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Capability Challenges of NATO Multi-Domain Operations - Implications for the NATO Defence Planning Process

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Abstract

Multi-Domain Operations (MDO) have become central to NATO's approach to future warfare, requiring the integration of military effects across Land, Sea, Air, Cyberspace, and Space. This article analyses whether the NATO Defence Planning Process (NDPP) adequately reflects the capability requirements generated by the MDO concept. Drawing on unclassified NATO documents and open sources, the study identifies structural misalignment between domain-centric capability planning and the integrative, data-centric demands of MDO, and outlines implications for the adaptation of NATO defence planning.

KEY WORDS: *NATO, EU, defence planning, multi-domain; capability development.*

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1. Introduction

Multi-Domain Operations (MDO) integrate traditional domains—Land, Sea, Air, and Space—with Cyberspace and information operations, reflecting the growing complexity of modern warfare. In this sense, MDO is understood in a narrower interpretation as operations that involve multiple domains.[1]. The combination of new technology and new operational concepts, the rapid evolution of disruptive technologies - such as artificial intelligence, nanotech, biotech, Unmanned Aerial Systems (UAVs), autonomous systems, drone swarms, smart munitions, and loitering weapons - have resulted in a paradigm shift in the conduct of warfare and have reflected the ongoing Revolution in Military Affairs (RMA) [2]..

On 19 May 2023, all NATO nations approved the Alliance Concept for MDO [3].. This formally signalled NATO's transformation from a joint approach, focused on the military services, to a multi-domain approach. Traditional mono-dimensional approaches are insufficient for contemporary conflicts, as cognitive and information effects increasingly shape operational outcomes. MDO emphasizes coordinated action across domains, exploiting opportunities through synchronized effects, while individual components may act autonomously to create advantages in time and space. Each domain's unique characteristics require tailored forces, capabilities, and decision-making processes. Within NATO, effective MDO relies on transforming Command and Control (C2) into a networked, data-enabled ecosystem that combines digital architectures, artificial intelligence, resilient networks, and human judgment.

The NATO Defence Planning Process (NDPP) plays a pivotal role in translating strategic intent into interoperable capabilities, ensuring coherence across Allies while balancing innovation with standardization. This linkage between operational planning and capability development is reflected in NATO conceptual guidance: *The operational plans will set the requirement through the Force Structure Requirement, which in turn will strongly inform the NDPP. This is fundamental to steer the scaling up of the different domains' capabilities strengthening the MDO baseline, and also some of the cross domains capabilities that will generate an MDO-enabled Alliance.* [3, paragraph 49]. As reflected in NATO's MDO conceptual framework: *Through ongoing warfare development initiatives and the continuous refinement and revision of plans, NATO will set the operational requirement for short and midterm capability development through the NDPP and common funded programmes, and allow the strengthening of both specific domain capabilities and cross-domain enablers.* [3, paragraph 14]. Literature review and qualitative analyses highlight gaps in cross-domain integration, speed of decision-making, and information superiority, underscoring the need for flexible, adaptive structures [4].

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2. Method of investigation

A comprehensive analysis of NATO's approach to MDO, within the context of contemporary strategic thinking and modern warfare, forms part of broader research conducted by the Centre for Security and Military-Strategic Studies supported by the Ministry of Defence of the Czech Republic, titled Long-Term Development of Organization – Armed Conflict (DZRO OZKON) and in cooperation with the NATO Command and Control Centre of Excellence in Utrecht, the Netherlands.

This analytical study examines the adaptation of the NDPP as a critical enabler for the effective conduct of MDO in an increasingly complex and contested operating environment. The analysis is framed by the objectives set out in the NATO 2022 Strategic Concept and NATO's core task of Collective Defence, with particular emphasis on interoperability and unity of effort across all operational domains. The central point of this analysis is whether the NATO Capability Targets identified throughout the NDPP cycle sufficiently reflect the capability requirements of the Alliance Concept for MDO, and whether the prevailing domain-centric approach will require a revised methodology for the identification and development of military capabilities.

The study applies a structured methodology based on a literature review and qualitative content analysis of selected NATO and national publications. The analysis focuses on the evolving operating environment, operational domains, and Allied as well as national approaches to MDO. Extracted findings were systematically clustered according to their respective domain affiliation and subsequently analysed to identify prospective military capability requirements.

Following the identification phase, relevant data and information were aggregated in accordance with patterns reflecting their position within the operational domain framework.

In the final stage, the synthesized findings derived from the reference documents were assessed against the NDPP and its associated capability development procedures. This phase of the study enables the identification of key implications for future military capabilities required to ensure effective engagement in joint operations across all operational domains. Owing to their scope and complexity, the full findings of this research cannot be presented in this article; however, they are available upon request from the Centre for Security and Military-Strategic Studies.

3. Conceptual Foundations: From Joint Operations to MDO

The MDO concept was developed by the US Army to meet the requirements set by the National Defense Strategy published in 2018 [5]. The strategy shifted the focus of US national security from global counter-terrorism operations to the challenge posed by military powers such as Russia and China. After and as a result of the Crimea annexation operation, the development and use of the US military have been guided by views on operations against a peer adversary [6]. The concept of MDO emerged in the United States was based on the observation that future warfare would not resemble the conflicts in Afghanistan or Iraq, given the rise of Chinese capabilities. It was therefore necessary to dominate adversaries in the traditional domains—Land, Air, and Sea—as well as to ensure US superiority in cyberspace and space. As a result, these five domains are included in the concept of multi-domain operations. Information could also be considered an additional domain for shaping perceptions, but currently, both the United States and NATO recognize only the five domains mentioned above, although some allies, such as France, the UK and Italy, define information and electromagnetic fields in addition to these domains.

Contrary to the US MDO concept which emphasises the land power perspective and is focusing on enabling deployment of joint forces by using Multi-Domain Task Force (MDTF) to neutralise the adversary's A2/AD capabilities, NATO's objective is aimed to develop readiness to respond to future complex security challenges as part of NATO's deterrence and defence posture [7]. This objective is based on advanced information and data infrastructure, interoperability, automated decision-making and the ability to operate in space and cyberspace alongside traditional domains. With this comprehensive approach, NATO aims to develop capabilities to respond to future complex security challenges as part of NATO's deterrence and defence. NATO sees a data-driven approach, advanced interoperability, rapid decision-making, integration of space and cyber environments into operations and cooperation between Allies as key enablers for multi-domain operations. All these aspects have one common denominator, which is the requirement to achieve the required capabilities. In this context, NATO seeks to improve its data-centric approach, enhance advanced interoperability, enable rapid decision-making, integrate the space and cyber domains into operations, and strengthen cooperation among Allies as key enablers of MDO. According to the Allied Joint Doctrine [8], war is a means to achieve strategic and political objectives, and the use of military force constitutes one element of a broader range of instruments of power.

4. NATO's Operational and Doctrinal Framework for MDO

The current strategic environment has accelerated the requirement to integrate the instruments of power, leading to the adoption within NATO of a MDO approach, particularly within the military instrument. The NATO MDO concept, derived from the US approach, has been developed by Allied Command Transformation (ACT) at the request of the NATO Military Committee and is defined as *the orchestration of military activities across all domains and environments, synchronized with non-military activities, in order for the Alliance to achieve converging effects at*

speed of relevance [9]. This concept has been incorporated into NATO doctrine and allied joint publications, and applies across the five recognized operational domains: Air, Sea, Land, Cyberspace, and Space [9]. The notion of *speed to relevance*, originating from the United States Department of Defense National Defense Strategy 2018, refers to the tempo required to generate and sustain operational [10]. The three traditional domains—Sea, Land, and Air—are reflected in the joint force structure of most Allied nations, typically composed of Land, Sea, and Air components. In some cases, additional components or specialized forces exist, such as the United States Marine Corps in the United States or the Carabinieri in Italy, while certain Allies, such as Luxembourg, maintain more limited force structures.

Within NATO terminology, the term *Joint* refers to activities conducted by forces of at least two services, independent of the domain of operation. At the Alliance level, MDO constitutes an overarching concept that is interpreted and implemented by individual Allies in accordance with national doctrines. Consequently, NATO requires clear and harmonized terminology and definitions related to MDO, particularly in less mature domains such as space and cyberspace, as well as within the C2 architecture, notably at the strategic-political level where decision-makers require coherent and actionable information. Beyond doctrinal considerations, a critical challenge for the Alliance lies in maintaining technological advantage in increasingly complex operational environments. This includes the monitoring, assessment, and countering of commercially available technologies that may be leveraged by potential adversaries [11].

5. NATO Defence Planning Process and Capability Development

NATO's concept of MDO is consistent with the foundation of AJP-01 Allied Joint Doctrine [8]. which frames operations as the coordinated employment of military power in support of political objectives, nested within the broader use of the instruments of power. Thus, the Alliance must ensure that it remains capable of functioning effectively across all operational domains and across the full spectrum of operations. Above all, however, its coherence and effectiveness depend on an unwavering focus on the strategic objectives set out in the NATO 2022 Strategic Concept [12]. This document must serve as the primary reference point guiding all political and military efforts of the Alliance. Anchored in this document, NATO must remain firmly committed to its core principle of Collective Defence, ensuring that all activities, capabilities, and operational priorities are aligned with this fundamental purpose.

In this context, it is important to recall NATO's core tasks derived from this principle: Deterrence and Defence, Crisis Prevention and Management, and Cooperative Security. At this stage, the significance of NATO interoperability should be emphasized, as it must be perceived as a decisive prerequisite for the Alliance's military effectiveness. Interoperability constitutes the ability of Allied forces to operate together coherently, effectively, and efficiently across the tactical, operational, and strategic levels in order to accomplish assigned missions. In this regard, every modernization initiative and project—whether national or multinational—as well as every defence investment programme and force or capability development effort, must contribute to strengthening NATO interoperability and standardization. Interoperability is therefore intrinsically linked to the development of military capabilities—namely, delivering the right capabilities, in the right quantity, and at the appropriate technological level. In this respect, it is essential to highlight the crucial role of the NDPP, through which all Allies identify, develop, and deliver the capabilities required—consistent with their national commitments—to meet NATO's Level of Ambition which is defined as the ability to conduct one major joint operation-plus or two major joint operations and six smaller joint operations [13, p.27].

Within this framework, Alliance Concept for MDO identifies four key principles—unity, interconnectivity, creativity, and agility [14, p.17]—that enable the application and further development of multi-domain operational approaches across the Alliance and among its member states. These principles are closely linked to the NDPP and to military capability development, as they inform how forces and capabilities are generated, structured, and employed to achieve desired effects in the operational environment. In line with AJP-01, which emphasises unity of purpose and unity of effort, the principle of unity in MDO reinforces the need for coherent action across all levels of command and across domains, supported by a clear understanding of the political-military objectives and the commander's intent. Interconnectivity, a central tenet of both AJP-01 and AJP-3 [15], underpins the ability to integrate forces, capabilities, and information across domains through robust C2, shared situational awareness, and interoperable systems. Creativity is what staff and commanders will need to build blended multi-domain warfighting options and to appreciate what data may be available to support military activity. [14, p.17]. Creativity reflects the doctrinal requirement for commanders to apply judgement, initiative, and adaptability when operating in complex and contested environments, while agility supports the rapid adaptation of plans, forces, and effects in response to changes in the operational environment. A data-centric approach is a critical enabler of these principles. Consistent with AJP-3's emphasis on understanding the operational environment and enabling timely decision-making, data-driven processes enhance situational understanding, support the orchestration of effects, and accelerate the decision-making cycle across all domains. This emphasis is evident not only in Alliance Concept for MDO, but also in numerous national doctrines and future force development initiatives. [14, p.17].

As illustrated in Figure 1, the relationship between NATO's core tasks and the principles of MDO demonstrates how strategic guidance is translated into operational practice across the Alliance. While the core tasks provide the enduring strategic framework for Alliance action, the Alliance Concept for MDO introduces the operational principles required to implement these tasks in order to achieve the NATO´s Level of Ambition.

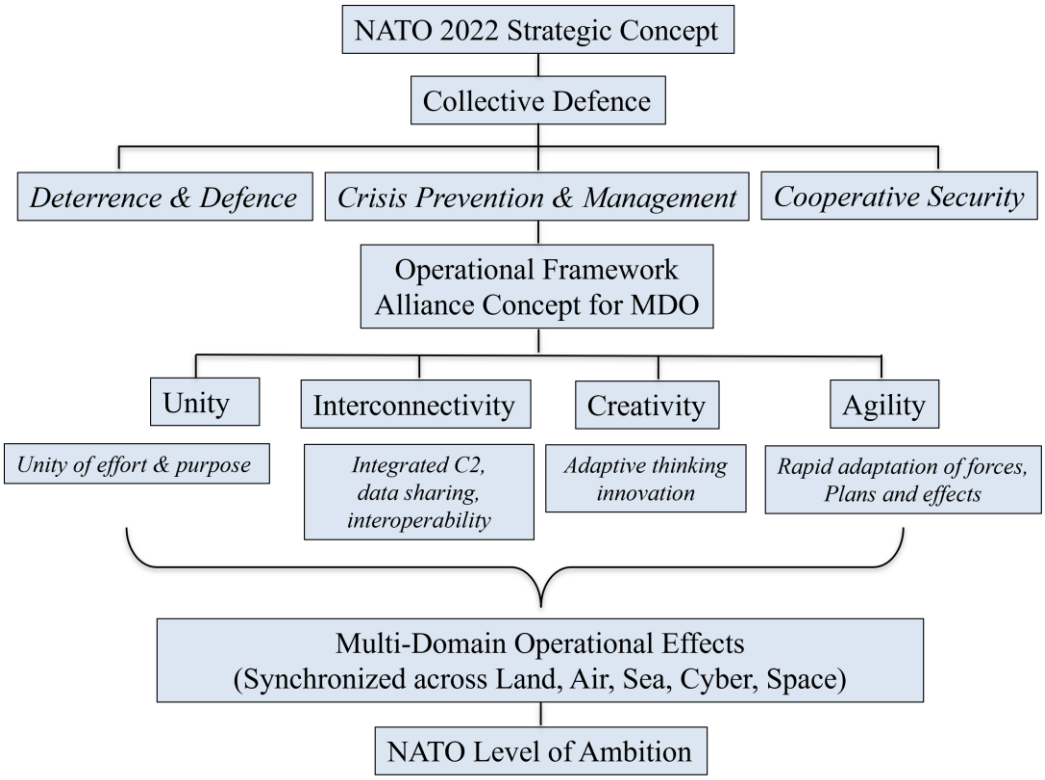

Fig.1. Linkage between NATO Core Tasks and MDO Principles.

While some experts characterise MDO as an extension of traditional joint operations with the addition of the cyber and space domains, such an interpretation does not fully align with Allied doctrines. AJP-3 Allied Joint Doctrine for the Conduct of Operations involves the coordinated and synchronised actions of two or more service components under a joint commander, normally within the military instrument of power. Although joint operations may involve coordination with non-military actors and account for civil-military interaction, the execution of effects remains predominantly military in nature. MDO, by contrast, deliberately seek to orchestrate military activities with effects generated in domains that may be predominantly enabled or controlled by non-military actors, notably cyber and space, in order to achieve the commander's objectives at the required time and place. In accordance with AJP-01's effects-based logic, MDO places emphasis on the employment of effects rather than on specific components or services. Effects may be generated in, from, or through any domain, and actions in one domain may create decisive effects in another. While the air domain is traditionally associated with air forces, it can be influenced by Land, Sea, Cyber, or Space capabilities, reflecting the integrated and cross-domain character of modern operations. Desired effects may be achieved in the physical, virtual, or cognitive dimensions, reinforcing the need for commanders to consider the operational environment holistically and to synchronise actions across domains in pursuit of strategic and operational objectives.

The doctrinal evolution toward MDO is informed by earlier conceptual developments, particularly in the area of interoperability. Historically, joint and combined operations were primarily characterised by deconfliction and coordination in time and space. Following the end of the Cold War, allied joint operations evolved toward increased coordination and synchronisation of effects. Subsequent initiatives sought deeper integration through standing joint force structures and common C2 arrangements, reflecting AJP-01's emphasis on coherence and unity of effort.

This evolution culminated, particularly in the United States, in the concept of Joint Interdependence, defined as a condition when one military service relies on another's capabilities to maximize the complementary and reinforcing effects of both or of several [16, p.4]. For NATO, this concept presupposes a network-enabled operating environment, consistent with Allied doctrine, in which capabilities are employed irrespective of national or Service ownership and are directed towards shared operational outcomes. This approach aligns closely with NATO's MDO construct, which assumes that future operations will require the seamless integration of capabilities across domains and actors, enabled by interoperability, shared understanding, and mission command.

The NDPP provides the institutional mechanism through which these doctrinal and conceptual requirements are translated into tangible capabilities. As NATO's principal framework for harmonising national and Alliance defence planning, the NDPP supports the identification, development, and delivery of interoperable forces and capabilities required to conduct the full range of Alliance missions. In doing so, it reinforces the doctrinal requirements articulated in AJP-01 and AJP-3, including readiness, responsiveness, interoperability, and the ability to adapt to a dynamic

security environment [17]. In sum, NATO's MDO concept is doctrinally consistent with Allied Joint Doctrine and represents an evolution—not a departure—from established joint principles. By emphasising unity of effort, cross-domain integration, effects-based thinking, and data-enabled decision-making, MDO aligns with AJP-01's strategic foundations and AJP-3's operational guidance, enabling NATO to employ military power effectively in support of political objectives in an increasingly complex and multi-domain operational environment [14,17].

6. MDO Capability Requirements

The NDPP plays a central role in capability development by determining the Alliance's Minimum Capability Requirements (MCRs), translating them into NATO Capability Targets, and supporting their implementation through national, multinational, and collective capability development efforts, thereby ensuring the delivery of the capabilities required to meet NATO's Level of Ambition. While the current NDPP has proven effective in generating robust, high-end forces across the traditional Sea, Land, and Air domains, the MDO concept calls for a more fundamental shift in how capability requirements are identified and prioritised. MDO is predicated not only on the availability of forces within individual domains, but on the ability to integrate, synchronise, and orchestrate effects across all five operational domains—Land, Sea, Air, Cyberspace, and Space—in a persistent, simultaneous, and contested operational environment. Central to this concept are cross-domain dependencies, data-centric decision-making, resilient command and control, and the capacity to generate effects in the physical, virtual, and cognitive dimensions.

In this context, the newly agreed Capability Targets appear to continue reflecting a predominantly domain- and component-oriented approach, focusing mainly on force structures, platforms, and capacity development within individual domains. NATO Capability Targets define the military capabilities that Allies are expected to develop in order to implement NATO's operational plans and contribute to the Alliance's collective defence. These capability targets are identified and afterwards accepted by Allies within the framework of the NDPP. They are updated every four years and structured into short-term objectives (0–6 years) and medium-term objectives (7–19 years). The most recent set of Capability Targets for the coming planning cycle was agreed by NATO Defence Ministers at their meeting in Brussels on 5 June 2025.

While such capabilities remain indispensable, particularly for high-intensity warfare, they do not necessarily capture the integrative enablers that underpin effective multi-domain operations. Capabilities related to cross-domain command and control, decision superiority, data exploitation, resilience of space- and cyber-enabled systems, and the ability to rapidly re-orchestrate effects across domains remain difficult to identify, quantify, and prioritise within the existing target-setting framework. Moreover, many of the critical enablers of MDO—particularly in Cyberspace and Space—are characterised by rapid technological change, strong reliance on civilian infrastructure and actors, and complex interdependencies that do not align neatly with traditional defence planning categories or long-term capability timelines. As a result, there is a risk that the Capability Targets derived through the current NDPP cycle lag behind the conceptual ambition articulated in NATO's MDO concept, reinforcing existing force structures rather than driving the development of genuinely multi-domain capabilities.

This apparent disconnect suggests that, while the NDPP remains an indispensable tool for Alliance capability development, its current outputs may not yet fully translate the logic of MDO into concrete, prioritised capability requirements. Unless the NDPP more explicitly incorporates multi-domain integration as a central organising principle—rather than treating it as an emergent property of domain-specific capabilities—there is a risk that future Capability Targets will continue to fall short of what is required for effective multi-domain force employment.

In this context, the challenge for NATO is not to replace the NDPP, but to adapt it so that Capability Targets more clearly reflect the demands of multi-domain operations. This may require a greater emphasis on integrative and enabling capabilities, improved recognition of cross-domain dependencies, and a stronger linkage between conceptual developments in MDO and the practical outcomes of defence planning. Without such adaptation, the gap between NATO's multi-domain operational ambition and the capabilities it systematically generates is likely to persist.

7. Analytical Assessment: NDPP Outputs versus Capability Requirements for MDO

The agreement by NATO Defence Ministers on a new set of classified NATO 2025 Capability Targets for the forthcoming defence planning cycle demonstrates the Alliance's continued political commitment to strengthening collective deterrence and defence and sustaining long-term warfighting readiness. These targets, developed under the NDPP, are intended to ensure that Allies generate the forces and capabilities necessary to respond effectively to the evolving security environment. However, when assessed against the conceptual intent of Alliance Concept for MDO, the extent to which the newly agreed Capability Targets fully reflect multi-domain requirements remains open to question. The NDPP remains NATO's primary mechanism for identifying, prioritising, and delivering the capabilities required to conduct Alliance operations. Through a structured, four-year cycle comprising political guidance, requirements determination, capability review, target apportionment, and implementation, the NDPP seeks to harmonise national and Alliance defence planning and to generate a coherent pool of interoperable forces. Oversight is provided by the Defence Policy and Planning Committee (DPPC), acting on behalf of the North Atlantic Council, and supported by NATO's civilian and military structures, agencies, and multinational cooperation initiatives.

The Capability Codes and Capability Statements [18]., together with the Capability Hierarchy [19]., establish a common capability terminology and taxonomy for both NDPP and operations planning. In parallel, they provide a coherent framework for capability identification, requirements derivation, and harmonisation across national and Alliance planning processes. The Capability Codes and Statements framework is designed to simplify the defence planning process and to enable a shared understanding of capability requirements, while allowing nations to assign appropriate forces and capabilities that may differ in organisational structures, readiness levels, and weapon systems. The Capability Codes and Statements are organised into three distinct types:

- Capstone Capability Statement: Defines the fundamental purpose of a Capability Code; one Capstone Capability Statement is assigned to each Capability Code.
- Principal Capability Statements: Describe what the capability must be able to do to achieve the desired operational effects; these statements are primarily operationally focused.
- Enabling Capability Statements: Describe the characteristics, conditions, and supporting elements required to enable the primary purpose of the capability and to accomplish the operational activities defined by the Capstone and Principal Capability Statements.

Capability Codes and Capability Statements provide a common language for describing capabilities within the NDPP and NATO operational planning. The document defines the capabilities used for the identification of MCRs and the derivation of Capability Targets. [18, p.1]. The Capability Codes and Statements are strictly structured in accordance with the Main Capability Areas as defined in the Capability Hierarchy, namely: Consult, Command and Control (C3), Inform, Protect, Prepare, Project, Sustain, and Engage. Type of service specific categorisation—such as Land, Air, Sea, or Cyber—is not applied, reflecting a functional rather than service-oriented approach to capability definition.

8. Implications for NATO Capability Development

The promulgation of Alliance Concept for MDO represents a substantive evolution in Allied thinking on the conduct of future operations. MDO emphasises the deliberate integration, synchronisation, and orchestration of effects across the Land, Sea, Air, Cyberspace, and Space domains in order to achieve converging operational and strategic effects at the required speed and scale within a complex, contested, and continuously evolving operating environment. This conceptual shift challenges many of the implicit assumptions underpinning NATO's existing defence planning and military capability development processes. Within the current construct, Capability Codes and Capability Statements constitute a foundational element of NATO's defence planning architecture and play a central role in the NDPP. They provide a common doctrinal and planning lexicon to support capability identification, categorisation, and prioritisation, thereby enabling coherence, transparency, and comparability across Allied national defence planning efforts. Their relative stability has historically supported interoperability, burden-sharing, and the generation of credible joint capabilities, particularly in the traditional physical domains.

However, when examined through the lens of the MDO concept, fundamental discrepancies become apparent. The existing Capability Codes and Capability Statements—and, by extension, the NDPP mechanisms that rely upon them—are largely structured according to a domain-based and functionally segmented logic, emphasising discrete outputs such as forces, platforms, systems, and functional capacities. This approach aligns with industrial-era capability development models and has proven effective in generating high-end, domain-specific military power. Yet it is increasingly misaligned with the central premise of MDO, whereby operational effectiveness derives not from domain superiority in isolation, but from the ability to integrate capabilities and synchronise effects across domains in time, space, and purpose.

As articulated in Alliance Concept for MDO and supporting doctrinal guidance, future operational advantage will be driven by decision superiority, cross-domain C2, data-centric decision-making, information superiority, and the resilience of space- and cyber-enabled systems, as well as the ability to re-orchestrate effects dynamically across physical, virtual, and cognitive dimensions. These capabilities are inherently integrative, relational, and system-level in nature. However, they remain only partially and indirectly captured within the current capability taxonomy and are not systematically prioritised through existing NDPP target-setting mechanisms.

This misalignment is further compounded by the characteristics of key MDO enablers, particularly in Cyberspace and Space, which are shaped by rapid technological change, strong dependence on civilian infrastructure and non-military actors, and complex civil-military interdependencies. Such factors challenge the NDPP's traditional timelines, metrics, and planning assumptions, which were largely designed for comparatively stable, platform-centric capabilities with predictable development cycles. Therefore, the NDPP risks reinforcing legacy capability structures and development priorities, rather than driving the transformation required to enable effective multi-domain force employment.

Taken together, these observations indicate the presence of a structural and conceptual gap between the evolving requirements of MDO and the current constructs of the NDPP. This gap is not attributable to a single deficiency but rather emerges from a combination of systemic factors related to operations planning, identification of MCRs and subsequent prioritisation of capability shortfalls and so on. To illustrate this divergence in a structured manner, Table 1 identifies the key factors that characterise the misalignment between the MDO concept and existing NDPP within NATO.

Table 1 - Structural and Conceptual Gaps between Alliance Concept for MDO and NDPP

Factor Category	NDPP / Current System	MDO Requirement	Identified Gap - Implication
Capability Definition Framework	Capabilities structured around discrete functions and outputs	System-level, relational, and integrative capabilities	Existing taxonomy insufficient to capture cross-domain dependencies and effects
Capability Outputs	Focus on platforms, force structures, and domain-specific capacities	Effects-based, data-driven, and network-enabled capabilities	Overemphasis on "what forces have" vs. "what effects they generate across domains"
Command and Control (C2)	C2 treated as a functional capability within C3 structures	Resilient, networked, multi-domain C2 enabling decision superiority	Lack of explicit prioritisation of cross-domain C2 as a core capability objective
Decision-Making	Linear, planning-cycle-driven processes with limited responsiveness	Data-centric, real-time, accelerated decision-making (speed of relevance)	NDPP timelines and processes not aligned with tempo requirements of MDO
Data and Information	Data treated as an enabling element within systems	Data as a central operational resource (data-centric warfare)	Absence of explicit capability targets for data exploitation and information superiority
Operating Environment	Focus on physical domains and traditional operational constructs	Integration of physical, virtual, and cognitive dimensions	Limited incorporation of cognitive and information effects into capability planning
Cross-Domain Dependencies	Implicit or indirect treatment within capability development	Explicit identification and management of interdependencies	Lack of traceability and prioritisation of cross-domain enabling capabilities
Cyber and Space Integration	Categorised as separate domains with partial integration	Fully integrated, enabling domains with systemic influence	Planning structures struggle with non-linear, rapidly evolving capability areas
Standardisation-Interoperability	Focus on interoperability, compatibility, and harmonisation	Dynamic standardisation enabling integration and adaptability	Standardisation not fully aligned with MDO requirements for agility and data sharing
Civil-Military Integration	Primarily military-centric planning assumptions	Strong reliance on civilian infrastructure and non-military actors	NDPP does not fully account for civil-military interdependencies
Capability Development Timelines	Long-term, predictable development cycles (platform-centric)	Rapid adaptation to technological change and innovation cycles	Temporal mismatch between planning cycles and technology evolution
Capability Prioritisation	Based on domain requirements and established capability areas	Prioritisation of integrative enablers (C2, data, resilience, effects orchestration)	Enabling capabilities insufficiently visible and prioritised in Capability Targets

While neither the NDPP nor the Capability Codes and Capability Statements are inherently deficient, their current formulation and application do not fully translate the logic of MDO into explicit, prioritised, and measurable capability requirements. Unless these planning instruments are adapted to more clearly reflect cross-domain integration, orchestration, and resilience as core capability outcomes, NATO's military capability development process risks lagging behind the demands of the multi-domain operating environment it seeks to master. This critique is grounded in the following core assumptions:

1. MDO represent an evolution of joint operations, characterised by the deliberate integration and orchestration of effects across multiple operational domains, rather than a simple aggregation of domain-specific capabilities, as articulated in Alliance Concept for MDO and Allied Joint Doctrines.
2. Capability Targets derived through the NDPP constitute the primary authoritative expression of NATO MCRs, translating political guidance and operational concepts into concrete, apportioned national commitments.
3. Coherence between NATO's operational concepts and its defence planning outputs is a prerequisite for effective force employment, particularly in high-intensity, contested, and system-level conflict environments.

These assumptions provide the analytical framework for assessing whether the newly agreed Capability Targets for the forthcoming NDPP cycle adequately reflect the capability requirements generated by Alliance Concept for MDO.

9. Adapting the NDPP for Multi-Domain Operations

The agreement by NATO Defence Ministers on a new set of classified Capability Targets reflects sustained Allied commitment to collective deterrence and defence and to maintaining long-term warfighting readiness. These targets were developed through the NDPP, NATO established and politically endorsed mechanism for identifying, prioritising, and apportioning capability requirements among Allies. The NDPP's structured five-step approach—comprising political guidance, requirements determination, capability review, target apportionment, and facilitation of implementation—has historically proven effective in generating interoperable forces and capabilities, particularly within the Sea, Land, and Air domains.

However, Alliance Concept for MDO places qualitatively different demands on the capability identification and prioritisation process. MDO is founded on the integration and synchronisation of military activities across all five operational domains—Land, Sea, Air, Cyberspace, and Space—within an operational environment that is persistent, simultaneous, and increasingly contested. In such an environment, operational advantage is derived less from dominance within individual domains and more from the ability to achieve decision superiority through cross-domain synchronisation, resilient and networked C2, and the exploitation of interdependencies between domains.

When assessed against these requirements, the newly identified Capability Targets appear to remain largely influenced by traditional, domain-centric planning constructs. While the continued development of heavy, high-end forces in the physical domains remains essential for collective defence and high-intensity operations, the capability targets continue to prioritise force structures, platforms, and domain-specific capacities. By contrast, key MDO enablers—including cross-domain C2, data-centric decision-making, resilience of cyber- and space-enabled systems, cognitive and information effects, and the capacity to rapidly sequence and re-orchestrate effects across domains—are less explicitly articulated or prioritised within the current capability framework. This indicates an implicit disconnect between NATO's conceptualisation of future multi-domain operations and the way in which those concepts are translated into measurable and assignable capability requirements. While the MDO concept assumes that the decisive factor in future conflict will be the ability to integrate capabilities across domains at speed and scale, the NDPP remains primarily optimised for identifying and allocating capabilities within discrete planning domains. Consequently, multi-domain integration risks being treated as an emergent outcome of domain-specific capability development, rather than as a deliberate capability requirement.

Furthermore, several critical elements underpinning effective MDO—particularly within Cyberspace and Space—are characterised by rapid technological change, strong dependence on civilian infrastructure and actors, and complex civil-military relationships. These characteristics challenge the NDPP's traditional timelines, metrics, and target-setting mechanisms, which were largely designed for comparatively stable, platform-centric capabilities. As a result, there is an increased risk that Capability Targets derived through the current planning cycle may lag behind both technological developments and the conceptual ambition articulated in NATO's MDO concept.

At the same time, it is necessary to underline that a more effective NDPP in support of MDO implementation could be achieved through closer alignment between NATO and the EU. The EU remains a unique and essential partner for NATO, with both organisations playing complementary, coherent, and mutually reinforcing roles in supporting international peace and security. This has been underscored by both the NATO 2022 Strategic Concept and the EU's 2022 Strategic Compass [20]. Structural differences have historically made harmonisation between the two planning processes challenging, and the objective is not to create identical capability development tools. Nevertheless, the importance of NATO–EU cooperation is reaffirmed in the Joint Communication signed in October 2025, which further reinforces their respective roles in supporting international peace and security [21]. In this context, the European Commission proposed a roadmap for implementing the White Paper for European Defence [22]. which translates political guidance into concrete objectives, timelines, and measurable indicators, while identifying priority areas for focused effort in the development of military capabilities required for EU. It is expected that NATO's Capability Targets, derived from the NDPP, define the quantitative and qualitative parameters that Allies must deliver, thereby ensuring NATO–EU coherence and interoperability.

Limitations. Owing to the analytical complexity of the subject matter and its relevance to the NDPP, this research was deliberately limited to the use of unclassified information, open sources, and publicly releasable data only. Regarding defence planning and capability development within the EU, this aspect could not be comprehensively addressed within this analysis due to limited space. However, the NATO–EU relationship in the context of MDO will be examined in future research, which is expected to be conducted by the Centre for Security and Military-Strategic Studies.

10. Conclusions

The current outputs of the NDPP may not fully generate the capabilities required to enable effective MDO. As a result, the Alliance risks fielding forces that are robust within individual operational domains, but insufficiently developed in terms of a joint, integrated, and cross-domain architecture, resilience, and decision superiority necessary for coherent force employment in an MDO environment. This assessment highlights a structural misalignment between the ambition of NATO to operationalise the MDO concept and the capability outputs delivered through the NDPP. Unless MDO-related requirements are explicitly embedded as a core planning driver within the NDPP, this gap is likely to persist across successive capability target cycles. The NDPP remains the Alliance's primary mechanism for defining MCRs and deriving NATO Capability Targets. It has demonstrated sustained effectiveness in delivering interoperable and combat-ready forces across the Land, Air, Sea, Cyber, and Space domains. However, its underlying planning architecture—reflected in Capability Codes, Capability Statements, and associated taxonomic structures—remains predominantly domain-centric and functionally segmented. This limits the explicit articulation of capabilities that are inherently cross-domain in nature and essential for MDO implementation.

Main Capability Areas such as agile and resilient C3, supported by data-driven decision-making, multi-domain situational awareness, and integrated cyber and space enablers are not consistently defined as discrete capability objectives within the NDPP framework. Instead, they are often treated as implicit or secondary outputs of platform- or

domain-specific capability development. This approach contributes to persistent shortfalls in areas critical for MDO implementation, particularly in the speed and coherence of cross-domain integration, the effectiveness of decision-making cycles, and the ability to generate, synchronise, and assess effects across the physical, virtual, and cognitive dimensions of the operational environment. In this context, NATO standardisation processes represent a fundamental enabler of interoperability, operational coherence, and Alliance cohesion. However, there is a growing requirement to further adapt and evolve these processes in order to reflect the specific demands of MDO, particularly with regard to cross-domain integration, data sharing, and the harmonisation of enabling capabilities. Standardisation must therefore not only ensure compatibility and interoperability, but also actively support the creation of conditions necessary to achieve decision superiority in a highly contested and complex operational environment. Given the strong institutional integration of the NDPP within NATO governance structures and national defence planning cycles, a wholesale redesign of existing planning tool would entail significant procedural and implementation risks. For a long time, NATO has been dealing with issues concerning how to provide an effective interaction between the NDPP and capability development, especially how to consider a range of inputs to the NDPP or rather how to measure an extent of national contributions to the Alliance. The process of capability requirements identification is structured, comprehensive, transparent and traceable and uses analytical supporting tools coupled with relevant NATO expert analysis. Nevertheless, capabilities stall not due to technical challenges but because of bureaucratic approvals, redundant reviews, and slow decision-making. [23].

The analysis identifies a clear requirement for its incremental and structured evolution. This evolution should be complemented by a systematic review of the current set of capability requirements, with the objective of identifying those capabilities that are specifically relevant to MDO implementation and not yet sufficiently captured within the NDPP framework. This approach may be pursued through three mutually reinforcing lines of effort:

1. Refinement of existing Capability Codes and Capability Statements to better reflect cross-domain dependencies, enabling effects, and operational relationships;
2. Introduction of explicit integrative capability constructs focused on key capability areas such as agility, resilience, and decision superiority;
3. Enhanced prioritisation and traceability of critical MDO-enabling capabilities—particularly in the areas of data exploitation, decision-support systems, and multi-domain C2—within the Capability Targets process.

In summary, adaptation of the NDPP to MDO requirements must follow an evolutionary approach while preserving its role as the Alliance's principal capability development framework. At the same time, stronger integration is required between operational concepts, standardisation processes, and capability planning. Only through such alignment will the Alliance be able to fully operationalise the MDO concept while maintaining interoperability, standardisation, and the collective defence coherence that underpin the Alliance credibility and operational effectiveness.

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