How C2 will be affected by or will affect MDO

NATO Command and Control Centre of Excellence

Kromhoutkazerne Building K1, 4th floor Herculeslaan 1, 3584 AB Utrecht The Netherlands

info@c2coe.org
www.c2coe.org

Over the course of the last three years, the endeavour to adopt the term Multi-Domain Operations (MDO) within NATO documents has resulted in a concept vision of cross-domain coordination. Ongoing discussions in multiple settings confirm the ambiguity of opinions toward the topic. Some seem to narrow it down to horizontal synchronization, specifically between the military domains, whereas others tend to move into a Whole-of-Alliance approach[1]. While this development has helped to achieve clarity on definitions, it has introduced another dilemma: is Multi-Domain Command and Control (MDC2) in its current state another capstone concept regarding synchronization with non-military actors… or a warfighting principal for future use?

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1   The whole-of-Alliance approach uses the most appropriate combination of instruments of power to maximize their hard and soft power effectiveness within the legal and ethical standards of the rules-based international order (RBIO). Source: NATO. (2022). AJP-1(F) Ratification Draft - ALLIED JOINT DOCTRINE. Brussels: NATO Standardization Office.

Context

MDO as a term has evolved over the last several years. It originated in the US Army TRADOC-document[2] and since 2019 the NATO Command and Control Centre of Excellence (NATO C2COE) has monitored and contributed to its transformation from a TRADOC concept to engage an Anti-Access/Area Denial (A2AD) bubble into a concept policy for the Alliance.

This evolution of MDO should be viewed within the context defined by SACEUR. He stated that C2 is one of the most urgent challenges within the Alliance. Within the Concept for the Deterrence and Defence of the Euro-Atlantic Area (DDA) it is stated that NATO should modernize C2 in a traditional sense with an emphasis on robustness, speed, and flexibility and at the same time it should be non-traditional with a simultaneous C2 in multiple geographical areas and across different levels and types of command. Most importantly, however, C2 should provide ways and means to act with the speed of relevance.

One must be aware that currently MDO analysis is being conducted at the national level and the understanding or specification of the MDO terminology used in one Alliance nation often does not match that of another member state. To complicate things further, the terms domain, dimension and environment are sometimes interchanged. This makes striving to achieve consensus on MDO even more challenging.

For the Alliance, the recognised operational domains are five distinct spheres of activities. They provide a structural framework to the military instrument of power to group and analyse capabilities by considering those of nations, political and military services, or civilian ownership. The term 'multi-domain' simply means actions that are conducted in more than one operational domain and by using capabilities orchestrated across the five operational domains, these balanced actions will have an effect greater than the sum of the separate actions.

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2   TRADOC. (2018, December 6). TRADOC Pamphlet 525-3-1- The U.S. Army in Multi-Domain Operations 2028. Fort Eustis, VA: ATFC-ED.

Defining MDO

At the request of the Military Committee, ACT developed the following Bi-Strategic Command working definition of MDO: *"Orchestration of military activities, across all domains and environments, synchronized with non-military activities, to enable the Alliance to deliver converging effects at the speed of relevance."* [3]

This definition was developed over years through consultations with National Military Representatives and other military and civilian partners. Within NATO, MDO is the military focus on achieving objectives across 'all domains and environments' and it recognizes that there are many actors that collectively contribute to success.

One commonality that has persisted over the course of MDO development has been the idea of orchestrating across all domains and synchronizing activities across more than just the military domains and actors. An important consideration within MDO-related developments is the harmonization with non-military organizations and member state assets which are not under a commander's direct control.

The aim of a multi-domain approach should be to provide the commander with the ability to create effects, irrespective of domain. The appropriate actions are guided by NATO's tenet of the Manoeuvrist Approach and are in accordance with the principle of Mission Command. This tenet allows commanders the freedom of action to gain, to maintain, and to exploit the initiative in order to achieve their objectives.

The latest, AJP-01(F-RD) 'Allied Joint Doctrine'[4] (NATO, 2022), states clearly what MDO means from a NATO perspective. Multi-Domain Operations doctrine covers how the Alliance orchestrates activities and capabilities across the five operational domains and integrates actions. MDO is the way the Alliance orchestrates fighting power and is the military contribution to the Comprehensive Approach. The AJP-01-publication is aligning both doctrine and the NATO MDO concept currently still under Bi-SC development.

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3   NATO Bi-SC. (2022, March), Working Definition Multi-Domain Operations (MDO), NATO Bilateral strategic Command.

4   NATO. (2022). AJP-1(F) Ratification Draft - ALLIED JOINT DOCTRINE. Brussels: NATO Standardization Office.

JOINT or MDO

Based on the current fuzz within the military, the proposed MDO concept makes sense, but does it clearly distinguish itself from Joint? Joint is generally associated with a collective focus and cooperation between the traditional military services Navy, Army, and Air Force. It is defined in NATO as activities in which 'at least two services participate' and is not linked to the domain within which a specific service is operating. The term MDO seems an evolution of joint military operations and includes the new forces in cyberspace and space.

However, the idea of 'Joint Operations' is potentially becoming outdated due to its focus on traditional military services rather than on domains and the fact that military 'superiority' in the new domains is not achievable nor desirable. This fact is not yet fully understood. The military needs to better understand the multi-domain nature of threats across the operating environment.

Organising C2 in the MDO context

To be successful, in MDO NATO needs to update its capabilities, concepts and doctrine to enable defensive and offensive actions across all domains and levels of command. MDO objectives will revolve around domain activities that help to achieve the desired effects, rather than which military service or non-military contributor supplies the capability.

The complexity of Multi-Domain operations makes the C2 structure challenging. The increased pace of information sharing and associated sensemaking is an ongoing struggle for NATO. The exponential growth of available data with, at the same time, increasingly complex agile C2 structures requires a completely different approach. Mastering the complexity of information sharing within the decision-making process is a high priority in the Warfare Development Agenda.

A Multi-Domain C2 approach helps commanders and their staff to better understand their capabilities, opportunities and risks and improves the orchestration of capabilities and activities across domains. This requires

the provision of multi-domain capabilities to subordinate commanders at all levels of operations with the requisite, agile and adaptable posture, authorities and resilience to enact the Manoeuvrist Approach and Mission Command.

In addition, during specific operations across domains, commanders and their staffs need to coordinate with their partners and achieve coherent activities across the levels of operations also outside their Joint Operations Area. This could also involve political, military and civilian capabilities that they may not command nor control. For instance, space-based, cyberspace and electromagnetic capabilities may be held by a nation's highest political level.

To add to the complexity of MDO, the political and civilian capabilities are usually not organized in the same way as the military instrument, which makes it harder to coordinate, particularly at the operational level. It seems that collaboration or consultation between military commanders and non-military partners is critical if the military is to understand and utilise the capabilities ('effectors') that are not directly under C2.

Furthermore, Multi-Domain Operations require the synchronization of actions that range in their velocity from the speed of light to walking pace. Space and cyberspace operations, information activities and increased political accountability have caused the diffusion of split-second events within the modern engagement space. This makes command and control a pre-eminent joint function.

Implications for Command and Control
To ensure that NATO command structures are suitable to deal with the complexity of operations and to have a better understanding of changing conditions, the NATO C2COE conducted a fundamental study on 'The Future of the Command Post'.[5]

The future – and maybe even our current – battlespace is increasingly dynamic and is a complex mix of relationships with and reliance on actors outside the military. Based on our findings, a future HQ will therefore most likely have the following characteristics:
·   It has distributed information flows and dispersed physical locations, and thus does not group people in certain areas.
·   There is an increased use of current-day technology by a commander and staff, like seamless and secure communication.
·   The staff will be supported by non-human intelligent collaborators and support software, for example in situational awareness and decision-making support.
·   Staff will incorporate Artificial Intelligence based systems for Operations Assessment, risk assessments and course of action selection.

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5   Clemente Clemente, F., Scherrenburg, M., & Streefkerk, J. W. (2019). The Future of the Command Post - part 1. Utrecht: NATO Command & Control Centre of Excellence.

With this in mind, how is C2 affected? Historically, a Joint Commander would have the authorities and permissions to execute Command over most military forces in a specified operating area, or at least he has delegated Control to task forces assigned to him for his mission. However, when we consider Command and Control in an MDO context, which now includes the non-geographically bounded domains of space and cyberspace, we are faced with the likely scenario that a NATO military commander will have neither Command nor Control over the majority of the capabilities operating within these 'new' domains.

This will limit the scope of MDO within NATO, in terms of the NATO commander's ability to directly orchestrate actions. MDO will need a much higher emphasis on collaboration rather than Joint Operations. This requires that commanders develop an alternative mindset and an adaptive leadership style.

Changing the military focussed C2 Joint Function into the new C3 Joint Function to describe Command, Control and Collaboration might therefore be considered when introducing MDO.

A Multi-Domain C2 Definition

Back in 2019, we received a request for support from ACT to build a working definition for multi-domain C2. We delivered the following definition:[6]

> *The art of establishing and incorporating pre-existing organizational structures and processes, employed to face challenges and accomplish missions to achieve goals and objectives in a complex (and at times ambiguous) layered OE that may include, but is not limited to, other military actors, non-governmental organizations, and government agencies.*

Our interpretation has matured since then. It is still helpful though to reference this definition because it identifies some of the crucial elements. To best understand the NATO C2COE's definition of MDC2, the key components that inform the Centre's viewpoint on this subject should be analysed.

1. "...incorporating pre-existing organizational structures and processes...": entities or persons may come into a multi-domain system with their own C2 structures (i.e., composition) and processes (e.g., battle rhythm, CIS, etc.), and successful integration is predicated on adapting those into a new system without fundamentally changing their operating procedures; the final C2 system may be a system-of-systems.
2. "...achieve goals and objectives in a complex (and at times ambiguous) layered OE...": the OE is defined in order to achieve desired effects with the resources at hand; domains are inherently complex due in large part to overlap, the non-physical nature of some (e.g., cyberspace, electromagnetic spectrum), and the impact of effects on non-military actors.
3. "...not limited to, other military actors, non-governmental organizations, and government agencies.": As previously mentioned, the NATO C2COE uses a comprehensive approach to analyse MDC2 and as a result the domains contained within this concept are more than just military units and organizations (the traditional 'services').

Additionally, it is important to note that MDC2 is not solely about acting in different domains. It also concerns the management of effects – both the intended effects of one's own actions and their influence on the objectives of other actors and vice versa. Another essential element is the continuous assessment of unintended effects and the interaction with the actions of neutral parties and opponents.

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6   Granillo, A. (. (2021, September 8). Multi-Domain Command and Control, providing a "working description" of the term Multi-Domain C2. Retrieved from NATO C2COE: www.c2coe.org
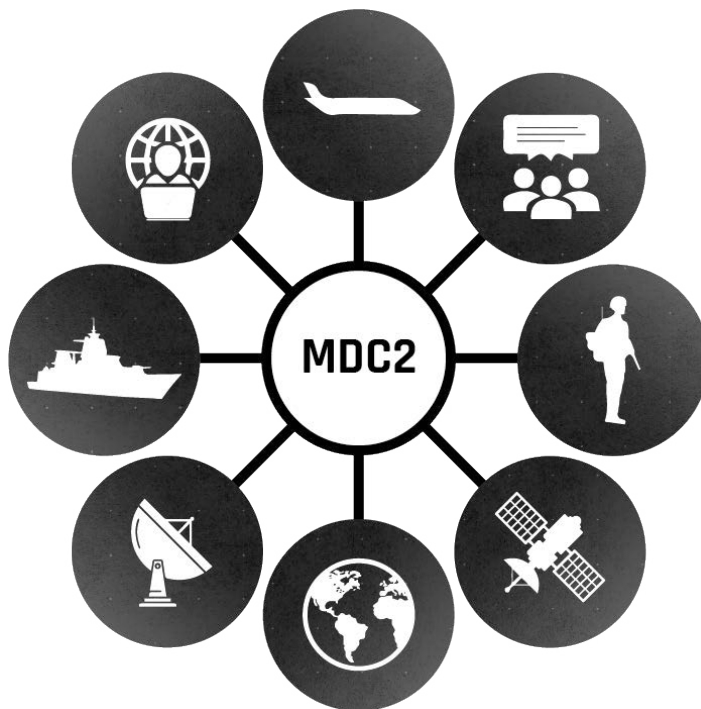
Essential enablers for MDC2

As stated before, MDO is an evolution of Joint and most of NATO's current doctrine and tools might be applicable. However, there will also be limitations in Joint doctrine and Standard Operating Procedures (SOPs) which need to be solved to be successful in MDO. NATO needs to develop an agile cross-domain command approach and must define ways to deal with the still not well understood supporting/supported relationships both in the military and with non-military.

To fully exploit the concept of MDC2 and do MDO, NATO needs unhindered, unrestricted access to capabilities in the space and cyberspace domains. Therefore, a suitable collaboration between military commanders and non-military partners is critical. Leaders and operators that are trained, equipped and agile to operate with a multi-domain mindset must be developed. They will have to understand and utilise capabilities that are not directly under their C2, and, as mentioned in the WDA, the military needs to achieve Cognitive Superiority.

And finally, the connectivity provided by NATO's Digital Transformation will be a critical enabler to help facilitate the required C2 agility and resilience to exploit the potential of MDO across all domains.

As NATO C2COE, we consider the FMN as one of the main already ongoing initiatives to address this and we want FMN to be more than just one of the many NATO initiatives which come, flourish and go. FMN addresses the organizational, procedural, technical and human aspects of connecting nations and organisations. In the NATO C2COE's opinion, "connection" appeals to the interoperability challenge. Not only between national services, but especially in and between NATO formations, and not only at the operational level. This includes the connection between people.

MDO: it is a Work-in-Progress

As has been illustrated in this article, MDO currently is a work in progress. At this stage there are some differences in people's perception of the topic of MDO, but also in the NATO concepts which will feed policy and doctrine. Nevertheless, commonalities in the approaches are that MDO is the military contribution to the Comprehensive Approach, and Multi-Domain extends beyond Joint.

To be successful in MDO, NATO needs to accelerate the development of new, agile MDC2 concepts which allow skilful application of C2. This should support commanders in their understanding of the Operating Environment. To be successful, the NATO nations need to harmonize and collectively understand terminology, policy and doctrine as soon as possible.

In conclusion, as military, we can no longer only think in fixed structures and unambiguous responsibilities. Consultations will be more relevant for NATO commanders in a multi domain operation. C2 is not just an endeavour for the military instrument of power alone; it must be expanded to other actors to be effective.

In the end, command & control must ensure converging effects at the speed of relevance. And when we think about the expansion of our military C2, we must remember that this is a human-centric activity, and it must involve open collaboration amongst actors in the other Instruments of Power to achieve the military objectives mandated by our societies.

Disclaimer

About NATO C2COE

The Command and Control Centre of Excellence C2COE (NATO C2COE) was established in 2007 on the initiative of The Netherlands. The aim was to create a group of C2 Subject Matter Experts supporting the transformation activities of Supreme Allied Commander Transformation (SACT) and of the Sponsoring Nations of the NATO C2COE (The Netherlands, , Spain, Turkey and the USA). The NATO C2COE supports NATO, nations, and international institutions/ organizations with subject matter expertise on C2. NATO C2COE catalyses C2 by capturing, creating, assessing, and distributing C2 knowledge. The joint and multinational capacity of NATO C2COE and its partners will lead to robust and applicable knowledge.

NATO C2COE

NATO Command and Control Centre of Excellence
www.c2coe.org   info@c2coe.org   +31 30 2187024

Mailing address: PO box 90004 I 3509 AA Utrecht I The Netherlands
Visiting address: Herculeslaan 1 I 3584 AB Utrecht I The Netherlands