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# Enhancing NATO's Strategic Edge

## *A Human-Centric Approach to Multi-Domain Operations*

By Colonel Tyler Niebuhr, US Air Force, JAPCC

### **The Need for Action**

The war in Ukraine and conflict in Israel present a potential catalyst for wider regional hostilities. Technology has given terrorist organizations increased capabilities, and the pervasive use of information warfare allows for widespread emotional manipulation with geopolitical consequences. In today's interconnected and emotionally charged society, terrorism continues to pose a grave threat to NATO members' security. The current state of global affairs, which includes Russia's aggression towards Ukraine, its developing relationship with China, and the ongoing turbulence in the Middle East, presents complex

security challenges for NATO. We must recognize that deterrence and defence are not mere slogans but a shared responsibility that requires our constant adaptation to emerging forms of warfare in today's multi-domain operating environment. The wide range of security concerns amidst the ever-evolving character of conflict in the 21<sup>st</sup> century calls for our diligent attention and strategic thinking.

Thankfully, NATO has taken steps towards addressing these pressing threats by bolstering its political unity, expanding its membership, and developing a comprehensive military strategy to organize and coordinate warfare development.<sup>1</sup>

As the Alliance moves forward, it must prioritize the importance of actual human performance in Multi-Domain Operations (MDO); otherwise, it will miss the mark in its quest towards transformation and potentially fall prey to the false hope that technology will solve all our problems. Although technological advancements are absolutely necessary to maintain the advantage over revanchist challengers, technology is irrelevant without the right people, processes, and training. In today's fast-paced, technologically advanced world, personnel face the challenge of using sophisticated technology to synchronize various effects across multiple domains to outmanoeuvre adversaries in pursuit of calculated objectives.

As technology continues to advance at an exponential rate, it becomes increasingly crucial to remember the human factor. Every technological advancement and increased capability should be designed to enhance the performance of the human actor. By adopting a mindset that prioritizes enhancing and optimizing human performance, the Alliance can establish a focused approach towards policy alignment, multi-domain doctrine creation, and synchronized Tactics, Techniques and Procedures (TTPs). A performance-focused mindset can serve as the foundation for technological and weapon system developments, increasing combined capabilities, and ensuring superior execution. A force with a strong emphasis on performance enhances deterrence through its credibility – by maintaining a highly competent defensive force. Prioritizing performance offers significant strategic advantages and upholds the collective security interests of member nations. Each individual's contribution is crucial in preserving the integrity and unity of the Alliance through a performance-oriented strategy.

## Strategic Guidance

NATO leadership recognizes the need to optimize the full potential of integrated mission execution to harmonize its instruments of power. In February 2021, the NATO Defence Ministers endorsed the NATO Warfighting Capstone Concept (NWCC), a 'North Star' for warfare development through 2040. It identified that the

Alliance's future warfighting strategies must consider a multi-region, multi-dimensional, and multi-domain operating environment. The NWCC identified five Warfare Development Imperatives (WDIs) and six critical enablers as a means for the Alliance to organize and synchronize national development efforts. Subsequently, the NATO Military Committee (MC) tasked Allied Command Transformation (ACT) to further operationalize the concepts in the NWCC and, with Allied Command Operations (ACO), develop the Alliance's initial concept for MDO.

In April 2022, ACT delivered the Warfare Development Agenda (WDA), a 20-year plan through which ACT manages the planning and implementation of the NWCC and links it closely with the NATO Defence Planning Process (NDPP). The following year, the MC approved an official NATO definition for MDO and released the Alliance's Concept for MDO.

Developing guiding concepts demands monumental thought power, yet their value remains unrealized without implementation. Pathways to progress require action. J. D. Rockefeller, the world's first self-made billionaire, emphasized, 'I know that there is no result without action, and there is nothing in the world that is obtained just from thinking. As long as people are alive, they must consider taking action.'<sup>2</sup> This philosophy of action seamlessly aligns with key military principles such as *initiative*, *offensive spirit*, and *freedom of action*.<sup>3</sup>

ACT actively pursues a path towards an MDO-enabled Alliance. They are focused on codifying MDO concepts and updating Allied Joint Publications. Together with ACO, ACT is conducting training events and exercises, such as Steadfast Jupiter and Steadfast Duel, focused on data fusion and the targeting process, and Steadfast Defender series to exercise multi-domain capabilities. ACT seeks to identify capability requirements and build processes to provide a more accurate assessment of the environment and assist political-military decision-making. To further develop plans of action, ACT developed Lines of Delivery (LODs) with associated working groups and team leads to establish a process towards achieving the Warfare Development Imperatives.



*Military technology is a critical enabler and will continue to evolve, but war and peace are ultimately human endeavours. The JAPCC vision for MDO seeks to optimize the human role, supported by technology, structure, and practice.*

In response to the call for action, the Joint Air Power Competence Centre (JAPCC) has taken on the crucial task of spearheading MDO development as its umbrella project. With a team of subject matter experts, JAPCC is committed to leveraging its expertise and thought power to support ACT and ACO in developing an MDO-capable force. Multi-domain operations place unprecedented demands on our forces to sense, make sense, and act at a rate that will defeat those who would challenge NATO. Optimizing human performance should be the central theme to maximize combined performance throughout the Alliance in a multi-domain fashion.

## Human Performance

Within the context of this article, human performance is defined as an individual's tangible and quantifiable output, as well as accomplishments in completing tasks or reaching goals. It is different from human capital, which encompasses an individual's combined knowledge, skills, abilities, and potential that can contribute to their productivity.<sup>4</sup> Human capital focuses on the potential and growth of individuals, including

their education, training, expertise, and experience. In contrast, human performance focuses on the concrete outcomes and achievements that individuals produce in their work or activities. It is a measure of actual results rather than potential capabilities.

Investing in human capital sets a foundation of training with the hope of future success, but it must be done thoughtfully with both the desired system and the individual in mind. Human-Centred Design (HCD) puts people at the forefront of systems, policies, procedures, and technology, recognizing their unique needs and abilities.<sup>5</sup> Implementing an HCD approach to NATO development would ensure that the capabilities of MDO are custom-built to align perfectly with people's natural abilities, resulting in enhanced performance. Emphasizing usability and effectiveness, HCD would intend to reduce the cognitive load on individuals and improve decision-making processes, ensuring optimal human performance even in complex environments. Integrating HCD principles into MDO development would target and maximize human factors to elevate the overall performance of forces within the Alliance. It is akin to a finely crafted instrument designed specifically for the musician who will play it with ease and precision.



*The NATO Airborne Early Warning & Control Force is one example of a multinational unit at the tactical level that trains and operates together to protect NATO nations' airspace.*

The shift towards a human-centric mindset complements top-down strategies in developing an MDO-enabled Alliance. By taking a bottom-up approach, the JAPCC identifies opportunities to prioritize efforts in education and training, the use of technology, and evaluating mission-focused scenarios to identify gaps across the Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities, and Interoperability (DOTMLPFI) framework. This synergistic approach combines performance requirements with strategic guidance to propel us towards action.

## Education and Training

For NATO to effectively implement its MDO concept, education and training must be improved at all levels within the Alliance. This means addressing member nations' varying capabilities and readiness, and developing a cohesive strategy for sharing information, promoting continuous learning, and bridging knowledge gaps.

While the Alliance's MDO concept is well-known at the strategic level, its application and understanding

diminish at the operational and tactical levels. This disparity hinders the successful implementation of MDO strategies, highlighting the importance of a comprehensive approach to education and training. Bridging this gap between echelons cultivates a force that operates seamlessly across multiple domains and enables a holistic approach to military operations.

To achieve this goal, ACT must take on an active role in disseminating knowledge about MDO through targeted information campaigns. NATO Centres of Excellence (COEs) can support ACT's efforts in this area. As one of NATO's COEs, the JAPCC actively plays a role in increasing the Alliance's understanding of MDO and has provided educational briefings at key events such as Ramstein Ambition, command and control seminars, NATO's Tactical Leadership Programme (TLP), and national air conferences. These efforts promote a comprehensive understanding of MDO principles at various levels within the NATO structure.

Although each nation is responsible for providing well-trained forces for NATO's needs, there are disparities amongst member nations in terms of capabilities and development. A collaborative training approach



*Live exercises are a platform for validating proposed solutions and identifying unforeseen challenges.*

addresses these discrepancies to ensure a unified development of MDO within the Alliance. As an example, national air warfare centres, NATO COEs, and ACT can all play a role in creating and implementing a cohesive development program for Joint Air and Space Power. National air warfare centres offer expertise and current knowledge of national developmental levels, which can contribute to tailored training programs. NATO COEs bring subject-matter knowledge, and their organizations have internal structures to support NATO education and training. ACT can coordinate these efforts as a driver of NATO transformation to ensure a unified development plan that aligns with Alliance standards. An example of incorporating this opportunity should be regularly scheduled working seminars to align and coordinate Alliance efforts towards high-priority requirements. This collaboration should target force developmental differences and improve overall human performance for MDO readiness.

A centralized knowledge hub specifically dedicated to MDO is needed to support this collaborative endeavour. Creating an online hub for MDO would serve as a central resource for publishing guidance and facilitating communication about new or emerging concepts, ideas, and thoughts related to MDO. This

hub should be accessible for all NATO personnel, promoting continuous learning and adaptation to the ever-evolving nature of multi-domain warfare.

By implementing regular collaborative training and education measures, NATO can take additional steps towards cultivating a knowledgeable and skilled force capable of meeting the challenges of modern warfare while considering the varying levels of development within the Alliance.

### **Technology: Human-Centred Design**

At its core, HCD is a reminder of our responsibility to foster a complimentary relationship of humans supported by technology. It goes beyond simply creating advanced systems; it requires us to consider how these systems will interact with our inherent abilities and limitations as human beings. By prioritizing the individuals' needs and experiences, we can ensure that technology serves as a tool for enhancing our lives, rather than controlling them.

As NATO continues to prioritize the digital transformation of its forces, it must consider a human-centric approach. While advanced technology can certainly

enhance capabilities, a highly skilled and adaptable force is essential for effectively utilize it. Relying solely on technology may lead to underutilization or misapplication in complex operational environments. Moreover, adversaries are constantly adapting and developing countermeasures, making it imperative that personnel can quickly adjust tactics and strategies. Therefore, investing in HCD must remain a top priority to ensure the success of NATO's digital transformation and overall mission.

Technology should act as an enabler, specifically designed to support the user rather than dictating operational procedures. It is not uncommon to find disparity between how engineers design systems and how users need to operate them. The mismatch between engineer-centric design and user-centric operation often results in a usability gap, leading to decreased productivity and increased errors. Delays in real-time execution due to such usability gaps could result in unacceptable risk-to-mission and risk-to-forces. An HCD ap-

proach would incorporate user feedback and iteratively refine the interface to align closely with the end users' mental models and operational needs.

NATO's current focus on the Alliance's digital transformation is a top-down approach that aligns technology with MDO objectives. However, a complementary bottom-up approach is essential to ensure that technology is inherently user-centric. HCD principles must guide the development of technological solutions to maximize user performance. This dual strategy recognizes the need for integration by design across all nations within the Alliance, fostering a cohesive technological ecosystem.

### Human Performance Through Experiential Scenarios

Activities such as mission-focused scenarios, wargames, and exercises provide a bottom-up approach that complements top-down MDO strategies. This method allows for a thorough analysis of the combined performance of forces and identifies any deficiencies across





*To truly achieve a multi-domain solution, it is imperative to include the right representatives from all services and entities with a shared mindset focused on domains and effects rather than service or component.*

DOTMLPFI. By utilizing models like AIRCOM's inaugural Weapons and Tactics Conference (WEPTAC), a structured framework can be applied to address and resolve these gaps systematically.

WEPTAC, as an illustrative model, involved tactical operators developing plans for specific tactical challenges and subsequently identifying necessary changes in policies, procedures, and procurements to maximize combined performance and achieve objectives while minimizing risks. This process helps prioritize efforts to resolve gaps within the DOTMLPFI framework, resulting in a more efficient approach to improving performance. The mission-focused scenarios served as a conceptual testing ground, revealing areas for improvement within operations.

Following the thorough planning phase held at WEPTAC, AIRCOM's next crucial step is to execute the plan, or portions of the plan through comprehensive live exercises. An action phase provides valuable opportunities for operators to test and refine their operational approach in a controlled environment. Live exercises act as a platform for validating proposed solutions and identifying unforeseen challenges that may arise in the real-world applications of the plan. The insights gained during this performance phase are integral in shaping the feedback loop for continuous improvement. These lessons learned are then integrated into subsequent WEPTAC sessions, contributing to

refining tactics, strategies, and DOTMLPFI elements. Through this iterative process, the force's approach to mission-focused scenarios evolves and adapts, remaining agile in the face of emerging challenges and advancements in technology and tactics.

The first and most vital recommendation from WEPTAC is to address the air-focused planning for a missionized scenario involving multiple NATO components. To truly achieve a multi-domain solution, it is imperative to include the right representatives from all services and entities involved in providing effects. Such a collaborative effort harnesses the collective expertise of diverse entities, resulting in a more multi-domain, comprehensive, and effective planning process.

Furthermore, to enhance the exercise phase, it is highly recommended to incorporate a virtual component. Not all effects and tactics may be available in live exercises, making the virtual realm an invaluable tool to test a wider range of capabilities. This also adds an element of secrecy, safeguarding sensitive tactics and developments from outside observation.

However, including a virtual component highlights a critical discrepancy within NATO: the lack of integrated virtual training amongst its members and services. To rectify this issue, urgent investment must be made to acquire standardized and integrated virtual training platforms. A cohesive and interoperable approach to

virtual training exercises specifically supports optimizing human performance and ensuring readiness and effectiveness across all levels of the alliance.

Ultimately, incorporating mission-focused scenarios, exemplified by models like WEPTAC, offers a robust methodology for identifying and addressing DOTMLPFI gaps in an MDO-enabled force. This bottom-up approach complements overarching MDO strategies, providing a dynamic and adaptive framework for enhancing the combined performance of NATO forces in the complex and evolving multi-domain battlespace.

## Conclusion

The challenges faced by NATO in our current era are multifaceted and intricate. To address these challenges with resolute action, a comprehensive approach that places human performance at its core is crucial. As MDO becomes increasingly important, shifting towards a human-centric mindset is imperative for optimizing Alliance capabilities.

Furthermore, the success of NATO's endeavours hinges on integrating both top-down strategies and bottom-up approaches. This necessitates a synergistic fusion of education and training, incorporating human-centred design principles in technological advancements, and performance improvement through mission-oriented scenarios. By highlighting the significance of human performance in these critical areas, NATO can fortify its readiness and effectiveness, ensuring adaptive responses to the evolving complexities of modern warfare. Ultimately, the human element remains central in shaping the alliance's response to the interconnected and ever-changing security landscape of the 21<sup>st</sup> century. ●

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### ABOUT THE AUTHOR

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Colonel Niebuhr entered the Air Force in 2001 as a distinguished graduate from the Air Force Reserve Officer Training Corps.

After his commission, he attended Euro-NATO Joint Jet Pilot Training and completed the F-16 Basic Operational Training Course as a distinguished graduate in 2004. Colonel Niebuhr has worked in various flying assignments at the squadron, group, and wing level, including operational experience in NOBLE EAGLE, ODESSEY DAWN,

ENDURING FREEDOM, RESOLUTE SUPPORT and FREEDOM'S SENTINEL, which included two deployments to Afghanistan. He has over 3,300 flight hours and 190 combat sorties in the F-16.

Colonel Niebuhr's educational background includes a Bachelor of Science in Applied Physics, a dual Masters of Human Relations and International Relations from the University of Oklahoma, and a Master of Strategic Studies from Air War College, Maxwell AFB.