



# Sustainment under strike and sabotage: Contested logistics in the Wider North

*By William Freer and Charlotte Kleberg*

## EXECUTIVE SUMMARY

- The North Atlantic Treaty Organisation (NATO) can no longer assume a permissive environment for logistics operations across Europe. Failure to secure supply lines in the event of a conflict risks delays to reinforcement, heavy pre-battle attrition of critical assets, and a potential collapse in frontline combat effectiveness.
- The contested logistics environment can be broken down into four challenges: geographic chokepoints; limited lift capacity; limited militarily useful infrastructure; and limited defences for supply lines.
- Options for bolstering supply line resilience include better leveraging of commercial capacity and expertise, investing more in hardening primary logistics sites and routes and exploring redundancy, establishing dedicated logistics defences, and baking contested logistics assumptions into exercises.



*As the landscape for logistics continues to evolve, we must adapt to the new reality and full spectrum of emerging threats, ranging from cyber attacks to kinetic strikes on ports and airfields. And we need to recognise that contested logistics will be a battlefield in itself.*

**Dan Sullivan**

United States Senator (2015-)

**T**hese words were spoken in the opening minutes of a March 2025 Senate hearing for Gen. Randall Reed of the United States (US) Transport Command.<sup>1</sup> They capture the fact that the threats to the military logistics of free and open countries have grown considerably in recent years. In Europe, North Atlantic Treaty Organisation (NATO) military planners have grown accustomed to the assumption that they could move what they wanted to where they wanted without fear of interdiction. Events in Ukraine and the Middle East – from drone and missile strikes to naval mines and sabotage campaigns – serve as a wake up call to the vulnerability of NATO’s European logistics. Given limited forward deployments, the logistics hubs and lift assets critical to reinforcing frontline countries would be a high-priority target in a potential conflict against Russia.

Although defence investment by European countries is on the rise, and new plans are being developed to contend with the growing possibility of peer conflict, much attention on the requirements for ‘warfighting readiness’ has focused on the ‘tooth’ end of the NATO fighting machine. Greater effort is required to ensure the ‘tail’ element can deliver in a contested environment. This Primer limits its scope to strategic logistics in one such environment: the ‘Wider North’, comprising the High North and the Baltic region.

## The prospect of logistics failure

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During the Second World War, the Allied powers honed their logistics into a mammoth, efficient global network on land, at sea, and in the air. This expertise carried through into the Cold War, where the ability to reinforce militaries deployed in West Germany and Norway rapidly was a core pillar of deterrence.

NATO’s logistics received considerable effort. In the 1980s, annual joint funding for infrastructure was the equivalent of £3 billion, more than double the

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<sup>1</sup> Dan Sullivan, Hearing: ‘To receive testimony on the posture of the United States Transportation Command in review of the Defence Authorisation Request for Fiscal Year 2026 and the Future Years Defence Programme’, United States Senate Committee on Armed Services, 05/03/2025, <https://www.armed-services.senate.gov/> (checked: 20/05/2026).



Security Investment Programme ceiling of today (for a much larger alliance).<sup>2</sup> A significant proportion of NATO's Order of Battle (ORBAT) was dedicated to defence of logistics; the British Army of the Rhine had an entire division dedicated to rear area defence. Plans, investment, and posture all had contested logistics baked into their foundations.

However, nearly three decades of post-Cold War military supremacy has resulted in the thought of large-scale logistics failure being a distant one. As such, it is worth considering the potential consequences of such failure.

## Delays to reinforcement

Within the Wider North, NATO's 'Enhanced Forward Presence' will soon consist of a brigade in Lithuania, a brigade in Latvia, and a battlegroup in Estonia, while there are currently no permanently forward-deployed forces in Norway, Sweden, or Finland. However, the alliance does have a pool of corps-level formations, such as the Allied Rapid Reaction Corps (ARRC) in the United Kingdom (UK), which could be activated on short notice to reinforce any alliance members in the Wider North.

While these forces are held at a higher level of readiness for activation, moving them at scale is challenging.<sup>3</sup> Although allied intelligence capabilities would likely detect a buildup of Russian forces, allowing for timely pre-conflict reinforcement, this warning time cannot be assumed.<sup>4</sup>

Delays due to interdiction could allow Russian forces time to overrun forward-deployed NATO forces. However, the likelihood of such a scenario has been reduced given the large-scale destruction of Russia's mobile armoured and mechanised formations in Ukraine, and the ferocity with which frontline forces will defend their homes. Far more likely, but equally troubling, is that the Russians may use delays to dig in. The Russian military has proven effective at rapidly constructed dense and complex field fortifications, and holding on to them through a combination of mines, drones, and artillery.<sup>5</sup> Once dug in, they become significantly more difficult and costly to expel.

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<sup>2</sup> 'Costs and benefits to the United States of the NATO infrastructure programme', US Congressional Budget Office, 04/1981, <https://www.cbo.gov/> (checked: 20/05/2026), and 'Funding NATO', North Atlantic Treaty Organisation, 08/04/2026, <https://www.nato.int/> (checked: 20/05/2026).

<sup>3</sup> 'NATO Force Model', North Atlantic Treaty Organisation, 02/04/2025, <https://www.nato.int/> (checked: 20/05/2026).

<sup>4</sup> As was the case, for example, during the Yom Kippur War of 1973, when the Egyptian military was able to catch the Israeli Defence Force by surprise despite excellent Israeli intelligence capabilities.

<sup>5</sup> See: Gerry Doyle, Vijdan Mohammad Kawoosa, and Adolfo Arranz, 'Digging in: How Russia has heavily fortified swathes of Ukraine – a development that could complicate a spring counteroffensive', *Reuters*, 27/04/2023, <https://www.reuters.com/> (checked: 20/05/2026).

## Collapse in combat effectiveness

In the event of an Article 5 scenario, vast amounts of food, medicine, munitions, heavy equipment, and people will need to be moved around. Ammunition consumption rates are obviously not made publicly available, but a combination of declassified Cold War plans and some of the readouts from the fighting in Ukraine make general assumptions possible. In the 1980s, the British Army believed that a division with four artillery battalions would burn through 35,000 155 millimetre (mm) shells per day.<sup>6</sup> A deployed corps therefore might reasonably burn through tens of thousands of shells per day. While it is estimated that Ukraine is firing around 5,000 per day, this consumption is in no small part limited due to the need of Kyiv's NATO allies to maintain NATO stockpiles.

Without supplies, the technological and morale superiority of NATO forces over their Russian counterparts drops considerably. This is problematic enough in a defensive posture, but the problem becomes even starker in offence. Significant buildup of material advantage is needed to defeat motivated and entrenched enemy forces. Limited supplies would delay counter-offensive action, and constrict the number of possible axes of advance.

## Attrition before the fight

The final consequence would be losses to personnel, equipment, and munitions before they even enter the fight. For an alliance that features smaller numbers of complex weapon systems, many of which take a long time to produce, this could cripple the combat potential of fighting formations.

Some examples can help to put these risks into context. The Royal Fleet Auxiliary (RFA) operates medium-sized four Point class Roll-on/Roll-off (RoRo) vessels. The sinking of just one of these ships en route to combat would result in the loss of up to 7% of the British Army's vehicle inventory.<sup>7</sup> The equipment of entire brigades, or weeks' worth of ammunition, could be lost were strategic lift assets to be destroyed even in small numbers.

## The challenges

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Broadly speaking, the contested logistics challenge can be broken down into four categories:

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<sup>6</sup> Jim Storr, *Battlegroup! The Lessons of the Unfought Battles of the Cold War* (Warwick: Helion and Company, 2021).

<sup>7</sup> See: Charlotte Kleberg, 'Reinforcing the Baltic: A Swedish perspective', *Britain's World*, 24/03/2025, <https://www.britainsworld.org.uk/> (checked: 20/05/2026).

1. Geographic chokepoints;
2. Limited militarily useful infrastructure;
3. Limited lift capacity; and
4. Limited availability of defences.

## Geographic chokepoints

NATO faces numerous chokepoints in the Wider North. Several of these present an opportunity for interdiction, with little alternative routing options to bypass threats.

The Baltic Sea remains a confined operating environment, where any shipping – as well as other critical infrastructure, including ports, railways, bridges, and airfields – is well within range of Russian Anti-Access/Area Denial (A2/AD) capabilities. Any large-scale reinforcement would take place under constant threat, particularly until Kaliningrad could be neutralised. To the south, the 60 kilometre (km) stretch of land situated between Kaliningrad and Belarus – the Suwałki Gap – is the only land connection between the Baltic states and the rest of NATO. Russia would not even have to seize the Gap to cut off supplies; instead being able to do so by holding the entire stretch under fire control. Although a wider expanse, the maritime approaches across the Norwegian Sea face the prospect of Russian missiles launched from submarines, surface ships, and aircraft based in the Kola Peninsula.

While the accession of Sweden and Finland to NATO improves strategic depth in the region, it does not negate the underlying exposure of land and sea supply lines. Ensuring the safety of Sea Lines of Communication (SLOCs) will determine the ability not only to defend allies in the region, but also to ensure national critical supply chains remain intact. It is perhaps more useful to think of the Baltic states, Finland, and Scandinavia as three separate ‘islands’ where land links are so small or in such sparsely populated areas that they are of limited utility.

## Limited infrastructure

The post-1991 economic environment has been characterised by efficiency rather than resilience, epitomised by the private sector’s ‘just-in-time’ logistics models. Logistics infrastructure has concentrated into a smaller number of larger hubs. With only a few port facilities capable of supporting large vessels, supply hubs – such as the port of Gothenburg – become critical points for reinforcement for onward transportation.

Compounding this vulnerability is the sustained decline in investment towards resilience and redundancy in infrastructure since the Cold War, during which it was recognised as a collective defence priority. Militarily useful infrastructure has suffered from decades of underinvestment and a misplaced confidence in ‘permissive’ operating environments.



Without rebuilding infrastructure depth, the ability to fight at scale risks being dependent on a logistics network too brittle to persevere beyond the opening stages of a conflict. Secondary and tertiary hubs and routes should be identified and prepared to take sudden influxes of demand in the event that primary sites are temporarily knocked out of a conflict.

## Limited lift capacity

Lift capacity is arguably the most limiting factor of operational credibility. Across the air, sea, and land domains, European NATO operates within uncomfortably thin lift margins.

Strategic airlift is vital given the speed at which it can respond to sudden needs, but it cannot move mass at scale. It takes almost 300 C-17 sorties – a combined payload of over 23,000 tonnes – to move a single mechanised brigade.<sup>8</sup> For reference, the Royal Air Force (RAF) has at its disposal eight C-17s and plans to procure 22 A400M medium lift aircraft. This will provide it with a combined total payload capacity of just over 1,400 tonnes.

When scale is needed, sealift comes to the fore. However, there is very limited dedicated military sealift in Europe. At the same time, the role of commercial shipping in providing strategic sealift and end-to-end supply chain solutions in military logistics has long been overlooked. Having historically been the backbone of transatlantic reinforcement, militarily useful vessels and overall sealift capacity has declined significantly across NATO in recent years: British numbers have almost halved in the last 15 years alone.<sup>9</sup>

The picture for European seafarer numbers is equally concerning. Only 38% of seafarers in the European Union (EU) shipping industry are EU nationals.<sup>10</sup> In the event of a conflict, many of these ships and their crews would likely be seen as a security risk, potentially making them unable to support operations.

In the absence of agreements established in peacetime, vessels may be unavailable in crisis due to competitive pricing, sanctions, or insurance withdrawal. Assumed capacity will disappear quickly in crisis. Sealift capacity beyond a dedicated fleet is a civil-military challenge requiring extensive collaboration, framework agreements, and innovative approaches to crewing.

This also reflects a wider problem: the decline of the national sovereign maritime base, which needs to be elevated and rebuilt. Structural and systemic challenges, including crewing, flagging, and subsidy models, need to be addressed through more flexible solutions. Without credible and scalable frameworks,

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<sup>8</sup> S. Lucas, 'Hell on Wheels: The US Army's Stryker Brigade Combat Team', United States Defence Technical Information Centre, 08/02/2005, <https://apps.dtic.mil/> (checked: 20/05/2026).

<sup>9</sup> George Allison, 'Drastic Drop in "Militarily Useful" British Vessels from 841 in 2009 to 495 in 2023', UK Defence Journal, 19/11/2023, <https://ukdefencejournal.org.uk/> (checked: 20/05/2026).

<sup>10</sup> 'NATO Member States' National Merchant Fleet and Seafarers', Nautilus International, 27/05/2025, <https://www.nautilusint.org/> (checked: 20/05/2026).

response timelines will remain uncertain, and operational readiness will remain compromised.

## Limited defences

Although Russia has shown limits in ramping up production elsewhere, it has shown an impressive capability for expanding strike weapons output. The sustained bombardment of Ukraine shows what kind of threats NATO forces would face. Ukrainian intelligence estimates from 2025 suggested that Russia could produce 110–140 cruise missiles and 90–115 ballistic missiles every month, as well as between 4,000–5,000 Shahed-type drones and several thousand more decoy drones.<sup>11</sup> This presents a challenging number and mix of strike weapons, and were the fighting in Ukraine to come to an end, the Kremlin would be able to stockpile an enormous arsenal in short order.

NATO's logistics sites, as well as the assets being used to move supplies and people around, should expect to come under heavy attack throughout any conflict. Lack of both depth and breadth of air defences is one of European NATO's most significant capability gaps.<sup>12</sup> This is recognised, and is being invested in, but much work remains to be done as air defences are stretched between additional burdens, including defence of frontline forces and major urban centres. Recent conflicts have shown that without dedicated defences, the vulnerability of assets increases greatly.

The picture at sea is equally challenging. Many European navies are made up of old vessels, or those ill-equipped for peer conflict. Although European NATO allies can count over 150 destroyers and frigates between them, less than half have been commissioned in the last 15 years, and the majority are built with sensors, armaments, and combat management systems geared towards peacekeeping rather than warfighting. Given the lack of ships able to contribute to operations in the Red Sea against the Houthi threat – a rebel group in one of the world's poorest countries – the ability of NATO to provide suitable levels of protection for shipping against Russian aggression is under question.

## What can be done?

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The four key challenges outlined above may seem daunting, but they are by no means insurmountable. While the logistics network will never be guaranteed total protection, much can be done to bolster survivability. NATO has been stepping up its efforts in recent years, with the creation of JSEC as just one example. Alongside

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<sup>11</sup> Kollen Post, 'Exclusive: Russia's ballistic missile production up at least 66% over past year, according to Ukrainian intel figures', *Kyiv Independent*, 03/06/2025, <https://kyivindependent.com/> (checked: 20/05/2026).

<sup>12</sup> William Freer, 'Collective defence: The Strategic Defence Review and capability gaps in a changing NATO', Council on Geostrategy, 29/10/2025, <https://www.geostrategy.org.uk/> (checked: 20/05/2026).



this, many eastern flank allies are also reviewing and investing in what they offer in terms of host nation support, and the NATO Defence Enablement and Resilience Directorate (DERD) continues to push ahead with its vital convening role. Outlined below are the top-level actions which European NATO, at both alliance and member levels, could pursue.

## Better leveraging of public-private partnerships

The Euro-Atlantic holds significant advantages in terms of logistics capacity and expertise that should be better leveraged. Resilient supply chains depend on the effective use of capabilities, expertise, and networks of the private sector. Closer collaboration with commercial logistics providers across exercises, planning, and capacity building is essential.

Public-private partnerships demonstrate how capability can be scaled through structured collaboration. They can help to align commercial incentives with national security objectives, whether relating to ship and crew access, dual-use maintenance, shipbuilding, or digital solutions, and thus enable flexible and scalable capacity.

Operations in the region will require a combination of port-to-port transport and end-to-end commercial logistics solutions. This extends beyond ship availability to include other enablers such as maintenance, repair, processing and support centres, inland distribution networks, and terminals operated by commercial entities.

Ensuring the logistical depth required to project and sustain force, and maintaining end-to-end supply chains capable of withstanding significant disruption, will depend on multi-domain, cross-sector collaboration underpinned by integrated planning. A number of models exist to learn from. For example, the US has the Voluntary Intermodal Sealift Agreement (VISA), whereby US-flagged merchant vessels offer capacity during wartime in exchange for priority access to defence cargoes during peacetime.<sup>13</sup>

## Investing in resilience and in infrastructure redundancy

Related to leveraging public-private partnerships, NATO as both an alliance and as individual countries should reinvigorate investment for bolstering the resilience and redundancy of existing infrastructure. Commercial activity in recent decades has been focused on optimising efficiency. Greater government intervention is required to crowd in investment elsewhere.

Existing hubs should be hardened where possible; against both kinetic and non-kinetic (e.g., cyber) attacks. In the event of a concerted missile bombardment

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<sup>13</sup> 'Voluntary Intermodal Sealift Agreement (VISA)', US Department of Transportation Maritime Administration, No date, <https://www.maritime.dot.gov/> (checked: 20/05/2026).

however, there will be limits to how much hardening can be done. Expanding damage repair capabilities will prove key to keeping logistics flowing.

This investment will need to be balanced with finding where investing in redundancy may be more cost-effective. Fresh efforts should be made to improve the suitability of additional hubs and routes to take military logistics in the event that primary sites are damaged. Ports can be dredged and extended to be able to accommodate larger vessels, and regional or unused airports could have runways improved to take military jets. Indeed, between 1951 and 1981, NATO joint funding paid for the construction of 220 new airfields.<sup>14</sup> Such a programme will require not only increased funding, but a deeper relationship between NATO institutions such as Joint Support and Enabling Command (JSEC), national governments, militaries, and commercial entities.

## Developing a more comprehensive defence network for logistics

Wider geographic coverage, greater breadth of weapon system types, and deeper magazines are needed for NATO air defences. This is a point well understood, and is being actioned. The challenge arises in the cost of such systems, especially at the more exquisite end (e.g., ballistic missile defences). While improvements have been made, efforts should go further and faster.

A number of lower-cost solutions should be explored. This should include close coordination with Ukraine to learn from the success it has had with mobile fire groups.<sup>15</sup> These groups operate light vehicles with anti-aircraft guns or Man-Portable Air Defence Systems (MANPADS) to defend key sites or cover expected approaches. This approach has allowed higher-cost interceptors to focus on more complex threats such as cruise missiles. In addition to mobile fire groups, helicopters and turboprop aircraft have proven successful, with low-cost guided rockets and chain guns. Several NATO allies are investing heavily in their Counter-Uncrewed Aerial Systems (C-UAS) solutions, but these are, for the most part, either fixed (albeit redeployable) options, or mounted on armoured vehicles for frontline coverage.

There is also a logistics air defence gap in NATO's ORBAT. Ukraine has over 1,500 fire groups and, despite the demands on personnel elsewhere, tens of thousands of personnel. NATO should look to introduce a dedicated, mobile (both strategically *and* tactically) logistics C-UAS force.<sup>16</sup>

At a minimum, this should be a dedicated brigade-sized force, which could be used to bolster local air defences at the point of need. Such a force should be a theatre-level asset, to reduce the burden for logistics protection from the minds of

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<sup>14</sup> 'Costs and benefits to the United States of the NATO infrastructure programme', US Congressional Budget Office, 04/1981, <https://www.cbo.gov/> (checked: 20/05/2026).

<sup>15</sup> Maksym Terzi and Yelyzaveta Khomovska, 'Holding Back the Sky: Ukraine's Air Defence Campaign 2022-2025', Snake Island Institute, 02/2026, <https://www.snakeisland.org/> (checked: 20/05/2026).

<sup>16</sup> William Freer, 'The case for a NATO logistics air defence unit', *Britain's World*, 02/10/2025, <https://www.britainsworld.org.uk/> (checked: 20/05/2026).



corps headquarters. It may even prove wise to place it under the control of JSEC, which will have an unparalleled understanding of logistics vulnerabilities – albeit with no operational experience. The question of what to equip such a force with is too complex to unpack in this study, but many (relatively) low-cost mobile C-UAS solutions exist; for example, BAE Systems' TRIDON Mark 2 truck-mounted 40mm cannon.<sup>17</sup>

At sea, the story is a similar one. The need for greater numbers of capable general purpose frigates, such as the Type 31, is known. Indeed, Sweden, Finland, and Poland are already in the process of replacing old corvettes with larger frigates (even if they do not call them by that name) with vastly improved air defence capabilities. These efforts should go further and faster, but are limited by shipyard capacity and competing pressures in tight budgets.

Similar novel ideas for more cost-effective solutions should be explored – in particular, shipborne defences for merchant ships themselves. At a minimum, NATO members should establish stockpiles of soft-kill measures which could be hurriedly bolted on to sealift vessels were conflict to break out.

## Exercising as meaning to fight

NATO should introduce contested logistics to exercises wherever possible – something it is beginning to do more frequently. This will serve three main functions: to raise awareness of the vulnerability of logistics; to identify any particular weak points in capabilities, strategy, or tactics; and to ensure that NATO forces are prepared to fight in an environment where reinforcements and resupply are not assured.

For example, all major exercises should see logistics efforts defended with military forces. Recent British RoRo missions to the Baltic Sea have been escorted on their journey from start to finish. This should be business as usual; building operational experience between militaries and with commercial operators. In wargames, a far greater contested logistics element should be introduced; for example, bridges should be considered to have been destroyed, ports made inaccessible, or ships sunk to see how commanders adapt.

## Conclusion

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For the first time in 30 years, getting NATO forces to the front – and getting supplies forward to sustain them – faces the prospect of concerted and capable interdiction efforts by Russia. Awareness of this problem within and across NATO,

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<sup>17</sup> 'Tridon Mk2', BAE Systems, No date, <https://www.baesystems.com/> (checked: 20/05/2026).



from the creation of JSEC to providing escorts for some sealift operations, has grown.

Nevertheless, a critical gap remains. Further action is needed to ensure that the potential for large-scale logistics failure is minimised by tackling the resilience and redundancy of infrastructure, leveraging public-private partnerships and commercial capacity to bolster assured lift capacity, and creating a denser and committed network of defences for logistics hubs, routes, and assets.



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