabilities?
2. How can NATO respond to the development of anti-satellite capabilities and offensive space-based technologies while maintaining its commitment to upholding international law and not placing weapons in space?
3. How should NATO respond to the use of anti-satellite capabilities against a satellite or space asset of an Alliance member state? Do some classes of anti-satellite capabilities, such as kinetic-energy ASAT systems, warrant a different response than other classes, such as electronic attacks? What about non-state owned/operated satellite systems used by NATO member states?
4. How should NATO respond to the proliferation of anti-satellite capabilities among non-state actors?

Further Reading:

[27] Wilson W. S. Wong and James Fergusson, *Military Space Power: A Guide To The Issues* (Santa Barbara, CA: ABC-CLIO, LLC, 2010), 3-4.

UN Office of Outer Space Affairs - List of Worldwide Space Agencies
https://www.unoosa.org/oosa/en/ourwork/space-agencies.html

Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies ("The Outer Space Treaty")
https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/outerspacetreaty.html

Convention on International Liability for Damage Caused by Space Objects
https://www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/liability-convention.html

UN Office of Outer Space Affairs - National Space Law Collection
https://www.unoosa.org/oosa/en/ourwork/spacelaw/nationalspacelaw/index.html

North Atlantic Treaty Organization - Topic: NATO's approach to space
https://www.nato.int/cps/en/natohq/topics_175419.htm

Topic C: Environmental Concerns in Military Planning and Exercises

The effects of the environment and climate change on military operations has been a focus of NATO since the late 1960s. The primary environmental issues the Alliance is currently addressing include the environmental damage caused by military activities, supporting national responses to man-made and natural disasters, educating military officials on the operational impacts of climate change and environmental challenges, and improving the fossil fuel independence and energy efficiency of NATO militaries.[28] NATO's 2010 Strategic Concept recognized that climate change is a driving factor in the modern security environment.[29] Critically, climate change is playing a growing role in creating global insecurity as it destabilizes societies and nations, and hampers effective military responses to crises by exacerbating extreme weather and climates that interfere with the ability of military equipment and personnel to operate.[30]

NATO's approach to environmental protection has largely been through the establishment of standards and regulations governing everything from treating wastewater, to the safe handling and storage of hazardous materials, to managing waste and fossil fuel consumption during NATO operations and exercises. NATO institutions such as the NATO Science and Technology Organization have supported efforts to reduce the noise signatures of military equipment, and the development of toxin-free 'greener' ammunition. The environmental benefits of these efforts have also had secondary health benefits for NATO militaries, as soldiers are less exposed to toxins and hazardous materials that negatively impact their effectiveness.[31]

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[28] "Environment - NATO's stake," (Topic, North Atlantic Treaty Organization, 9 October 2020). https://www.nato.int/cps/en/natohq/topics_91048.htm.
[29] "Secretary General: NATO must help to curb climate change," (News, North Atlantic Treaty Organization, 28 September 2020). https://www.nato.int/cps/en/natohq/news_178372.htm.
[30] Jens Stoltenberg, "Opinion: NATO and the security implications of climate change," (Speeches & Transcripts, North Atlantic Treaty Organization, 29 September 2020). https://www.nato.int/cps/en/natohq/opinions_178355.htm.
[31] "Environment - NATO's stake."

Environmental security has become the cornerstone of NATO's approach to the environment and climate change. Issues including energy security and developing energy efficiency in NATO militaries are among the top concerns for NATO military planners when it comes to the environment. The NATO Green Defence framework and Smart Energy initiative are both pursuing ways to reduce fuel use in NATO military activities for both environmental and logistical reasons. Nations including Canada, Lithuania, the Netherlands, and the United States have been experimenting with 'smart' grids that use solar panels, wind power, batteries, and hydrogen fuel cells in place of diesel generators during combat operations.[32] The benefits of these technologies are multifold: they increase the endurance of combat forces, decrease reliance on vulnerable fossil fuel supply chains, reduce noise and heat signatures of deployed forces, and respond to the growing electricity needs of modern military equipment.[33] Existing dependencies on fossil fuel sources also have a direct impact on the security of deployed combat forces: fuel supply convoys are vulnerable and tempting targets for hostile forces, as seen in Iraq and Afghanistan with 1 in every 24 fuel convoys suffering casualties from hostile attacks.[34] Reducing fossil fuel use also has strategic benefits by reducing dependency on insecure and volatile sources of fossil fuels.[35]

Environmental issues and climate change also pose challenges to NATO militaries in the form of new risks to critical infrastructure and strategic military facilities. Erosion and flooding pose major problems for the NATO facilities and US naval base at Norfolk, and critical civilian ports at Antwerp, Rotterdam, and Hamburg in Europe. The risk posed by climate change and environmental degradation to critical infrastructure in

[32] Stoltenberg, "NATO and the security implications of climate change." *See Also* Andrea Manfredini et al., "PHASE 1 REPORT - Performance Analysis of Hybrid Power Generation and Management System (HPGS)," *NATO Energy Security Centre of Excellence* (October 2018), 9-11. https://enseccoe.org/data/public/uploads/2019/03/phase-1-report-hpgs-performance-analysis.pdf.
[33] "Environment - NATO's stake."
[34] "Smart Energy," (NATO LibGuides at NATO Multimedia Library, North Atlantic Treaty Organization, 21 September 2019). https://natolibguides.info/smartenergy.
[35] "Energy Security," (Topic, North Atlantic Treaty Organization, 2 April 2020). https://www.nato.int/cps/en/natohq/topics_49208.htm.

NATO is expected to grow for the foreseeable future, and will impact the ability of NATO militaries to generate, deploy, and sustain military operations and exercises.[36]

Addressing the impact of NATO military activities on the environment is critical moving forward, as climate change and environmental issues continue to have a destabilizing effect on security within and outside the NATO area. Decreasing the environmental footprint of NATO military activities has both environmental and military benefits by diversifying energy supply chains, reducing the noise and heat signatures of deployed forces, minimizing the exposure of soldiers to hazardous and toxic materials, and responding to the changing energy needs of military activities. The broader impacts of climate change and environmental degradation on strategic military facilities and critical infrastructure in the NATO area will also continue to pose a significant problem for NATO military activities for the foreseeable future.

Questions to Consider:

1. What role should environmental intelligence play in NATO military activities? Should the Alliance develop its own environmental intelligence capacity, or attempt to rely on national capabilities?
2. How should NATO further address the environmental impact of military activities? Should the carbon footprint and environmental impacts of national militaries be analyzed and addressed? If so, how?
3. How can the growing energy needs and reliance on fossil fuels of NATO military activities be addressed?

[36] Stoltenberg, "NATO and the security implications of climate change."

4. How can NATO address the impact of climate change and environmental degradation on critical infrastructure and strategic military facilities in the NATO area?
5. Should NATO become an international actor in the realm of environmental issues?

Further Reading:

North Atlantic Treaty Organization - Topic: Environment - NATO's stake
https://www.nato.int/cps/en/natohq/topics_91048.htm

"Planetary Security: the security implications of climate change," *NATO Review* (10 December 2019)
https://www.nato.int/docu/review/articles/2019/12/10/planetary-security-the-security-implications-of-climate-change/index.html

NATO Energy Security Centre of Excellence
https://enseccoe.org/en

North Atlantic Treaty Organization - Brussels Summit Declaration
https://www.nato.int/cps/en/natohq/official_texts_156624.htm

NATO Multimedia Library - NATO LibGuides - Smart Energy
https://natolibguides.info/smartenergy

Speech by Jens Stoltenberg, "Opinion: NATO and the security implications of climate change," North Atlantic Treaty Organization (29 September 2020)
https://www.nato.int/cps/en/natohq/opinions_178355.htm