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The Hague NATO Summit 2025

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The Hague NATO Summit 2025

The Hague NATO Summit:
The Euro-Atlantic great defence expectations

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The NATO Summit, in The Hague, was held in a Euro-Atlantic context of financial pledges to annually commit "5% of GDP on core defence requirements, as well as defence and security-related spending by 2025". Deterrence and collective defence remain, of course, two of NATO's core tasks. Lawrence Freedman, on his seminal work Deterrence, defined it "as a technique, a doctrine, and a state of mind" with material and non-material aspects that outline the limits of intentions and actions among contenders. This means that deterrence regards having the capabilities, but also the will to use them and to achieve given strategic objectives.

The internationalization of security challenges impacts the scope of means of deterrence due to growing interdependence, the prevalence of competing economic interests, and the presence of new technological developments in the conduct of warfare that will shape how the West, collectively, will deter and defend.

This will comprehend capabilities, other than military ones, being resilience, innovation and economic and technological leverage part of a whole-of-society approach to this new Euro-Atlantic defence, from core defence requirements to the protection of infrastructures and networks, and to the development of a defence industrial base.

As endorsed by NATO's Rapid Adoption Action Plan, with an overall time horizon of 24 months to commit, test, evaluate, verify, and validate defence products, the allies will have to focus on the "critical capability shortfalls, convoking the resources of traditional defence firms and "non-traditional suppliers" to develop new defence technologies and products, and explore new ways to foster a new defence business model."

This is expected to speed the planning cycle from identifying priorities and needs and, at the same time, to develop, acquire, and integrate new technologies (NATO's Rapid Adoption Action Plan § 8).

NATO's summit's main topic evolved around compliance with defence spending, with a threshold of 5% until 2035. However, the challenge that lies ahead will be how allies will find the right way to nationally finance defense spending, keeping public debt stable and national budgetary balance on track, while ensuring countries' welfare state standards.

It is important to remember that since the beginning of the war in Ukraine, the average expenditure on defense by European allies and Canada increased from 1.7% of GDP to 2% in 2024 and that 22 % of allied acquisitions were purchased in the American defence market. Throughout 2025, the majority of the Allies are expected to meet or even exceed the threshold of 2%.

In the aftermath of the Summit an array of issues persist. First, remarks on Ukraine's accession to NATO were replaced by a mere acknowledgement of continued military support to Ukraine and the inclusion of this support for Ukraine's defence when calculating Allies´ defence spending. Second, the existence of a tight timeline to meet the 5% GDP spending on defence, which allies have effectively to reach. This is contextualized by allies domestically and within the Alliance in different ways on where, how, and with what to spend. Third, the final NATO Declaration displays a continuous focus on prioritizing

NATO's north and east peripheries, as compared to the south, regardless of the deterioration of the security context in the Sahel and in the Middle East. And finally, the need to align defence capabilities priorities within NATO and the EU and the imperative to harmonize defence planning, capability development, and industrial and technological development among the 23 NATO allies, which are also EU member states. These are some of the challenges that remain after the Hague Summit.

With the unprovoked and unlawful invasion of Ukraine, the Euro-Atlantic community has a unique opportunity for unity and strength to deter and defend NATO's territory, and it has been a wake-up call for what NATO allies may be expected to meet in future warfare. Defence spending and capabilities acquisition alone will not solve the problems of Euro-Atlantic defence nor of a distant American ally. Public awareness in defence issues matters in the face of war in Europe and beyond. The clearer defence matters are conveyed by NATO and by allied national governments, the larger the impact will be on the perceptions, awareness, and public support for security and defence. This is a crucial matter for collective defence, its cohesion, resilience, and unquestionable trust of allies in the principle of mutual defence.

NATO's strategic relevance will definitely depend not only on its actual force posture and capabilities but also on its ability to adapt, to show willingness to employ its deterrence capabilities, and on how this intention is perceived by opponents.

Therefore, political will, public support, and the existence of able and willing security providers to deter and defend will contribute to increasing investments in capabilities, defence technologies, and industries, and that sum of wills and strengths will ultimately reinforce collective action to ensure the protection of our values and the freedom of our democracies.

Relief, But no Time for Complacency

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At The Hague Summit, NATO allies adopted an agreement on new force requirements. They decided on an unprecedented new defence pledge of 5% of GDP spending, a demand long held by President Trump, who responded by publicly endorsing America's commitment to NATO reflected in the Summit communiqué's "ironclad commitment to collective defence as enshrined in Article 5 of the Washington Treaty". This "5 for 5" *quid pro quo* was well-received by European allies, who feared that Trump might disrupt the Summit by launching a verbal attack on Europeans for "ripping off" the US military protection or by leaving the Alliance gathering early. Not everyone was in tune with the choreographed way in which Secretary-General Mark Rutte ingratiated the American President to achieve this result, but, ultimately, the Summit, despite its historic short working session, did manage to achieve some progress. In what some considered a landmark shift, Europeans agreed to more than a doubling of their defense expenditures to 5% of GDP by 2035, with 3.5% allocated to core military capabilities, consisting of troops, equipment, and weaponry, and 1.5% allocated to investment in dual-use infrastructure, industrial readiness, and resilience-related spending. In return, all allies, including the United States, recommitted to the collective defence guarantee that "an attack on one is an attack on all" and strengthened the deterrence component, which is the key element of NATO's strategy. To ramp up production of their defence capabilities, especially in air defences, allies agreed to enhance industrial cooperation.

The Summit communiqué was short but straightforward: Russia was termed a "long-term threat" to the Alliance, signalling that allies are in for a long haul *vis-à-vis* a confrontational relationship with Russia. While the communiqué only addressed Ukraine in one sentence, it guaranteed sustained

political and military support for the war-torn country. In addition, the allies agreed that military and investment aid to Ukraine would count towards the 5% defence spending, which signals that, despite seeing its integration prospects falling short of full membership in the Alliance, Ukraine is now more integrated into NATO's strategic planning and NATO's defence posture, further consolidating Ukraine's partnership-based relationship with NATO.

European leaders appear to have finally awakened to the radically transformed geopolitical reality and the end of the peaceful post-Cold War order. They now recognise that Europe must take greater responsibility for its security and defence moving forward. However, the transition to a more Europe-led Alliance will not happen overnight. After weeks of uncertainty, the US has decided to maintain its leadership role in NATO, recently appointing US Air Force General Alexus Grynkewich as Supreme Allied Commander Europe (SACEUR). Meanwhile, the ongoing US defence posture review, set for completion at the end of this summer, is expected to guide a coordinated withdrawal of American troops from Europe in the US's strategic repositioning in the Indo-Pacific.

Yet, despite the reassertion of unity and deterrence and the sign of relief felt by European allies, significant challenges remain for the future. Firstly, the United States is undergoing a defence posture review, which will lead to US troop reductions in Europe, with potential implications for the use by Europeans of US strategic enablers – such as ISR (Intelligence, Surveillance, and Reconnaissance), integrated air and missile defence, and air-to-air refuelling – that Europeans will find difficult to replace. Secondly, the communiqué lacked strategic clarity on Russia: by merely defining Russia as a "long-term threat", suggesting flexibility in the follow-up strategy, it highlighted the lack of unity in the perception of the threat needed to define a NATO strategy for Russia. Thirdly, the US's partial disengagement from support for Ukraine highlights the Trump administration's opposition to Ukraine as a future NATO ally. This was a far cry from last year´s Washington Summit declaration, which stated Ukraine's "irreversible path" to NATO. Taken together, the impact of these challenges means that Europe can no longer fully rely on the US deterrence and defence posture as its security guarantor and needs to develop the necessary capabilities to defend the continent. Fourthly, it will remain a challenge to ensure that the strategic priorities of NATO's northern and southern flank allies are aligned with the strategic purpose of the Alliance. Fifthly, no progress was made on NATO's evolving approach to its global partnerships, in particular the Indo-Pacific Four (IP4) countries, how this may reshape NATO's strategic posture beyond the Euro-Atlantic area, and how Allies view China. Sixthly, Spain strained the unity of the Alliance by negotiating an exemption and formally rejecting the 5% defence pledge, declaring that 2.1% of the defence allocation of GDP would suffice. Finally, it remains unclear whether European allies will have the fiscal room for maneuver to meet the 5% pledge or whether this defence spending target is ultimately unrealistic as it will strain governments politically if they need to make tough choices between cutting back on social programmes, increasing taxes, or incurring defence-related public debt. To avoid domestic political backlash or implementation delays, some governments may resort to creative measures, in particular with regard to the 1.5% on dual-use infrastructure and resilience. This increase in defence and deterrence capabilities, which Europe now urgently needs, may, however, prove insufficient if public opinions are not brought on board to mentally prepare for the new geopolitical environment in which a more Europe-led NATO will have to prevail. But, to end on a positive note, public opinion is shifting in many member states, with a growing majority of citizens, for example, in Portugal, Denmark, Estonia, Germany, Poland, and the United Kingdom, now supporting increased defence spending in the face of the long-term military and hybrid threats that Europeans will have to endure in the coming years. European governments need to act on it, now.

Spare a Dime?

The Southern flank in a post-Hague context

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Never underestimate NATO's ability to paper over internal differences but also to seemingly jump through its priorities from one summit to the other whenever necessity calls for. That is one way to sum up the proceedings that took place at The Hague on June 25. Indeed, not only was the final declaration brought down to a bare minimum, skirting away any other possible controversies, but the Alliance also managed to survive one more gathering to tell the story another day.

Needless to say, at the end, the announcement to increase collective metrics understandably took centre stage. Even if marked by considerable leeway, the 3.5% devoted to actual reinforced defence spending and the 1.5% reserved for the protection of critical infrastructure, networks, civil preparedness, resilience, innovation, and beyond, represented an evident breakthrough that many would have deemed unthinkable just six months prior.

Yet, the focus surrounding the agreement over these targets can also be interpreted under three different lenses: (1) as a token of unity in the face of US pressure on the remaining Allies; (2) as an accounting stratagem to kick the can down the road to 2035 (akin to the Wales pledges of 2014); or (3) by noting all the other topics that were bumped off the agenda to give room to that particular discussion.

In the latter category, among several examples, it is possible to make the case for the Southern flank. This classification includes, for all intended purposes, North Africa, the Middle East, as well as the Sahel and Sub-Saharan Africa. Following an internal debate on what the organization could and should do regarding this extensive area, the Allies adopted, in 2024, during the Washington Summit, the Southern Neighbourhood Action Plan, i.e., a roadmap to foster a reengagement with many of NATO's partners in the region, including those belonging to the Mediterranean Dialogue and the Istanbul Cooperation Initiative. The underlying goal was to try and counter the pervasive influence of NATO's adversaries while providing fresh impetus to an alleged 360-degree strategic approach to cooperative security efforts.

Fast-forward a year, and the results are less than encouraging. The promise of sustained or renewed high-level political dialogue with Southern partners is nowhere to be seen, and the extensive set of goals in the Action Plan has lost any semblance of political cover. Even the Office of the Special Representative for the Southern Neighbourhood, created for this very same purpose, stands as a shell of itself amidst new organizational downsizes. Some observers held out hopes that the Israeli-US attacks on Iran's nuclear facilities – and by extension, the limits of the South itself – would be considered during the Summit; however, the fact that the bulk of those operations had already ended by the time the leaders gathered at The Hague did not foster propitious conditions for that kind of debate.

This overall absence of the South from the Summit's discussions, in general, and from the final communiqué, in particular, can be framed under two reasonings. On the one hand, by blaming it on the unforgiving timing of geopolitical events, i.e., the issue was trampled on by more pressing concerns, such as the course of the war on the Eastern flank or the need to preserve NATO unity and appease the Trump administration. On the other hand, by inquiring whether NATO can indeed cater to all strategic priorities in equal fashion in a constant format. Regardless of where one falls in this debate, what does this omission truly signal? Given that state instability, terrorism, geopolitical competition, and other threats remain as relevant as one year before, if not more, talking about the South requires far more perseverance and creativity at the risk of being pulled indefinitely from the centre of attention.

Hence, looking forward, three elements can at least help generate some sense of progress. First, the abovementioned 1.5% target could potentially include a discussion over the protection of critical maritime infrastructure that connects the European continent to its Southern Neighbourhood. Even if developments will be, most likely, driven by what happens in the Baltic rather than by what happens in the Mediterranean or in the Gulf of Guinea, there is room to also explore these regions in the context of the new Maritime Centre for the Security of Critical Undersea Infrastructure within NATO's Maritime Command (MARCOM) in Northwood, UK.

Second, in recent years, NATO's Defence Capacity-Building (DCB) packages have helped to pave the way for significant inroads among partner countries and organizations in the South, who continue to value such specialized assistance. These initiatives are not easy to launch, sustain, or promote, but they do instil much-needed confidence on the ground. With little additional investment from Allies – especially those who have come back to this approach, like Portugal, Spain, France, or Italy – they could continue demonstrating the kind of technical expertise NATO can effectively provide.

Lastly, the expression "arch of crises" has been used and abused to a fault in the past, but in this case, it will not be enough to propel a serious rethinking of what it might entail when new and old crises start becoming more preeminent down South. The 2026 Summit, scheduled to take place in Türkiye, could therefore epitomize just enough symbolism to properly emphasize that what happens in the East invariably affects what happens in the South and *vice versa*. One can only hope that at that point it will be possible to spare a dime of attention for the Southern flank; until then, the Alliance will continue to ignore it at its own peril.

Shadows behind NATO's 5% defence spending pledge

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At the NATO Summit in The Hague, member states agreed to a spending target of 5% of GDP until 2035. The brevity of the Final Declaration leaves no doubt about the significance of the agreement for transatlantic relations. This agreement follows a lengthy process since 2014 in which the Allies initially aimed to reach a spending ceiling of 2% of GDP and then surpassed this to move towards higher ceilings. During this process, some countries, such as Spain, raised objections to the agreement that must be considered in view of its future implementation. These objections concern the percentage of GDP as a spending indicator and the calculation methodology behind the specific spending figures: 3.5% or 5%, and the annual evaluation of compliance with objectives.

Firstly, the percentage of GDP only measures budgetary input, not each ally's real contribution to NATO's military capabilities. In other words, it does not measure the operational output of the budgetary input. While some allies that contribute critical military capabilities in terms of both quantity and quality find it difficult to surpass the 2% barrier, others that contribute hardly any real capabilities boast about how close they are to reaching 5%. As mathematics shows, 5% of almost nothing is still nothing. Therefore, it is urgent to modify the burden-sharing indicators and establish new ones that measure each country's progress towards NATO's new resilience policy spending targets, which include military and industrial capabilities within 3.5% of GDP and resilience and civil preparedness within 1.5% of GDP, as set out in The Hague Declaration.

Secondly, given that the increase in spending requires an effort from taxpayers, the reasons for specific figures such as 2%, 3.5%, or 5% should be better explained to them. A lack of transparency in both national and allied calculations fosters doubts about the objectivity of spending. This has become evident in

the Spanish debate, where the government calculated that achieving the military capability objectives approved by NATO could be done with 2.1% of GDP, while NATO's Secretary General estimated that Spain would need to reach 3.5%. As both estimates are shrouded in secrecy, taxpayers must either have faith in these "magic" figures or join those who question the need for military spending in thinking that the figures are arbitrary. Similarly, since NATO will conduct annual follow-up assessments of each allied country, taxpayers should be informed whether their additional budgetary efforts are helping their country to meet core defence requirements of up to 3.5% of GDP, including the NATO Capability Targets. Public scrutiny will become more demanding as greater sacrifices are required of populations, and allies will have to increase their transparency. Either the strategic communication within the Atlantic Alliance will improve, or the Russian Federation will exploit public doubts to launch disinformation campaigns.

Another unclear element of The Hague Declaration concerns the transfer of responsibilities. The United States wants its European allies to take responsibility for Europe's conventional defence and other NATO's core tasks on its periphery, allowing the United States to focus on its strategic priorities in the Indo-Pacific region. This argument justifies the development of a European defence pillar within NATO and the European strategic autonomy, which favours societal support for increased budgetary efforts. However, the redistribution of responsibilities is not as clear, and there is no known roadmap to visualise the end state of the transition process or the handover sequence. The existence of a transition plan would put an end to the current procrastination of those who prefer to prolong their dependence on the United States for as long as possible and would make European allies, whether they belong to NATO or not, neutral or undecided, face up to the urgency of assuming responsibility for their own defence.

Finally, the Hague Declaration reiterates the Allies' conviction that Russia poses a long-term threat to Euro-Atlantic security. However, Allies' perceptions of the Russian threat differ depending on how far they are from Russia's borders. The same could be said with respect to other subregional threats, such as those from the south. Countries closer to Russia do not consider these threats to be as relevant as southern European allies do. This fragmentation of perceptions is subjective and could be diminished if political leaders advocate the necessary solidarity among allies. Similarly, in line with NATO's 360-degree approach, developing the Regional Plan South more tangibly would help Southern allies to understand NATO's contribution to their own defence. Otherwise, these countries will have to remain preoccupied with non-shared threats by other allies, such as the jihadist threat or the Russian-Chinese destabilisation in Africa and devote a greater percentage of their defence GDP to them.

Under the Sea:
Securing Europe's critical infrastructure

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Protection of critical undersea infrastructure has been a major theme of discussion at the June 2025 NATO Summit in The Hague. Despite the short final declaration only mentioning the commitment to spend on security-related infrastructure, leaders acknowledged this critical dependency, highlighting subsea infrastructure as a strategic vulnerability in the face of mounting hybrid threats. Beyond fiber-optic lines, the waters around Europe are crossed by many vital arteries electricity interconnectors, oil pipelines, and gas conduits that sustain Europe's economy and energy systems.

The North Sea, the Baltic Sea, and the Mediterranean are particularly dense with this infrastructure. Their tight clustering reflects Europe's deep economic interdependence but also its exposure. Subsea cables carry an estimated 97% of global internet traffic, underpinning government communications, financial transactions, and the daily

activity of firms and citizens alike. These cables are delicate: only shallow-water segments are reinforced, but deeper stretches often just a few centimeters thick rest unguarded on the seabed, leaving them exposed to attacks.

Three converging dynamics are reshaping the security landscape for Europe's and NATO's undersea infrastructure. First is the growing weaponization of connectivity, where geopolitical tensions increasingly spill into economic and technological domains. Rival powers not only compete in the construction of undersea cables along geopolitical dividing lines they also deliberately target each other's connections. Second is the behavior of malign actors, most notably Russia, which has demonstrated a readiness to disrupt the civilian and economic systems of rivals by attacking their critical infrastructure. These actions often remain in the grey zone: difficult to attribute, below the threshold of open conflict, and thus challenging to deter properly. Third, technological developments - from autonomous underwater drones to diver propulsion systems - have significantly lowered the barriers to conducting undersea sabotage, especially in shallow waters such as those of the Baltic and North Seas.

In the deeper North Atlantic, physical depth offers some protection. But this region is strategically vital for the protection of NATO's northern flank. Remote locations, such as Svalbard, the Faroe Islands, and Greenland, are connected to the mainland via just one or two fragile cables, creating tempting targets for disruption. An adversary seeking to disable or attack these outposts might sever their links before launching broader hostilities.

Subsea monitoring devices and listening posts are also vulnerable. Past damages coinciding with the passage of Russian ships raise suspicions of covert tampering. Russia is believed to be probing NATO's underwater surveillance capabilities in the area with increasing boldness. This concern was acknowledged at The Hague NATO Summit in June 2025, where allied leaders discussed the strategic imperative of securing subsea assets.

Europe's reliance on this infrastructure is growing. Energy interconnectors across the Baltic and Nordic Seas are helping the total decoupling from Russian oil and gas. The integration of Baltic states into the continental power grid, and similar efforts with Ukraine, have only increased the strategic value of these assets. The EU's green transition further reinforces this trend. Offshore wind farms and solar installations will contribute a growing share of the energy mix, connected by yet more subsea cables. Russian submarines and spy vessels have already been spotted mapping this emerging infrastructure around NATO's coasts, requiring adequate monitoring and deterrence.

Yet, 100% surveillance of even shallow seas is not feasible. Moscow has begun using "shadow fleet" oil tankers rusting, dubiously owned, and often registered to third countries as both smuggling tools and potential saboteurs. A fishing net or dragged anchor are enough to sever a fiber-optic cable or damage a small pipeline actions that allow for plausible deniability. Gaps between the UK, US, and EU sanction regimes leave room for exploitation, and those ships can still claim the right of free passage. In practice, only secondary sanctions targeting entities doing business with offenders have proven effective in deterring these ships. Calls to harmonize regimes are finally gaining traction.

Faced with these threats, NATO and its European members must act decisively. Legal and procedural limitations hamper responses, and changes in national law to better tackle those grey zone threats will take time. Those efforts need to be balanced with the need for swift action and stronger deterrence: Baltic Sentry is essential in strengthening military presence, complemented by intensified surveillance and experimentation with cost-effective technologies like maritime drones. Existing legal tools environmental law and, where applicable, anti-piracy statutes could be applied creatively to interdict suspect vessels. Swift operational responses, such as escorting away or seizing suspicious ships, will have more immediate deterrent value than legislative debates though such

moves are complicated when Russian naval escorts are involved.

Resilience is arguably the best defense, yet it too demands investments: in more secure infrastructure, greater coordination among allies, an expanded fleet of repair ships, and new technologies. Satellites offer some promise but remain expensive and have limited capacity compared to cables. Recognizing these gaps, NATO leaders at The Hague committed to significantly increasing expenditure for critical infrastructure.

Europe's undersea lifelines are indispensable, and the necessity to safeguard them cannot be overstated, requiring greater awareness and cooperation in their defense. The Hague NATO Summit offered a starting point with new expenditure targets. Now, it is up to governments and institutions to match commitments with coordinated action.

Digital Innovation After The Hague:

How NATO 2025 shapes the Alliance's new tech agenda

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Why NATO's Digital Momentum Cannot Wait

The 2025 NATO Summit was slated as a stock-take for the Alliance's war-fighting capability, yet its enduring legacy is likely to be digital. Allied leaders used the gathering to place cyber defence, Artificial Intelligence (AI) and quantum technologies at the heart of strategy and budgets, acknowledging that resilience in (digital) emerging and disruptive technologies (EDTs) now underwrites deterrence in the cyber-physical domains. Indeed, low-cost drones, AI-generated disinformation and ransomware attacks have exposed how quickly commercial and off-the-shelf technologies can be weaponised, eroding assumptions that technological supremacy naturally belongs to Western democracies. In this respect, regarding innovation and EDTs, NATO prioritised defence innovation, including in AI, quantum computing, and autonomous systems, as critical to maintaining strategic and technological superiority. When it comes to cybersecurity and hybrid threats, priority was given to increasing investment in cybersecurity and resilience, NATO emphasising a coordinated response to escalating hybrid threats, while recognising them as critical vulnerabilities potentially triggering collective defence measures.

Ramping Up Investment in Digital Innovation

Nothing illustrates the new sense of urgency more clearly than the headline pledge to raise defence-related expenditures from the long-standing 2% benchmark to 5% of GDP by 2035. Most importantly, up to 1.5% of this target should spotlight cyber resilience-building efforts, EDTs, and broader civilian preparedness projects across the Alliance. In concrete terms, fibre-optic redundancy, AI-enabled technologies, quantum-proof encryption, and secure 5G networks should receive the same priority as tanks or fighters. Concerning AI systems, the immediate task is to scale pilot projects into interoperable field capabilities, while defending societies against AI-enabled cyberattacks, deepfakes, and adversarial algorithms. Quantum technologies, once a niche concern for physicists, have also become an urgent strategic priority. Yet, whether cash-strapped allies can deliver on this front remains uncertain. Notwithstanding, the political signal has been made clear: without sustained investment in the digital backbone of the Alliance, collective defence will suffer no matter how many conventional capabilities are procured.

DIANA, the Innovation Fund, and a Rapid Adoption Action Plan

Money alone will not close NATO's innovation gap in EDTs; hence, the Alliance should double down on a fledgling ecosystem designed to incentivise the triple-helix collaborative framework involving government, industry, and academia to work even closer together, especially by better connecting the dots between start-ups, venture capital, and operational users.

The Defence Innovation Accelerator for the North Atlantic (DIANA) now encompasses Regional Offices in London, United Kingdom and Halifax, Canada, and a Regional Hub in Tallinn, Estonia, while leveraging a network of more than 20 accelerator sites and over 180 test centres across the Alliance. Technologies developed through DIANA, including AI, autonomy, quantum technologies, biotechnologies, human enhancement, hypersonic systems, space, novel materials and manufacturing, energy and propulsion, and next-generation communications networks, may also receive funding from the NATO Innovation Fund, a EUR 1 billion venture capital fund. This is the world's first multi-sovereign venture capital fund, and it will invest its funding over 15 years in start-ups developing or adapting technologies for defence and security. The Fund has already taken equity stakes in drone and robotics companies, namely in the case of tech products that have proved their worth on the Ukrainian battlefield. Endorsed by Allied Heads of State and Government on 25 June 2025, NATO's Rapid Adoption Action Plan aims to significantly accelerate the pace at which the Alliance adopts EDTs, seeking to compress the timeline from laboratory to end-users to no more than 24 months, by accelerating procurement and integration, de-risking new technological products, and ensuring that new technological products are better tailored to Allied military needs. Central to this effort is the "NATO Innovation Badges", awarded to new technological products that have been tested, security vetted, and de-risked at different maturity levels.

Priorities for Future-Proofing the Alliance

The fierce geopolitical digital competition unfolding today is ultimately about power and legitimacy. Should NATO fail to innovate at speed and scale, and responsibility, authoritarian powers will set the tempo, employing AI-powered surveillance, coercive cyber operations, and quantum-enabled espionage to erode Western cohesion. That is why an Alliance that masters AI and quantum under democratic oversight can deter aggression, reassure its publics and offer partners a credible alternative to techno authoritarianism. The cost of falling behind is thus measured not merely in lost market shares but in the erosion of the rules-based order. Yet, declarations made at The Hague Summit on the importance of digital innovation mark only the first mile in future-proofing the Alliance. Delivering on the 5% investment pledge, enforcing the Rapid Adoption Action Plan, and mainstreaming responsible AI and quantum practices will demand political will long after the Summit communiqués have faded from the news cycle. Still, the strategic vector is set. By further embedding EDTs into core tasks and doing so in a way that respects the rule of law and market innovation, NATO has crafted a plausible future route to remain the world's foremost security guarantee in both cyber-physical battlespaces.

The Future of War:
Between virtual power and concrete force

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War will always be, by definition, an act of violence between human beings. This extreme method of imposing a will inevitably entails destruction and suffering, increasingly mediated by virtual processes conducted within the metaverse. Discounting the psychological effects of deterrence – and despite the promise of more "refined" concepts such as strategic paralysis induced by cyberattacks or surgical strikes employing airpower or special operations – the truth remains: the technologies used for warfare have not, so far, offered any real alternative to the resolution of conflict that does not involve lethal combat or territorial occupation.

On March 30, 2024, near Avdiivka, Ukraine, Ukrainian FPV drones[1] attacked a Russian AGS-17 automatic grenade launcher – an incident referred to

[1] FPV (First Person View): a type of drone equipped with cameras and communication devices that allow remote operation. It can be used for reconnaissance or as a precision-guided munition when equipped with explosives and directed to crash into targets.

as the first real battle between robots from different operational environments[2]. Later, in December of the same year, the town of Lyptsi, near Kharkiv, in eastern Ukraine, witnessed the first coordinated assault by unmanned aerial and ground platforms on positions held by Russian troops[3]. These episodes vividly illustrate one of the main trends in contemporary warfare: its virtualization.

A clear divide is emerging between virtual forces – fighting remotely via screens, codes, and algorithms – and concrete forces, who still occupy ground, resist, and die in physical combat. This division is not merely operational; it is structural. It is reflected in the Ukrainian creation of a dedicated military branch for unmanned systems, as well as Russia's announcement that it too will establish a specialized military robotics service by the end of this year. This innovation will allow for the consolidation of currently dispersed capabilities, the optimization of training, the development of new concepts of operations, and most likely, the emergence of a new combat ethos.

Decision-makers highlight several advantages for this structural change:

1. The aim of preserving human life;

2. The reduction of human variables affecting combat performance;

3. A leadership vision acknowledging the decisive role of technology in all wars.

It is therefore possible to state that virtual – or abstract – warfare is becoming increasingly autonomous from traditional, concrete battlefield operations. The former is mediated through images, sounds and systems installed on tablets and computers at command posts far from the front lines. It relies on digital data, cloud and edge computing[4], and artificial intelligence – requiring persistent connectivity and continuous reconfiguration of software systems. Its combatants are remote operators, data analysts, algorithm programmers, drone pilots, engineers, and cyberwarriors who constantly monitor data sources and vast informational infrastructures that now determine the outcome of battles.

On the other hand, at the frontlines, physical forces remain: soldiers, sailors, and aircrews who now share space with robotic partners. Human performance will be strongly influenced by situational awareness and logistical support provided by their comrades in the virtual forces, as well as by how well unmanned systems and other combat features (such as protection systems and electronic warfare) are integrated into coordinated and sustained actions.

However, it is also important to recognize that the split between virtual and concrete forces may give rise to a segmentation between those exposed to risk and those in the rear, potentially undermining unit cohesion and military morale. In Ukraine, this tension has already led to a shift in target priorities: unmanned systems have begun to prioritize attacking Russian drone operators rather than then military equipment[5].

One of the foreseeable dangers of this virtualization trend is the illusion that war can be conducted cleanly, from a distance, with minimal political cost or human sacrifice - thus lowering the threshold for its use. This is a flawed assumption, reminiscent of the overestimated potential of airpower to resolve conflicts by itself. Moreover, it will become increasingly difficult to assess the combat readiness of a force if assessments rely only on traditional metrics and overlook the capacity to conduct virtual operations - an omission that could compromise deterrence mechanisms and arms control regimes.

Looking further ahead, virtualization may evolve into a phase where combat also unfolds within the metaverse, defined as "a persistent and digital environment, potentially informed by real-

[2] https://militarnyi.com/en/news/47th-brigade-demonstrates-destruction-of-russian-unmanned-combat-ground-vehicles/

[3] https://breakingdefense.com/2025/01/why-ukraines-all-drone-multi-domain-attack-could-be-a-seminal-moment-in-warfare/

[4] Edge computing: a method where data processing occurs close to the source rather than in centralized servers.

[5] https://www.businessinsider.com/ukraine-new-point-system-drone-units-shift-priority-targets-2025-6.

world sensors, that someone can enter and assume a persona, interact with others, have affordances and agency, perhaps modify the environment itself, and then leave"[6]. The term "metaverse warfare" has also surfaced in Chinese literature, associated with the final stage of the People's Liberation Army's modernization roadmap, which outlines three overlapping phases: mechanization, informatization, and intelligentization[7].

Despite the ongoing trends of virtualization, precision, and expansion into the metaverse, warfare will continue to require physical presence on the battlefield. The human factor will remain decisive. Occupying territory, controlling populations, protecting infrastructure, and consolidating victory – across its many dimensions – cannot be achieved through digital means alone, which are sometimes illusory. Real war will still demand courageous soldiers who, on the ground, raise the flags of the victors.

6 https://theairpowerjournal.com/metaverse-a-new-domain-for-joint-all--domain-operations/#elementor-toc__heading-anchor-2

7 https://cyberdefensereview.army.mil/CDR-Content/Articles/Article-View/Article/4012231/the-path-to-chinas-intelligentized-warfare-converging--on-the-metaverse-battlefi/

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