



‘NATO JADO’: A Comprehensive Approach to Joint All-Domain Operations in a Combined Environment

Building Towards a Fully-operable and Integrated Fighting Force

1 | Introduction

Joint All Domain Operations (JADO) is an evolution of the concept of Multi-Domain Operations (MDO). MDO highlighted the massive potential of a truly joint force, able to tap into capabilities across the entire spectrum of current and emerging systems available in our military services. However, when considering the future of warfare, MDO has a few critical flaws. First, the term MDO can be misleading since most national services already operate in multiple domains with their own, service-specific capabilities. Second, considering the entanglement of systems and interconnected capabilities spanning the domains in today’s state-of-the-art militaries, it can be argued that our traditional structuring of services based on their principle operating domain may not be very useful in many future scenarios. It is likely the victor will emerge as the force able to manoeuvre easily in and through all domains in a synchronized manner at a speed which the opponent cannot match. With these considerations in mind, it is easy to conclude that MDO places too much weight on the domain, thereby reducing emphasis on the joint challenge of multiple services seamlessly working together across all domains.

Additionally, MDO does not account for the reality that globally, the vast majority of militaries plan for and rely on their ability to conduct operations in a combined environment, as is certainly the case for Allied nations. The term ‘NATO JADO’ adds another extremely challenging aspect of operations within a coalition: the combined environment. Building alliances has been shown to be critical to successfully responding to a crisis in that it confers legitimacy on the effort while also increasing available forces and capabilities, reducing each nation’s individual burden. However, responding multilaterally creates challenges across the entire spectrum of the effort, from planning through execution and evaluation. Common issues include: maintaining proper alignment of the coalition and national priorities, asymmetries in the allocated forces in terms of technology and capabilities, operating with shared (or at least interoperable) Tactics, Techniques, and Procedures (TTPs), ironing out national caveats, determining a sound structure for command and control, language barriers, and religious and cultural differences. Compounding the challenge, these obstacles can be even more difficult to quickly overcome when the coalition is required to coalesce and respond in a rapid manner due to an emerging crisis. Winston Churchill wrapped up these ideas nicely when he stated in 1945, ‘There’s at

least one thing worse than fighting with allies, and that's fighting without them.'¹ We must ensure that preparation for future NATO operations is strongly influenced by this reality.

In order to place emphasis on the challenging reality of operating jointly in a combined environment, the JAPCC has initiated a new expansive project entitled NATO JADO. 'NATO' gives the combined environment sufficient priority, whereas 'JADO' places emphasis on the problem of operating jointly, while also circumventing the structured ideas of domains, since it includes them all.

2 | Definition

In order to help determine the appropriate topics for the project, a clear description of NATO JADO is required that encompasses the perspectives from stakeholders across all domains (Land, Air, Maritime, Space and Cyberspace). For the purpose of this project, the JAPCC team has proposed the following working definition:

NATO Joint All-Domain Operations. Actions taken by the joint forces of two or more NATO nations, comprised of all available domains, integrated in planning and synchronized in execution, at a pace sufficient to effectively accomplish the mission.

ability and policies required to enable efficient operations across all contributed assets, in order to create synergistic effects that cause multiple dilemmas across myriad contact points while outpacing an adversary's decision cycle.

4 | Scope

The scope of this project includes critical nodes, desired capabilities, C2 and interoperability requirements, and perhaps most importantly, the training necessary to optimize the leadership model and promote Alliance-wide understanding. This project has many burgeoning synergies with initiatives in progress throughout national war-fighting institutions and NATO organizations including the Bi-Strategic and Component Commands, Joint Analysis and Lessons Learned Centre, the Joint Warfare Centre, NATO Defence College, and other Centres of Excellence. Working closely with these partners, the project will help identify the requirements, capabilities, and training models which NATO should be developing now in order to move from our current state of interoperability to a level of seamless integration able to conduct NATO JADO within the next 10–20 years. In addition, as new technologies and concepts mature, NATO JADO will shift focus and contribute to the development of the most achievable and critical topics from the joint air and space power perspective.



3 | Aim

The aim of NATO JADO is to identify and propose solutions to the problems associated with fully utilizing the collective capabilities of all assets assigned to a NATO-led effort. This includes the rapid processing of data and management of intelligence, as well as the technical

5 | Study Topics

NATO JADO topics have been created to coalesce capabilities and enablers that need to be addressed in order to further the progress of joint and combined operations. The study topics, explained next, have been developed to provide a framework from which specific work strands



can be selected based on the maturity of the subject and subject matter expertise available.

C2 Structure and Operational Planning Process. The current NATO Operations Planning Process (OPP) utilizes a comprehensive approach (including military, political and civilian considerations) during each stage of planning and has a generic understanding of domain capabilities and limitations. However, in order to properly support NATO JADO, the current planning processes and products may be inadequate. A revised, holistic approach to C2 based on all-domain ontology from planning to execution needs to be developed. This task should consider questions such as how the OPP might contribute to providing authority allocation to the right level of leadership during execution, what level of detail is appropriate for Joint Headquarters plans, and are 'supported-supporting relationships' still an effective tool? In addition, the evaluation should look for improvements through the use of technologies such as Artificial Intelligence (AI) and Machine Learning (ML), which may be especially critical when considering the goal of connecting forces via complex C2 networks spanning all domains. Finally, joint operations centre processes need to be continually evaluated to incorporate new technology and propagate solutions across the Alliance, to include the fresh consideration of the usage of liaisons.

Intelligence and Situational Awareness. The collection and data processing methods, along with sharing of the resulting intelligence between services and nations, across all levels of leadership, must be modernized. This study topic looks to determine, at a high level, how to eliminate current roadblocks in critical information sharing within the Alliance, both in terms of policy and classification constraints. Focus will also be given to how best to utilize next-generation collection systems in combination with emerging and resilient large bandwidth data links. How will this real-time data be turned into actionable intelligence/decision-making materials? How can AI, ML, Deep Learning, Quantum Computing, Cloud Computing, and Big Data contribute?

Capability Advances. This topic will address capabilities stemming from new technology and new uses of existing technology, in addition to recommending areas of further development that could provide an increased level of connectivity and a wider arsenal of all-domain weapons to the Joint Force Commander. This topic will consider major categories of kinetic and non-kinetic effects including electromagnetic operations, cyberspace actions, and the denial of data, products, and services provided by space-based assets. In addition, it will consider how next-generation platforms (manned and unmanned) may be used to execute missions where real-time C2 is

reduced or unavailable, such as in Emission Controlled (EMCON) environments.

Targeting. This topic is included to address how best to modernize the targeting process in a NATO JADO environment to enable decision-cycle advantage. Overarching questions will be discussed such as how the targeting process will function and how new network-enabled weapons will improve the kill chain elements (find/fix/track and engage). Does it still fit within the current constructs of Campaign Strategy – Air Strategy – Integrated Tasking Order (ITO) production? Also, considerations for the use of AI and ML to provide weapon/target pairings during pre-planned and dynamic targeting situations, and how these tools may lead to the implementation of more advantageous Rules of Engagements will be addressed. Finally, as autonomous systems continue to develop worldwide in terms of capability and reliability, their use to provide joint effects, including deadly force, will need to be continually assessed.

Leadership, Education, and Training. One of the most challenging aspects of conducting operations in a NATO JADO environment will be developing leaders and operators able to deliberate and make decisions in a revolutionary way. NATO JADO alludes to an exponential increase in the traditional breadth and cross-domain harmony of decisions being made, and actions taken, in a synchronized manner over an expansive and ever-changing battlespace. To enable the ability to consider all-domain effects and manoeuvre in and through all domains will require historic innovation in terms of training and education. The training and education plan will not only be innovative in and of itself, but the update process to the curriculum and flexibility in the training syllabus will require equally novel solutions. The future leadership, education, and training plans will need to incorporate these extremely challenging aspects of combined, joint all-domain warfare. Working with agencies conducting similar scoped projects, this topic endeavours to help these critical concepts advance.

6 | Commonalities with the NWCC

NATO JADO has many synergies with the NATO Warfighting Capstone Concept (NWCC), which is governed by Allied Command Transformation (ACT)². NATO JADO will contribute to the NWCC in many areas, including the Warfare Development Imperatives of 'Cross-Domain Command', 'Integrated Multi-Domain Defence', 'Cognitive Superiority', and 'Influence and Power Projection'.

7 | Conclusion

We believe the ability of NATO forces to be seamlessly interoperable, complementary, and harmonized will be required in order to prevail against our potential future adversaries. This is the panacea of coalition warfighting, and is the lofty goal of this, and many other efforts occurring throughout national and NATO-affiliated organizations. Even considering the rapid advance of technology and capabilities across nations within the Alliance, all of the historical obstacles associated with multilateral operations remain, and will surely hinder the effectiveness of future Allied efforts if not addressed. The focus of NATO JADO is to eliminate or reduce future obstacles which could prevent NATO from being able to tap into capabilities across the entire spectrum of current and emerging systems that will be available in our militaries. We believe this is the most challenging military problem of our time, and we must act collectively to solve it. Collaboration across NATO organizations and national militaries, between senior leaders, and among education systems is the absolute key to optimizing future combined operations. Mobilizing our diverse set of joint SMEs, the JAPCC is well-positioned to collaborate, contribute, and help align priorities across the Alliance, enabling a more interoperable and effective all-domain fighting force.

1. Reid, W. (2008). Churchill 1940–1945, Under Friendly Fire. Birlinn.
2. NATO Allied Command Transformation 2020 Fact Sheet, 'NATO Warfighting Capstone Concept Experiments'.

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