Chapter 9

An AI Enabled NATO Strategic Vision for Twenty-First-Century Complex Challenges

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Abstract

Constant transformation plays a crucial role in the future success of the NATO Alliance. In the contemporary security environment, those who can get the latest technology to the war fighter faster will tend to enjoy a comparative advantage, unless that technology in turn blinds the organization to alternatives. Thus, the author lays out a strategic vision for AI enabled transformation for the Alliance detailing NATO's ability to adapt throughout history, introducing contemporary efforts for AI enabled tech solutions for NATO, but also pointing out the necessity of organizational learning.

His conclusion is that in an age where technological development is exponential, the Alliance appears increasingly unable to deal with the problems related to the exponential technology disruption. Complex contexts require a different mindset, and NATO has to look for new AI enabled tools, to face the increasing number of wicked problems. Most importantly he points out that building a platform with AI enabled technological solutions is only one side of the coin. There is a need for an organizational one as well which connects the different components together, and creates interoperability within the Alliance. As NATO incorporates new AI solutions, there is a need for introducing radically new training and education solutions, and create a framework for what the author calls Mission Command 2.0.

Keywords: Transformation; complexity; change; design thinking; mission command; NATO

In the twenty-first century, NATO has largely struggled with how to organize, strategize, and act effectively in increasingly complex and emergent contexts where the previous distinctions between war and peace have blurred beyond comprehension (Bousquet, 2008).

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Governments and their militaries continue to experience radical and entirely unforeseen calamities that defy historical patterns and essentially rewrite the rulebooks. These popularly termed "black swan events" continue to shatter any illusion of stability or extension of normalcy in foreign affairs.

The Alliance appears increasingly unable to deal with the problems related to the exponential technology disruption using traditional planning and organizing methodologies alone (Kupchan, 2017). What had worked well previously and made NATO the most prevailing defence alliance, no longer appears to possess the same precision and control.

The formal planning process (NDPP), the foresight methodologies, and the organizational learning methods, initially developed to cope with Cold War Era large-scale military activities in "a conventional, industrialized state vs industrialized state setting" (Jackson, 2017) are seemingly incapable of providing sufficient means of getting the organization unstuck, and there is a constant search for tools to improve them.

Within this new and increasingly chaotic context, NATO has to fulfill all three core tasks at the same time, which requires new and noble approaches from policymakers, and military personnel alike. The Alliance's complex decision making processes are tested on a daily basis in multiple domains supported by expansive technology, social media, propaganda, and the malicious activity in the cyberspace. This canvas, upon which rivals can create never-before-seen complex problem-sets, defy previously accepted definitions for conflict and war.

Complex contexts require a different mindset while still maintaining the consensus-based decision-making along with different awareness and appreciation (United Kingdom Ministry of Defence Development Concepts and Doctrine Centre, 2016). In simplistic settings, organizations see things they have previously experienced (Paparone & Topic, 2017), and for NATO, an organization with so much success in the past, these experiences can be an obstacle to change in today's VUCA (volatile, uncertain, complex, ambiguous) world. Complex contexts often have only one repeating and predictable process: an organization will continue to experience things they have never seen before that marginalize or defeat all established practices and favored tools (Tsoukas, 2017).

When an organization encounters things they have experienced previously in some format or context, they can reapply approved processes to address these problems, often in an analytic and optimization-fixated approach to reduce and increase stability (Ackoff, 1973). Yet the question remains, what does an organization do when they experience something they have never seen before?

One aspect of the ongoing organizational and mindset change in NATO is an increasing need to look for new tools. In our digital age, AI (artificial intelligence) seems to be the tool of preference for large bureaucratic organizations to tackle strategic challenges, therefore, in this chapter I suggest that as part of the response to the changes in a complex environment, NATO should introduce "AI enabled tools" to address the wicked problems in future foresight, organizational learning, and decision-making.

To prove the point, this chapter will first look into NATO adaptation and present contemporary AI approaches and provide a glimpse into the vision for NATO's AI enabled organizational transformation of the Alliance, and finally, present a strategic vision for AI solutions to solve complex security problems.

NATO Adaptation: An Evolution of Change and Collaboration

Today's environment is inherently complex with an increase of key stakeholders as well as the exponential increase in the connections between these players. With the escalation in technology and information exchange, NATO's operational areas are increasingly challenging and potentially chaotic. In some regions, NATO is facing a broad range of threats simultaneously. The Alliance has come to realize that what it was designed and optimized to do is no longer applicable to today's VUCA battlefield. Complexity and uncertainty seem to be the norm (Boulding, 1956; Pondy & Mirtoff, 1979), and for an international organization with much history, legacy, and past success like NATO, it is a very difficult moment, which requires organizational transformation and adaptation.

Adaptation is certainly not new to the Alliance, which has a long history and has undergone several focus shifts before. In fact, the Warsaw Summit acknowledged the fourth phase in NATO history, where "there is an arc of insecurity and instability along NATO's periphery and beyond…Today, faced with an increasingly diverse, unpredictable, and demanding security environment, we have taken further action to defend our territory and protect our populations" (North Atlantic Treaty Organization, 2016). This modern context of uncertainty and emergent developments places NATO within a new world where many of the traditional "tools" in the Alliance toolkit no longer work or result in bizarre outcomes.

The Alliance since its creation in 1949 has mainly focused on collective defense. However, following the fall of the Berlin Wall in 1991 an era of cooperation began, where expansion (especially from the former Warsaw Pact countries) and the development of partnerships (including Russia) became the primary focus. In 2001, NATO's focus shifted again towards expeditionary operations and crisis management with a strong emphasis on Afghanistan following the terrorist attack on the US.

Thus, adaptation is not new. Rather, NATO has been an adaptive organization throughout its existence (Stoltenberg, 2015). As the tempo and thrust of change have accelerated and altered the rules of the game, beginning in 2014, a new NATO strategic focus has emerged and come into view (Dunford, 2017). Marked by the past two NATO Summits as important milestones along the path for NATO's future, the Alliance embarked on a journey of organizational transformation at an unprecedented pace. While NATO's essential mission remains unchanged, goals in increased adaptation, ability to anticipate change, and increasing both efficiency and transparency were noted as new benchmarks in the Summit communiques.

Three years ago at the NATO Summit in Wales in 2014, NATO leaders were clear about the security challenges on the Alliance's borders. In the East, Russia's actions threatened Europe, on the Alliance's south-eastern border, the ISIL terror campaign posed a threat. Across the Mediterranean, Libya was becoming increasingly unstable. The Alliance's leadership took decisive steps to address these challenges and reaffirmed the central mission: the shared responsibility of collective defense. Continuing this adaptive trend, Allies agreed to an increase of NATO's presence in Central and Eastern Europe with additional equipment, training, exercises, and troop rotations.

Following the Wales Summit, at the *NATO Summit in Warsaw* in July 2016, the Alliance had even more emergent problems and challenges to grapple with. At this time, NATO was engaged in all areas of its core tasks simultaneously and often in overlapping and confusing ways. To counter these challenges, the US quadrupled its funding for the European Reassurance Initiative (ERI) and sent more troops to Europe, who were accompanied by other NATO Allies to serve as a deterrent force along NATO's eastern border.

NATO is moving ahead at a rapid pace for a large multinational bureaucratic organization; however, adaptation and transformation is never an easy process. Preparing for the future, and building *strategic foresight*, is becoming increasingly difficult. There are no blueprints, rules, or best practices anymore, and frequently an organization's successful tools from yesterday actually work against it in discovering tomorrow's challenges. Today, when security challenges demand a different kind of force, agility is essential. Thus, *speed* is another problem that can be addressed through increasing operational agility and flexible thinking. NATO's adaptation measures introduced above have partially addressed this challenge. A third issue is a recognition that a major cornerstone of many of today's emergent security challenges is the pattern of power shifts toward networks. Since the number of key stakeholders in any operational setting has increased, *the Alliance has to think and act like a network as well*, and this requires institutional adaptation beyond what had previously been sufficient in education, professionalization, and organizational transformation.

NATO clearly has a high potential for adaptation and transformation. However, given today's mindset, the Alliance leadership faces a critical choice. They believe that they must choose between tackling complex challenges (adapting) or responding as a traditional bureaucratic organization as they attempt to give adequate responses to emerging challenges in an age of constant disruptions (operating). Many large military organizations face the same challenge; a tension between an operational mindset and adaptive experimentation. The reality is that NATO is quite capable of doing both approaches at the same time. Allied Command Transformation (ACT) has the potential to contribute to NATO's overall adaptation, while Allied Command Operations (ACO) can focus on the more traditional end of the spectrum while also receiving facilitation and transformative abilities from ACT's adaptive efforts. NATO's command structure with the two strategic commands (and their different functions) enables the Alliance to operate and adapt at the same time, the question is how?

In order to thrive in a VUCA environment, when challenges are increasingly complex and interrelated, NATO *needs to use novel technology, like AI and a radically different mindset on an everyday basis* to engineer new solutions. A new strategic approach, based on this mindset, is needed when the organization "needs what does not yet exist" so that it can gain or maintain relevance, as well as gain a strategic and tactical advantage in emergent futures (Nelson & Stolterman, 2014).

NATO Transformation and AI

In recent years, NATO has been experiencing the most urgent organizational transformation of its history, and is looking for answers through a very thorough foresight process. There is no question that the strategic environment is changing rapidly, and there is an acknowledgement that the Alliance is facing simultaneous dangers both geographically (mainly from the East and from the South) on a much wider scope than ever before. Europe seems to be an importer of instability now, with an increased risk of traditional conflict, as well as emergent crises initiated by individual actors with ideological differences that will inspire irregular warfare. Thus, NATO must be prepared to address the spectrum of chaos and conflict on a global scale, regardless if it is nation-driven or inspired by rogue individuals with a cause.

These challenges were discussed as part of the Washington Project, an Atlantic Council supported event initiated by ACT in 2016. The principal finding of this event was that the Alliance must be revitalized for the new world, and an overarching strategy must rely on "NATO's ability to provide a full spectrum deterrent and defense tools to provide collective defense for all its members, together with an ability to project stability and resilience beyond its borders using an array of tools for crisis management" (Binnendijk, Hamilton, & Barry, 2016).

Building a "full spectrum" deterrence and defense toolkit was a topic at the Warsaw NATO Summit as well. Leaders at this meeting emphasized that there is a need to develop continuous strategic awareness and procedures for rapid decision-making. These capabilities in the digital age cannot be imagined without the active engagement of the innovation ecosystem and seeking AI solutions already out there on the market.

Experts in NATO have realized that building a comprehensive and integrated strategic awareness can only be achieved through information fusion, Big Data analysis (making sense out of the huge data sets), and sharing. Moreover, this initiative must address partners (especially the EU and NGOs, and think tank communities) as well, and enable them to contribute to information fusion. This networked-based approach requires new technological solutions, as well as a new kind of thinking to forge a new mindset based on innovative, out-of-the box thinking.

These ideas were also supported by other strategic documents, highlighting that "NATO must add resilience as a core task to its existing core tasks of collective defence, crisis management, and cooperative security" (Kramer, Binnendijk, & Hamilton, 2015). The drive (need) for innovation and leadership was also

highlighted, emphasizing that innovation will be a pre-requisite for leadership across all elements of national power. In addition, there is also a need to expand synergies between and among the key elements of the innovation landscape to encourage diverse approaches for capability development (Kramer & Wrighston, 2016).

Maintaining the strategic advantage via implementing technological advances will help NATO maintain the decision-making advantage essential for supporting global security. Keeping the edge has been a major driver for the largest member of the Alliance (US) as well. The US has been the world's leading and technological powerhouse after World War II; however, given China's and Russia's commitment to advances in technology and specifically to AI, there has been a downward shift in this area. The US is faced with a significant challenge that it is attempting to address to catch up with, but in the twenty-first century advances in AI. The race between the US and its adversaries is on for achieving information superiority via advances in technological innovation (Engelke & Manning, 2017). Specifically, regarding AI, there is an increasing competition from China, which has declared an intent to become a world leader in AI technologies in the next 10 years and has put significant resources behind this effort as well.

In an age where technological development is exponential, and the context is dynamic and rapidly changing, there is an operational imperative to address these challenges given that the environment is becoming more and more unpredictable. NATO must bolster its commitment and foresight for implementing technological advances in their operations, as well as address its organizational learning processes. The accelerated rate of change in technology demands a need to speed up organizational learning processes. It is not a surprise that the GLOBSEC NATO adaptation initiative has also highlighted the "One Alliance" concept. This policy emphasizes that "NATO needs a forward-looking strategy that sets out how the Alliance will meet the challenges of an unpredictable and fast-changing world" (GLOBSEC NATO Adaptation Initiative, 2017). This policy encourages NATO leaders to commission a strategy review, with a future war strategy that fully integrates the full spectrum (hybrid warfare, cyberwar, counterterrorism, and hyperwar).

These changes cannot be initiated, of course, without a thorough review of the future context and the security environment. This is the job of NATO's ACT, which has completed its Strategic Foresight Analysis (SFA) report in 2017. General Denis Mercier, Supreme Allied Commander Transformation (SACT) has emphasized in his foreword that "the rapidly changing complex security environment will continue to be the main driver for NATO's adaptation efforts" (NATO Allied Command Transformation, 2017). The document itself builds upon the SFA 2013 and 2015 update reports with the goal to identify trends that will shape the future strategic context and derive implications for NATO out to 2035 and beyond.

This long-term military transformation effort is also supported by another hallmark document, the Framework for Future Alliance Operations (FFAO), which is designed to improve the Alliance's long-term perspective and to inform the defense planning processes, both for NATO overall and its member countries alike.

The SFA puts a special emphasis on technology and Chapter 4 of the document highlights that "the introduction of Artificial Intelligence (AI), autonomous systems, and other disruptive technologies are expected to enable humans to achieve a profound new state" (NATO Allied Command Transformation, 2017). The document forecasts a new age of collaboration between humans and machines, and recognizes that this may bring both advantages as well as risks for humanity.

The accelerated rate of technological advances present significant interoperability challenges to NATO as well as increased debate regarding the moral values and ethical principles associated with its use. Advances in AI technologies and related autonomous system designs will also have a huge effect on acquisition and life-cycle management processes. The ubiquitous nature of technological advances such as AI, et al. will be afforded to everyone regardless if they are private individuals, corporations, nations, and/or nonstate actors. These technological advances will enable disruptive behaviors, and present challenges regarding existing frameworks. The current near-monopoly of states for high-tech weapons continues to decrease. Data are becoming a strategic resource, and the increasing number of sensors in a global network generates both operational opportunities and weaknesses. Because the commercial sector is leading the development in disruptive digital technologies, the Alliance must build systems to collaborate with the innovation ecosystem. Commercial off-the-shelf solutions are increasingly available at a lower cost and are rapidly developed, such that nation state and nonstate actors are actively searching for dual-use technologies to incorporate them into their own capability development processes.

The Alliance seems to understand that reliance on disruptive digital solutions, such as AI, will create vulnerabilities as well, and overall resilience of the force is becoming a critical strategic issue. The interconnectedness with large multinational corporations also highlights the need of critical infrastructure protection because in a hybrid warfare scenario, every system that supports military operations (such as communications, power generation, transportation, water supply) can be and will be a potential target.

At the operational level, the FFAO points out that there are certain military implications of the above-mentioned strategic trends. These factors intend to inform the transformation of forces within the Alliance, including political development, long-term requirements, and capability development.

These military implications fall in the main stability areas of project, engage, consult, command and control, protect and inform. At the heart of the system is a mission-command approach, which needs to be updated for the modern digital era. AI will enable both a superior situational awareness, to make operational decisions better and faster, and also the decentralized execution of human–machine teams. This concept of Mission Command 2.0 (Porkoláb, 2019) has huge implications on how future forces will fight on the modern battlefield.

The central idea of Alliance transformation is that in order "to keep the military edge and prevail in future operations, NATO forces must continually evolve, adapt, and innovate and be credible, networked, aware, agile, and resilient" (NATO Allied Command Transformation, 2018). AI solutions will play a crucial

role in these aspects of force modernization. Recognizing this pressing need to maintain a technological edge, NATO's Science and Technology Board requested the NATO Science and Technology Organization (a network of nearly 5,000 scientists and engineers) to identify potential wild cards, and start engineering potential solutions. In 2016, 12 technology areas were identified with a game changing impact on future military operations. This report has identified AI and its potential impact to replace human decision-makers, autonomous robot or vehicle control, automated information fusion and anomaly detection (NATO Science and Technology Organization, 2018).

There are also other technology trends recognizing the importance of AI with similar implications (Deputy Assistant Secretary of the Army (Research and Technology), 2017) and the 2018 US DoD AI strategy specifically highlights that "AI is rapidly changing a wide range of businesses and industries. It is also poised to change the character of the future battlefield and the pace of threats we must face" (US Department of Defense, 2018). Another UK strategic document is focusing on opportunities for the future of decision-making and points out that "Artificial intelligence holds great potential for increasing productivity, most obviously by helping firms and people use resources more efficiently, and by streamlining the way we interact with large sets of data" (United Kingdom Government Office of Science, 2015). The European Union's AI Ethics and Guidelines provides a framework and foundations for a trustworthy AI, and details the technical and nontechnical methods for development of such AI systems (European Commission, 2019).

In light of the above strategic guidance, it is not a surprise that AI is at the core of ACT's future technology development focus, and the NATO strategic command is currently looking at AI solutions to enhance the lessons learned process, strategic decision-making, and the NATO defense planning processes alike.

In sum, NATO is no exception, and (just like all other bureaucratic organizations) the Alliance is heavily involved in keeping up with the current technological trends, AI being one of the most prevalent topics. In April 2018, SACT General Denis Mercier stated that "We must also internalize the urgent need for developing innovation in order to better understand the threats and opportunities in our strategic environment, and ensure that throughout NATO, all understand the challenges of interoperability, at the technical and political level. ACT must therefore be in a position to bring these issues to the attention of decision-makers in the Alliance, at the North Atlantic Council and Military Committee, and organize regular meetings at that level". During one of these meetings, known as the "SACT conference" which was engaging the NAC (North Atlantic Council), they focused on AI and the many challenges NATO has to face related to disruptive technological changes. In front of all NATO leadership, SACT joined Sophia the robot on the stage to discuss security issues, in order to demonstrate the level of sophistication for AI enabled systems.

Admiral Manfred Nielson also highlighted that "Human augmentation, underpinned by artificial intelligence, will be the extension of centuries of human endeavor in which people sought to become faster, stronger and smarter through the use of tools and machines" (Nielson, 2018). Deputy SACT emphasized that

NATO must employ humans and AI teaming efficiently and ethically. For that, NATO must achieve an effective convergence of technology, operating concepts, and adapt its organization and processes. NATO's ACT is leading that charge.

AI and autonomy will surely drive NATO to require new processes, new skills, and new policies, and these changes will require political willingness and changes in the legal frameworks in order to fully exploit the potential of the new technologies. NATO has to leave its comfort zones and increase its pace at all levels. ACT's leadership understands that innovation at this level requires a sustained push from all levels in the hierarchy, and also requires buy-in from staff members within defense organizations. This strategic approach related to AI and autonomy serves as the basis for the work carried out by ACT, and is manifested in multiple projects ranging from using algorithms to make sense of the last 20 years of operational lessons learned, to enabling and enhancing the NATO defence planning process (NDPP).

AI was one of the key topics at the 2018 COTC (Chiefs of Transformation Conference) as well. Following this event, there was a call-out request for information (RFI) for submitting their ideas about AI-based technologies. The chiefs of allied and partner nations discussed the AI topic in depth and their likely impact on future considerations at ACT's annual Chiefs of Transformation Conference in Norfolk, Virginia.

However, worth noting is the fact that *AI is primarily not a technology problem in and of itself*. As US Secretary Mattis said "success does not go to the country that develops a new technology first, but rather, to the one that better integrates it and more swiftly adapts its way of fighting" (Mattis, 2018). Rather, AI is an enabler that empowers individuals with information that they decide to integrate into their understanding of the operational environment and use it to inform their decision-making.

It was also realized by ACT as well, since the organization has been supporting a battle cry for organizational transformation for a long time. NATO leadership understands that building a platform, which is the goal of multiple technological solutions a technological fix, is only one side of the coin. There is a need for an organizational one as well, which connects the different components together, hence the need for design application and education, which is aimed at speeding up organizational learning. The idea is not new, since multiple NATO partner nations are already implementing and running design programs at the national level, and NATO already has some design networking and collaboration abilities within the Alliance to leverage.

NATO ACT has taken this a step further and started to establish a formal design education program, at the NATO School in Oberammergau (where the first course ran in 2019) as well as to support project design modules (Mobile Education Teams) to overseas and even remote locations.

Combining AI tech solutions and design thinking, which is a mindset for exploring complex problems or finding opportunities in a world full of uncertainty, and exploring questions such as *what is*, and then imagining *what could be* with innovative and inventive future solutions, could be a very potent combination for lasting organizational change.

While most of AI debates in NATO often devolve into arguments over "killer robots", AI technological changes supported by a new mindset will introduce new processes for information management that will have a profound impact on NATO's organization, operations, and interoperability itself. Successful adoption of technology and the ability to reinvent the way we fight will help the Alliance maintain its competitive edge and deterrence capability.

Thus, constant transformation plays a crucial role in the future success of the Alliance. There is a need to increase operational agility, the ability to sense, and to build a network, but this complex strategic approach must be supported by modern technology tools, like AI, and a new strategic mindset that can enable the whole organization to utilize this new technology. In the contemporary security environment, those who can get the latest technology to the war fighter faster will tend to enjoy a comparative advantage, unless that technology in turn blinds the organization to alternatives.

A Strategic Vision for NATO's Organizational Transformation

NATO has been adapting throughout its history, but the tempo and speed that are required to deal with potentially disruptive challenges, like AI, push the Alliance to the edge of its capabilities, and recently NATO has been experiencing one of the most urgent organizational transformations in its history.

In an age where technological development is exponential, the Alliance appears increasingly unable to deal with the problems related to the exponential technology disruption. Complex contexts require a different mindset, and NATO, which has been very successful in the past, has to look for new tools to face the increasing number of wicked problems. AI enabled tools are one of the most important ones in the arsenal, but we have to put AI into a strategic context and also define the root cause of the problem, in order to successfully apply AI enabled solutions.

In the contemporary context, organizational learning seems to be the main challenge, and it must be accelerated, together with the mindset and culture, which must be changed as a result of the adaptation process. Generating alternative options and enabling their rapid implementation throughout NATO seem to be the best way to maintain the competitive advantage in today's complex context.

Thus, building a platform with AI enabled technological solutions is only one side of the coin. There is a *need for an organizational one* as well which connects the different components together, and creates interoperability within the Alliance. As NATO incorporates new AI solutions, there is a need for *introducing radically new training and education solutions*, in order to speed up organizational learning. As AI is taking over the world and changing industries with unprecedented speed, militaries appear to be constrained by traditional and resistant-to-change centralized hierarchies. Thus, ACT has a leadership role to develop, shape, and nurture the defense applied design-thinking cadre for NATO.

In order to challenge current organizational learning practices, design thinking can support innovative thinking to generate creative responses to disruptive technologies. While NATO as an organization already has executed design

activities within various locations and for a variety of missions, those efforts were individually inspired and local with respect to the entire enterprise. As multiple nations now *incorporate design thinking in formal military education* within services, war colleges, as well as at universities, NATO should use this tool to enable people with the mindset to reimagine the way we learn and fight modern war.

Today, analytic-based military planning alone is insufficient, and action without critical reflection and novel creation appear inadequate. There is an operational imperative for NATO to adopt a new approach to the way they think about warfare. Design thinking affords NATO to change its traditional view of planning for instability situations and adapt to the new world order that requires creativity, innovation, and sense-making strategies to *think about command and control in warfare* from a new perspective.

A new generation of leaders will look at Mission Command differently as well. Right now, we are still using the original Mission Command concept with a goal to establish a decision-making cycle that works faster and more effectively than our potential adversaries. We must deliberately build command and control relationships that maximize operational efficiency, and create an operational tempo where decentralized units can thrive in uncertain situations. It fosters a leadership training approach, where a mission command culture often improves resilience by enabling forces to perform the correct actions that lead to mission accomplishment when a centralized command system is not optimal.

We also have to anticipate that AI will change that in the near future. *Mission Command 2.0 will enable leaders in large bureaucratic organizations to oversee increasingly complex operations and situations*, and support an AI assisted *emergent type of commander's intent*. At the same time, decentralized execution of small teams will be replaced by the *decentralized execution of human–machine teams,* autonomous swarms of machines, with a "human in the loop".

This leadership philosophy, which will be triggered and supported by AI technology, will transform decision-making into a collaborative and agile process, and empower leaders at the top of the bureaucratic institutions to *delegate intent co-creation authorities* to the lowest levels of the command chain. If leadership training in the Alliance prepares junior leaders to take ultimate responsibility, and look at their actions as experiments, then this new AI platform of a *collaborative intent creation* can eventually replace intent originating solely from top leaders. It is a radical departure from the traditional military mindset.

To implement this new "AI friendly" mindset, and organizational methods, an AI focused strategic vision is required, with novel educational solutions, as well as methods to deliberately nurture people to adopt the new mindset within an organization. NATO has to gradually build up a larger population of AI educated professionals, and conduct multiple experiments during exercises that address NATO challenges based on the tools AI can support. The upfront costs of establishing a strategy-driven "NATO AI program" are minimal when compared to the costly programs involving new platforms. The return on investment though is huge. This *mindset shift can enable the Alliance to facilitate human–machine co-evolution, which in turn will change the way we address instability situations*.

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