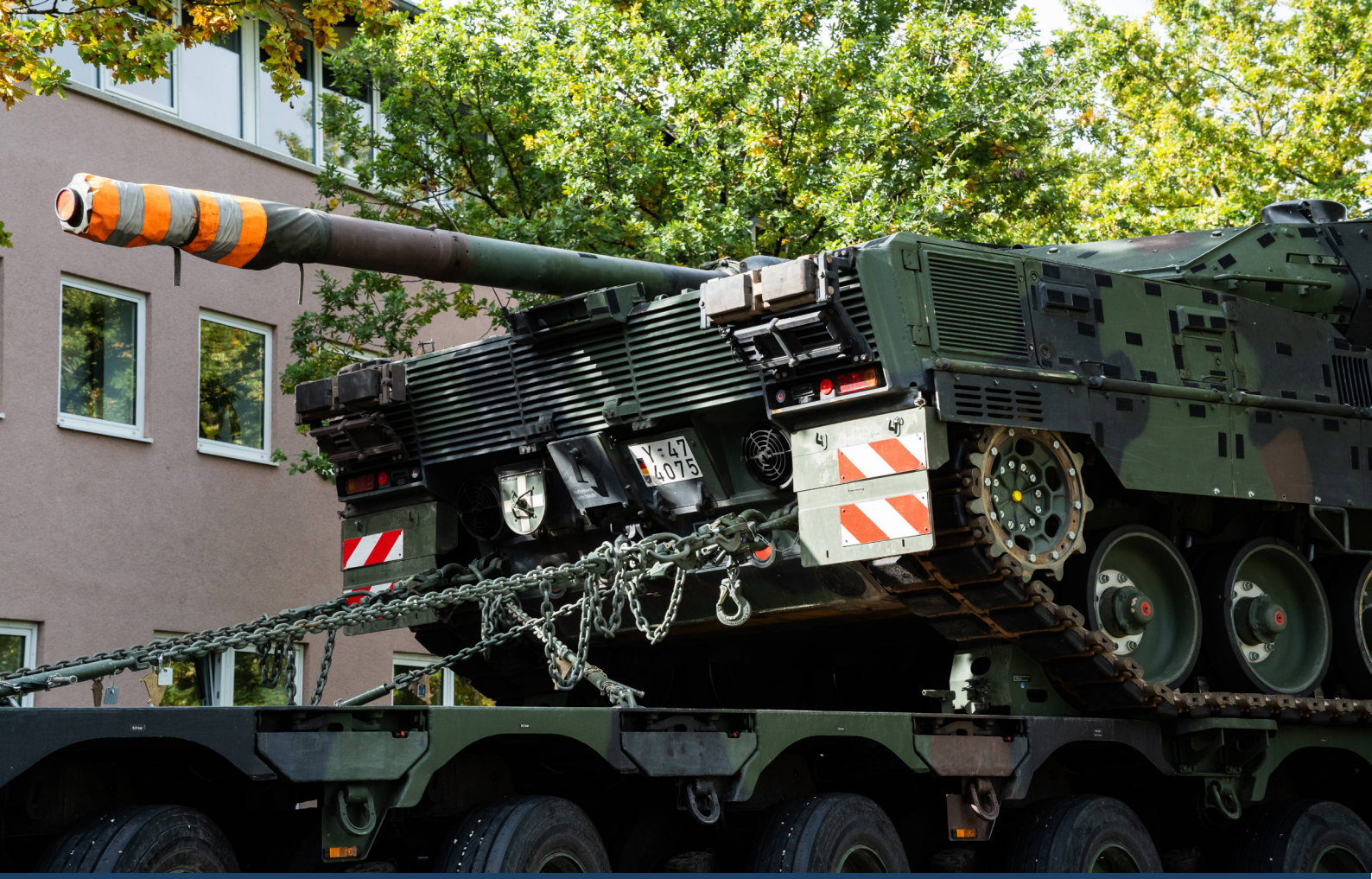

Moving Towards the Speed of Relevance?

Assessing Military Mobility in the Netherlands, Germany and Poland

Calle Håkansson, Emelie Moregård and Anna Savolainen

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Sammanfattning

Logistik är av avgörande betydelse för avskräckning och försvar. Efter att ha återfått denna insikt har NATO och EU sedan 2014 strävat efter snabb och effektiv förflyttning av militära styrkor och utrustning för att säkra den östra flanken – ett åtagande som blivit än mer brådskande efter Rysslands fullskaliga invasion av Ukraina 2022. Militär rörlighet är beroende av fyra viktiga faktorer: infrastruktur, transportförmågor, lagstiftning samt ledning. Europeiska länder brottas med att tillgodose militära behov inom alla dessa dimensioner.

Denna rapport kartlägger och analyserar läget inom militär rörlighet genom en fallstudie av Nederländerna, Tyskland och Polen. Förutom att de tillsammans utgör en region av stor geostrategisk vikt i Europa har dessa tre länder även åtagit sig ledande roller inom militär rörlighet. Inte minst har de utvecklat det första så kallade området för militär rörlighet (Military Mobility Area, MMA). Syftet med MMA är harmoniserad rörlighet över landsgränserna. Denna första MMA är avsedd som en modell för övriga kontinenten, med den slutgiltiga målbilden av ett ”militärt Schengenområde.”

Även om mycket arbete kvarstår påvisar rapporten framsteg inom området. MMA:n erbjuder ett viktigt ramverk för att utveckla och koordinera insatser. Dess förestående genomförandefas utgör dock ett sanningens ögonblick för dess användbarhet i den bredare europeiska kontexten.

Nyckelord: avskräckning, EU, militär logistik, militär rörlighet, NATO, Nederländerna, Polen, Tyskland

Abstract

Logistics is critical for deterrence and defence. Rediscovering this insight, NATO and the EU have endeavoured since 2014 to accelerate the efficient movement of military personnel and assets across Europe to safeguard the eastern flank, an undertaking further underscored by Russia's 2022 full-scale invasion of Ukraine. Military mobility depends on four key factors: infrastructure, (lift) capabilities, authorities and legislation, and command and control. Within each of these dimensions, Europe struggles to meet military needs.

This report maps and analyses the state of play in European military mobility through a case study of the Netherlands, Germany, and Poland. Besides constituting a region of key geostrategic importance, the three countries have taken on leading roles in military mobility, by developing the first European Military Mobility Area (MMA). The MMA aims to harmonise cross-border movement and serves as a model for similar efforts across the continent, with the ultimate goal of establishing a "Military Schengen."

Although much work remains, the report finds progress in the field. The MMA provides an important framework for developing and coordinating efforts, but its implementation phase will present a moment of truth for its usefulness in a wider European context.

Keywords: deterrence, EU, Germany, military logistics, military mobility, NATO, the Netherlands, Poland

Preface

European NATO members need to shoulder more responsibility for deterrence and defence of the European continent. A crucial component of that task is to improve military mobility. The extent to which Europe addresses this will be a key test for the continent.

By describing and analysing the current status of the first European Military Mobility Area (MMA), between the Netherlands, Germany and Poland, this report highlights the importants of the task at hand. The report finds much to commend, as efforts have accelerated in recent years, and more people understand the relevance of military mobility for the future of Europe.

The authors, however, also note several concerning themes, including cumbersome administrative and diplomatic routines, national caveats, and the problems of insufficient infrastructure. Russia and other adversaries' increasing sabotage operations against NATO compound Europe's challenges.

The authors are grateful to colleagues at FOI and to the interviewees for their generous contributions, which greatly improved the study. A special thank you is extended to Sergei Boeke (NATO JSEC) and Jakob Gustafsson (FOI) who reviewed the report, and to Richard Langlais and Karin Blext, who provided excellent support in the language review and layout process.

The report is part of the ongoing research work that the Swedish Defence Research Agency's (FOI) programme on Northern European and Transatlantic Security (NOTS) conducts on security and defence developments in Western countries and organisations that influence Swedish security and is commissioned by the Swedish Ministry of Defence.

Stockholm, March 2026
Albin Aronsson, Deputy programme manager, Northern European and Transatlantic Security (NOTS)

Abbreviations

C2	command and control
CEPS	Central Europe Pipeline System
CSDP	Common Security and Defence Policy
DB	Deutsche Bahn
DNO	Germany–Netherlands Office for Military Mobility
DPO	Defence Pipeline Organisation
ECA	European Court of Auditors
EDA	European Defence Agency
eFP	enhanced Forward Presence
EU	European Union
GDP	Gross Domestic Product
HNS	Host Nation Support
JFC	Joint Force Commands
JSEC	Joint Support and Enabling Command
LOI	Letter of Intent
MFF	Multiannual Financial Framework
MLC	military load classification
NATO	North Atlantic Treaty Organization
NDPP	NATO Defence Planning Process
NRF	NATO Response Force
MMA	Military Mobility Area
NMCC	National Movement Coordination Centre
O&O	overweight and oversized
PESCO	Permanent Structured Cooperation
PKP	Polish State Railways (Polskie Koleje Państwowe)
POC	point of contact
RSN	Reinforcement and Sustainment Network
SACEUR	Supreme Allied Commander Europe
SG	steering group
SHAPE	Supreme Headquarter Allies Powers Europe
TA	technical agreement
WG	working group

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Executive summary

After decades of underinvestment in defence, Europe is scrambling to catch up. While much attention has been dedicated to rearmament, military logistics is of equally critical importance in this regard. Since 2014, NATO and the EU have been working together to improve the movement of military forces and equipment across Europe, with intensified efforts since Russia's full-scale invasion of Ukraine in 2022. Deterring Russia and defending NATO's eastern flank can only be achieved if the right forces and equipment can reach the right place at the right time. Four types of societal and organisational resources are key to ensuring swift and efficient military mobility: *infrastructure*, *(lift) capabilities*, *authorities and legislation*, and *command and control*. Despite ongoing efforts, serious challenges persist in each of these dimensions across the continent.

This report explores military mobility through a case study of the Netherlands, Germany, and Poland. Together, the three countries form a region of geostrategic importance in Europe, and they have also actively taken on leading roles in promoting military mobility. Notably, in early 2024 they established the first European Military Mobility Area (MMA). The MMA aims to facilitate and harmonise cross-border movement and serves as a model for similar efforts presently underway across Europe.

The report firstly discusses the overall historical developments within the military mobility domain until 2025. Secondly, it describes the work done under the MMA initiative between the Netherlands, Germany, and Poland to address the challenges of military mobility. Thirdly, it maps and analyses the state of play in the four dimensions of military mobility in the selected region. Finally, based on the empirical mapping, it draws a number of analytical conclusions for future work on military mobility in Europe.

Developments in military mobility in Europe, 1991–2025

At the end of the Cold War, the European military logistics were transformed. Geopolitical shifts prompted NATO's enlargement, a refocused strategy, and the deprioritisation of territorial defence, while developments in technology and managerial philosophy inspired greater resource-efficiency yet less resilience in military supply chains. In 2014, however, Russia's illegal annexation of Crimea and the first war in Ukraine shifted NATO's focus back to deterrence and defence. European countries grew increasingly aware of the challenges they faced regarding military mobility, especially as the alliance's military geography had fundamentally changed, compared to the Cold War. Russia's full-scale invasion of Ukraine in February 2022 further underscored the criticality of mobility and spurred efforts in the domain at all levels of governance. Most recently, in 2025, both NATO and the EU took significant steps towards improving military mobility. Notably, these include NATO's 1.5 per cent spending pledge on defence-related investments and the EU's Military Mobility Package.

Actions were also undertaken by individual states. The most far-reaching initiative was launched by the Netherlands, Germany, and Poland, which concluded an agreement in 2024 to establish a military mobility "corridor." The aim of the corridor was to streamline troop movements across their territories and serve as a bottom-up approach that bridges NATO and the EU. Within the corridor, national procedures would be harmonised, logistical support along transit routes would be improved, and options for prioritising military convoys on rail networks ahead of civilian traffic would be assessed. In 2025, the corridor was rebranded as a Military Mobility Area to better capture the idea of a comprehensive military network. In fact, the Dutch-German-Polish MMA is meant to inspire the several other MMAs that are currently being set up across Europe and being integrated into NATO plans, including one between the five Nordic countries.

The Dutch–German–Polish Military Mobility Area

The Dutch–German–Polish MMA has prioritised harmonising rules and procedures to facilitate faster military movement across national borders. A dedicated working group (WG), comprising representatives from the three countries, has focused its work on four

dimensions corresponding to key elements of military mobility: cross-border and transit procedures, availability of movement assets, information exchange, and infrastructure synchronisation. Over eighteen months, the WG developed recommendations on 20 issues, with a strong emphasis on administrative and legal procedures, as these remain strong barriers to efficient movement.

By autumn 2025, more than half of the recommendations were being implemented, but progress was hindered by national caveats and the need for extensive interministerial coordination. The lack of a supranational monitoring mechanism further hampered coordination and implementation, revealing the need for clearer top-down guidance from the EU and NATO. Despite these challenges, the MMA's bottom-up approach has inspired wider cooperation. The MMA between the Netherlands, Germany, and Poland will thus be extended to Belgium, the Czech Republic, Lithuania, Luxembourg, and Slovakia by 2027, thereby transforming into a new Central Northern MMA.

The Dutch–German–Polish MMA has furthermore been tested during the DeployEx 2024 and Serpents Ride 2025 military exercises, with the aim of practically assessing and validating the proposed procedures and recommendations. These exercises helped to identify procedures and recommendations that proved ineffective or required further refinement. In the future, regular exercises on a larger scale will be needed to ensure the functioning of the MMA in crisis conditions, with substantial volumes of troops and equipment on the move.

To further investigate the state of military mobility in the Netherlands, Germany, and Poland, the study has examined the condition of infrastructure, (lift) capabilities, authorities and legislation, and command and control across the three nations, in order to outline the overall state of play.

Military mobility in the Netherlands, Germany, and Poland: The state of play

In terms of *infrastructure*, the three countries under scrutiny have different roles for deterrence and defence in Europe, and they also face somewhat different challenges. The Netherlands plays a key part in the movement of troops and military equipment in and out of the continent, as Dutch ports are key points of disembarkation and further transit for transatlantic NATO troops. Dutch maritime and rail infrastructure is thus of central importance. While well developed, it is also in need of maintenance in coming years. Meanwhile, Germany's position in the middle of Europe makes it a NATO logistical hub and a key transit area in all directions on the continent. The German rail and road networks are extensive, but especially the rail domain suffers from a significant renovation backlog; much of the infrastructure does not meet military needs. Finally, Poland is a destination country for Allied operations in the event of a conflict. Its infrastructure has gone through great modernisation since its entry into the European Union in 2004, with the highway network especially prioritised. However, railways and local infrastructure in rural areas lag behind in development.

Regarding *capabilities*, the study focuses on two vital assets: rolling stocks and fuel supply. Both the Netherlands and Germany have their own fleet of wagons for transporting military equipment and goods. Although Dutch rolling stock is extensive by European standards, the numbers are estimated to be far too low relative to the needs in a conflict. Reliance on commercial providers is substantial and requires extensive advance planning. Poland is largely reliant on commercial providers, although it is in the process of purchasing its own wagons. In terms of fuel supply, the Netherlands and western Germany are relatively well served by the NATO Pipeline System. The Netherlands also has the largest fuel storage capacity in Europe after France. Meanwhile, eastern Germany and Poland currently secure fuel by road and rail transport, and Poland relies on civilian fuel storage.

Authorities and legislation are a central element of military mobility in Europe, as transport from west to east entails crossing several national borders. Military cross-border movement generally involves a several steps for each one-way passage and country: a diplomatic clearance to enter the country, a road movement bid to transit the country, a permit for overweight and oversized cargo, and a customs declaration for the movement of military goods across borders. Countries may also require further detailed information and additional permits for the transport. Processing timeframes may be extensive, with for instance, German authorities requiring 20 working days for most oversized and overweight transports compared with NATO's recommended general clearance time of 72 hours. Substantial effort has been put into the authorities and legislation dimension, in part because it may be considered low-hanging fruit compared to the more material dimensions.

Responsibility for the *command and control* (C2) of military mobility primarily lies with each sovereign state. This includes oversight and decision-making regarding infrastructure construction, capability planning, and

funding thereof, as well as arranging the successful entry, transit, and sustainment of allied troops. Under the Host Nation Support (HNS) concept, each country hosting allied troops at a given time coordinates transport, accommodation, and other capabilities. The NATO Joint Support and Enabling Command (JSEC) coordinates and synchronises the reinforcement of troops and equipment across Europe. Problems with C2 relate to information sharing, where states may not provide accurate and up-to-date information to NATO, and NATO may not coordinate sufficiently with the EU, owing to uneven membership structures and NATO classification systems.

Lessons learned and implications for military mobility in Europe

Although significant challenges remain, there has been notable progress within the field of military mobility in the Dutch–German–Polish region, with the MMA serving as an important framework for developing and coordinating efforts. In this context, the work is now moving into an implementation phase, in which the recommendations formulated by the three-nation group need to be put into practice.

The findings moreover have broader implications for efforts to improve military mobility across Europe as a whole. One of the foremost lessons learned is that rules and regulations need to be more systematically addressed, both within the three countries examined and across Europe as a whole. Harmonising regulatory frameworks is essential to ensure the smooth and rapid movement of troops and equipment. Another challenge relates, on the one hand, to the complexity of overlapping mandates and responsibilities among the many stakeholders of military mobility and, on the other hand, to the silo mentality among the actors. A further key lesson concerns the need to ensure the resilience of critical infrastructure in Europe, much of which requires urgent maintenance and modernization. This is an essential part of national and collective defence planning, and should be integrated to a much greater extent into the planning and execution of military mobility.

The study finds that a bottom-up approach, such as the Dutch–German–Polish MMA initiative, can be particularly fruitful in advancing military mobility, especially with regard to regulatory and procedural harmonisation. However, when it comes to improving physical infrastructure and enhancing capabilities, a top-down perspective is often required. In this context, EU funding could play an increasingly important role in the future, serving as a key instrument to incentivise and facilitate the development of dual-use infrastructure suitable for both civilian and military purposes. Accelerating the development of critical infrastructure and strengthening logistical and transport capabilities are urgent priorities today, to ensure rapid movement of forces in a crisis.

1. Introduction

"The reality today is that if we want to move military equipment and troops from the western side of Europe to the eastern side, it takes weeks and in some cases months."[1]

—Apostolos Tzitzikostas, European Commissioner for Sustainable Transport and Tourism

After decades of underinvestment, Europe today is scrambling to catch up in defence against the backdrop of Russia's full-scale invasion of Ukraine. While much attention has been dedicated to rearmament, military logistics is of equally critical importance. Logistics is key to enabling rapid deployment and sustainment of troops in times of crisis or armed conflict. Its centrality for military success has been demonstrated by centuries of historical evidence, most recently by the Russian attack on Ukraine itself.[2] For the North Atlantic Treaty Organization (NATO), extending across the Atlantic Ocean and thousands of kilometres over the European continent, logistics is of the utmost importance. Deterring Russia and defending NATO's eastern flank can only be achieved with a robust, flexible, and resilient logistics system in place. The right forces and equipment must be able to reach the right place at the right time, even before a crisis or conflict erupts.[3]

Recognising the importance of the ability to swiftly transport allied troops and equipment across the continent, NATO and the European Union (EU) have since 2014 intensified their efforts to improve military mobility.[4] Most recently, two major initiatives were introduced in 2025. In June, NATO member states raised their defence spending target from two to five per cent of their GDP, with 3.5 per cent allocated to core defence requirements and 1.5 per cent to defence- and security-related investments. In particular, the latter includes the protection of critical infrastructure and the defence of networks, both which are of critical importance for military logistics and mobility.[5] Within the EU framework, a new plan for military mobility was presented by the European Commission and the High Representative/Vice-President in late 2025. The plan underscores the need to facilitate the movement of military forces across the continent, with the ultimate goal of achieving a "Military Schengen" area in the coming years. Moreover, in 2025 the European Commission also proposed a budget of €17.65 billion for military mobility under the next Multiannual Financial Framework (MFF, 2028–2034), a tenfold increase compared to the current budget cycle.[6] Significant advances within military mobility are thus expected in the coming years.

1 Barbara Moen and Henry Foy, Europe's Roads and Rail Unfit for War with Russia, EU Transport Chief Warns. Financial Times, July 29, 2025, *https://www.ft.com/content/d77d4c1d-da26-4624-8b77-2178d4ac1125*.

2 Maria Engqvist, A Railhead Too Far: The Strategic Role of Railroads during Russia's Invasion of Ukraine, FOI Memo 7954 (Stockholm: Swedish Defence Research Agency—FOI, 2022); Thomas M. Kane, Military Logistics and Strategic Performance, 1st ed. (Abingdon: Routledge, 2001); Alexander Sollfrank and Sergei Boeke, "Enablement and Logistics as Critical Success Factors for Military Operations: Comparing Russian and NATO Approaches," The RUSI Journal 169, no. 7 (2024), 10–22; Ronald Ti and Christopher Kinsey, "Lessons from the Russo-Ukrainian Conflict: The Primacy of Logistics over Strategy," Defence Studies 23, no. 3 (2023), 381–398; Martin van Creveld, Supplying War: Logistics from Wallenstein to Patton, 2nd ed. (Cambridge: Cambridge University Press, 2004).

3 For a discussion on the definitions of deterrence and defence, see, for instance, Albin Aronsson et al., Western Military Capability in Northern Europe 2024, Part III: NATO's Strategy for Deterrence and Defence towards 2030—Matching Ambition and Capabilities, FOI Reports FOI-R--5636--SE (Stockholm: Swedish Defence Research Agency—FOI, 2024), 15; Glenn H. Snyder, Deterrence and Defence (Princetown: New Jersey, 1961), 3.

4 Eva Hagström Frisell, ed., et al., Deterrence by Reinforcement—The Strengths and Weaknesses of NATO's Evolving Defence Strategy, FOI Reports FOI-R--4843--SE (Stockholm: Swedish Defence Research Agency—FOI, 2019); Calle Håkansson, "The Strengthened Role of the European Union in Defence: The Case of the Military Mobility Project," Defence Studies 23, no. 3 (2023), 436–456; Catherine Hoeffler and Stephanie C. Hofmann, "Organizational Overlap and Bureaucratic Actors: How EU–NATO Relations Empower the European Commission," JCMS: Journal of Common Market Studies 62, no. 5 (2024), 1260–1277.

5 North Atlantic Treaty Organization, "Defence Expenditures and NATO's 5% Commitment," June 27, 2025, *https://www.nato.int/en/what-we-do/introduction-to-nato/defence-expenditures-and-natos-5-commitment*.

6 European Commission and the High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament and the Council on Military Mobility, JOIN(2025) 846 final (Brussels, November 19, 2025).

Although several think tank articles and reports have been written on the topic of military mobility, the research efforts have for the most part remained descriptive at a general European level. This study aims to map and analyse the state of play in military mobility in greater depth by focusing on one priority region: the passage formed by the Netherlands, Germany, and Poland. The three countries are strategically crucial for European military mobility owing to their geography, stretching from the Atlantic shore in the west to the border of Belarus and Russia's Kaliningrad Oblast in the east.[7] The Netherlands, Germany, and Poland have also taken on leading roles in military logistics initiatives. Within the framework of the EU's Permanent Structured Cooperation (PESCO), the Netherlands and Germany are among the coordinators of core projects in the field (Military Mobility and NetLogHubs).[8] In early 2024, the three countries also established the so-called Military Mobility Model Corridor[9] (later termed Military Mobility Area, MMA), which aims to harmonise cross-border military mobility.[10] The first of its kind, this MMA is intended to serve as a model for the development of additional similar initiatives across the continent.[11]

By examining military mobility in the three selected countries, with special focus on the MMA, this study aims to contribute to a better understanding of the current state of the field in Europe and to identify principal challenges and areas for further improvement. Lessons learned from the Dutch–German–Polish MMA will be valuable for guiding similar initiatives across Europe. The report furthermore strives to contribute to and inform ongoing policy processes, providing a timely supplement to the latest policy efforts within the EU and NATO.

1.1 Aim and research questions

This study aims to map and analyse the current status and recent developments in military mobility within the Dutch–German–Polish Military Mobility Area (MMA). Secondly, the study examines the state of play in four key domains: infrastructure, lift capabilities, authorities and legislation, and command and control across the three nations. Overall, the study is guided by the following research questions:

- How has the Military Mobility Area between the Netherlands, Germany, and Poland developed over time?
- What is the current status of military mobility in the Netherlands, Germany, and Poland with regard to infrastructure, lift capabilities, authorities and legislation, and command and control?

1.2 Military mobility: Definition and operationalisation

To set up a framework of analysis for the study, we now turn to defining the concept of military mobility, including conceptual challenges. The academic field of military logistics generally remains relatively underconceptualised.[12] Military logistics encompasses "the supply, movement, and maintenance of an armed force," including "the ability of the national infrastructure and manufacturing base to equip, support, and supply the armed forces, the national transportation system to move the forces to be deployed and its ability to resupply

7 Paula Soler, "Kubilius: EU needs at least €70 billion to strengthen military mobility," Euronews, March 25, 2025, *https://www.euronews.com/my-europe/2025/03/25/defence-kubilius-eu-to-strengthen-military-mobility-troops-equipment*.

8 Permanent Structured Cooperation (PESCO), "Projects," *https://www.pesco.europa.eu/#projects*.

9 The original term "corridor" is today used to refer to physical elements and infrastructure within the area, whereas "Military Mobility Area" refers to the non-material, functional elements. In this report, for the sake of clarity and consistency, we have chosen to use "MMA" for all dimensions of the work.

10 Rudy Ruitenberg, "Europeans Set Up Corridor for Rushing NATO Troops Eastward," Defense News, January 31, 2024, *https://www.defensenews.com/global/europe/2024/01/31/europeans-set-up-corridor-for-rushing-nato-troops-eastwar*; DEU/NLD MilMob Office, Introduction into DNO, Presentation (September 18, 2025).

11 Joe Barnes, "Nato Maps Out Plan to Block Russian Invasion," Telegraph, June 4, 2024, *https://www.telegraph.co.uk/world-news/2024/06/04/nato-land-corridors-us-troops-european-war/?msockid=0452d66fd3716dcc2174c0e4d2266c91*. For a discussion on Sweden see: Andreas Ekeskär, Anna Svensson, Herman Andersson and Erik Lundberg, Förutsättningar för transitering av militära förband genom Sverige: En översikt av infrastruktur, administrativa processer och finansieringsmöjligheter, FOI-R--5907—SE (Stockholm: Swedish Defence Research Agency—FOI, 2026).

12 Mark Erbel and Christopher Kinsey, "Think Again—Supplying War: Reappraising Military Logistics and Its Centrality to Strategy and War," Journal of Strategic Studies 41, no. 4 (2018): 519–544; Kane, Military Logistics; John Kent and Daniel Flint, "Perspectives on the Evolution of Logistics Thought," Journal of Business Logistics 18, no. 2 (1997): 15–29; Stephen M. Rutner, Maria Aviles, and Scott Cox, "Logistics Evolution: A Comparison of Military and Commercial Logistics Thought," The International Journal of Logistics Management 23, no. 1 (2012): 96–118; Keenan D. Yoho, Sebastiaan Rietjens, and Peter Tatham, "Defence Logistics: An Important Research Field in Need of Researchers," International Journal of Physical Distribution & Logistics Management 43, no. 2 (2013): 80–96.

that force once they are deployed."[13] NATO defines logistics as "the science of planning and carrying out the movement and maintenance of forces," but member states are entitled to their own organisational operationalisations.[14] At its broadest, logistics within the NATO context comprises:

a. design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposal of materiel;

b. transport of personnel;

c. acquisition or construction, maintenance, operation, and disposition of facilities;

d. acquisition or furnishing of services; and

e. medical and health service support.[15]

Meanwhile, the central concept of the study, *military mobility*, has no official or commonly accepted definition. According to the EU, efforts towards military mobility are intended to ensure "the swift, efficient and unimpeded movement of potentially large-scale forces, including military personnel and their equipment, both in the context of the EU Common Security and Defence Policy (CSDP), as well as for national and multinational activities, notably in the framework of NATO."[16] Within NATO, *force enablement* is a term used for activities that partly overlap with the mobility concept. Force enablement is defined as "the integrated whole-of-government activities that underpin NATO's planning in order to set the conditions for reinforcement and sustainment in peacetime through transition to crisis and follow-on phases."[17] Enablement thus constitutes a somewhat broader concept than mobility, encompassing force sustainment as well as movement. However, the terms are frequently used synonymously.

This report focuses on movement and therefore uses the term *military mobility*, defined simply as *the swift, efficient, and unimpeded movement of military personnel, vehicles, and equipment*. We operationalise the term through four central dimensions that are critical for successfully moving forces across Europe: *infrastructure*, *capabilities*, *authorities and legislation*, and *command and control*.[18] The report is structured around these dimensions, all of which are critical for successfully moving forces across Europe.

Infrastructure relates to maintaining and developing existing infrastructure, adjusting it for dual-use purposes, or building new infrastructure for allied forces to use when transiting through the continent to the front line. Challenges in this dimension include roads, bridges, tunnels, and other infrastructure that are insufficient and are inappropriate for the weight and size of military equipment, or otherwise incompatible. All four modes of transport (road, rail, water, and air) are important for military mobility. However, this report focuses primarily on the land domain, observing seaports only briefly and to the extent that they constitute areas of reception, staging, and forward movement across the continent. The air domain is excluded.

Capabilities refer to carrier acquisition, control, and operation for moving forces, including the necessary fuel supply. Problems in this dimension typically relate to the shortage of carrier capability owing to limited state ownership and/or deficient coordination with commercial carriers. The dimension is often fuzzily operationalised and could in principle cover anything from ship containers to forklifts. Narrowing down the scope, this report looks at two priority capabilities that are of central importance for military mobility and frequently raised in existing mobility analyses: flatbed rail wagons and fuel pipelines.

Authorities and legislation concern streamlining and unifying regulations and procedures at state borders and within states to allow swift passage for troops and equipment, including dangerous goods. Such regulation is, more often than not, complex, prohibitive, and uncoordinated. While regulation could be observed from many different perspectives, the report focuses on

13 "The Development of Military Logistics: An Introduction," Whitehall Papers 52, no. 1 (2000): 1–20.

14 North Atlantic Treaty Organization, Allied Joint Doctrine for Movement, NATO Standard AJP-4.4, Edition C, Version 1 (NATO Standardization Office, September 2022), Lexicon-4, *https://www.coemed.org/files/stanags/01_AJP/AJP-4.4_EDC_V1_E_2506.pdf*

15 NATO Standardization Office, Allied Joint Doctrine for Movement, Lexicon-4.

16 European Commission and the High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament and the Council: Action Plan on Military Mobility 2.0, JOIN(2022) 48 final (Brussels, November 10, 2022), 2.

17 North Atlantic Treaty Organization, Allied Joint Doctrine for Sustainment of Operations, NATO Standard AJP-4, Edition C, Version 1 (NATO Standardization Office, August 2025), LEX-4, *https://assets.publishing.service.gov.uk/media/68b836b83f3e5483efdba937/AJP-4_Ed_C_V1-O.pdf*.

18 Jürgen Knappe and Sergei Boeke, "JSEC: NATO's New Reinforcement Command," Atlantisch Perspectief 45, no. 4 (2021): 35; Sollfrank and Boeke, "Enablement and Logistics," 14–21; Curtis M. Scaparrotti and Colleen B. Bell, Moving Out: A Comprehensive Assessment of European Military Mobility (Washington, D.C.: Atlantic Council, Scowcroft Center for Strategy and Security, April 2020), 8.

two particular problems that have been identified as particularly restraining in Europe: the sluggishness of border procedures and the great variation in regulation between different countries.

Command and control (C2) entails the planning, preparation, and execution of operations, involving all necessary actors. With regard to military mobility, the dimension primarily concerns clarifying military and civilian organisational relationships.[19] In peacetime, C2 is almost exclusively a national responsibility, while in wartime, command is transferred to NATO, contingent upon member states' decisions. Because of the distinctive nature of the C2 dimension and the difficulty of gaining insight into it, the study takes a circumscribed approach to C2, focusing primarily on coordination and information exchange processes rather than command structures. Challenges relate to inefficient information exchange and a lack of structures and experience.[20]

Most problems inhibiting the movement of troops and equipment fall within the remit of these four broad categories of challenges. For instance, an undecipherable customs form is an instance of poor regulation, while the unavailability of a suitable carrier may be due to capability shortages or poor planning and coordination – or both. The challenges may appear in different shapes and sizes, in different places, and in different combinations. A particular instance of a challenge may be known or unknown beforehand. The accumulation of challenges, even if minor, can together cause significant friction for the movement of forces and equipment.

1.3 Methods and sources

The focused case study is based on primary and secondary documentary sources as well as semi-structured interviews. The sources used are publicly available and consist primarily of official documents and publications from the organisations examined in the study, including NATO, the European Union, and relevant member states. In addition, we make extensive use of academic research, think tank reports, and media coverage related to the development of the MMA under review.

Interviews were conducted with representatives of the various actors involved in the military mobility work within the MMA case study and beyond. This included representatives from the German Federal Ministry of Defence, NATO's Joint Support and Enabling Command (JSEC), the Germany–Netherlands Office for Military Mobility (DEU-NLD-Office, DNO), and the European Defence Agency (EDA), as well as experts from European and American think tanks and research institutions. These actors were asked about the state of play, progress, and impediments to military mobility within their areas of responsibility or expertise. Moreover, we conducted interviews with Swedish representatives, including officials from the Ministry of Defence, the Armed Forces, and the Ministry of Infrastructure, to inform the initial design of the study and to help guide subsequent discussions with other stakeholders interviewed as part of this research. Finally, we conducted an interview with industry representatives. A total of twelve interviews with 21 informants were conducted between June and September 2025, some in person in Stockholm, Berlin, and Ulm, while others were online.

1.4 Delimitations

The study was conducted within a clearly defined scope and delimitations. First, the study focused on *policymaking and policy implementation* related to *strategic* military mobility. The focus on policy ruled out technical aspects of military logistics, such as calculating carrier tonnages. Strategic mobility, as used here, specifically refers to moving troops and equipment across Europe, rather than across the Atlantic from the United States to Europe or tactically at front lines. Equally, activities pertaining to extra-European missions and operations within the framework of the CSDP are excluded.

Second, the study excluded certain aspects closely associated with military mobility, such as cyber defence, the impact of new technologies on logistics, and the protection of critical assets. Such dimensions are sometimes included in definitions and discussions of military mobility or force enablement but were excluded here for purposes of focus and feasibility.[21]

Third and finally, the study empirically investigated the dimensions of military mobility in peacetime, or the grey zone between peacetime and crisis in which Europe found itself in 2025. Policy work on military mobility and force enablement is essentially a peacetime

19 Knappe and Boeke, "JSEC," 35.

20 Chris Johnson, "Mobility Challenges in the European Theater," Army Sustainment, July–August 2018, *https://alu.army.mil/alog/2018/JULAUG18/PDF/206866.pdf*; Allied Joint Support and Enabling Command, JSEC in the NATO World, Presentation, September 17, 2025; Scaparrotti and Bell, Moving Out.

21 For a focus on these issues, see, for instance: Daniel Fiott, Keep It Moving: From Mobility to Logistics in European Defence, CSDS Policy Brief 26 (Brussels: Centre for Security, Diplomacy and Strategy, September 25, 2024); Torben Schütz and Zoe Stanley-Lockman, Smart Logistics for Future Armed Forces, Research Report (European Union Institute for Security Studies, November 2017).

activity carried out in preparation for crisis and conflict, and we have not sought to simulate conditions of crisis and conflict.[22] The analysis also excluded mobility related to assistance to the Ukrainian war effort, even though these activities have likely produced many relevant insights for European states.[23] At the same time, the effort towards improved military mobility and force enablement obviously aims at and has implications for times of crisis and conflict, and certain judgments in the report have been made with that view.

1.5 Structure of the report

This introductory chapter sets the stage for the report by explaining the relevance of military mobility in the European context, as well as defining the overall framework of analysis. Chapter 2 provides an overview of the historical development of military logistics in post-Cold War Europe, with particular attention to mobility initiatives introduced since 2018. Chapter 3 focuses empirically on the MMA that connects the three nations. The chapter begins by outlining the current status of the Military Mobility Area across the three nations, followed by a description of the state of each country across four central dimensions of military mobility: infrastructure, (lift) capabilities, authorities and legislation, and command and control. This is followed by the concluding Chapter 4, which summarises and further analyses the main lessons learned, and looks to future developments in the field.

22 Knappe and Boeke, "JSEC," 35–36; Sollfrank and Boeke, "Enablement and Logistics," 12, 16.

23 For example, Germany has scaled down bureaucratic procedures for military transports related to aid to Ukraine; see page 33 of this report.

2. Background: The development of military mobility in Europe

The idea of military logistics has arguably remained simple and unchanged throughout history. Now as in the past, its purpose is to move and support military forces in a manner synchronised through space and time.[24] However, the practical execution of military logistics has undergone significant changes over the past decades, owing to various societal developments ranging from technology to management philosophy and beyond. Equally, in the European context, the perceived importance of the ability to move troops and equipment has varied with the shifting security environment. This chapter provides an overview of these developments from the end of the Cold War until recent years.

2.1 Developments in European military mobility 1991–2014

During the Cold War, NATO combat forces were placed in forward positions, primarily in West Germany. Reinforcements were maintained in prearranged locations and at varying degrees of readiness in national sectors, with each Allied nation responsible for logistics in their own sector. Troops and their equipment generally crossed national borders from the Netherlands, Belgium, or France into Germany, with the distances from the borders to the frontlines being some 500 kilometres. The supply lines were relatively short and secure. The military logistics system was overall simple, with little joint planning needed between the nations.[25]

After the end of the Cold War, the practice of European military logistics changed drastically, owing to geopolitical as well as managerial and technological developments. Technological advances changed logistical precepts, making possible what was previously impossible. The speed of operations increased, and the military operational range expanded to a global reach and to the space and cyber domains.[26] The battlespace shifted, as long-range, high-precision weaponry made logistics services increasingly vulnerable compared to the Cold War era. New tactical logistics solutions, such as dispersal, quick movements, avoidance of large supply hubs, and emplacements further to the rear, became increasingly necessary.[27]

At the same time, the changing modes of industrial production and organisational management rearranged how military logistics was directed. Starting in the 1980s, the post-Fordist wave swept through industrial production and New Public Management through administrative organisations across societies.[28] Both models aspired to a more efficient use of resources by prioritising flexibility, responsiveness, networked systems, centralised management, and decentralised production, while outsourcing non-core functions. In line with these trends, and spurred by experiences notably from the Gulf War of 1990–1991, the military logistics field shifted from a mass-based system to a leaner one.[29] In somewhat simplified terms, in the new system,

24 Patrick Bury, "Conceptualising the Quiet Revolution: The Post-Fordist Revolution in Western Military Logistics," European Security 30, no. 1 (2021): 114; Christopher Kinsey and Ronald Ti, "Combat Logistics in the Twenty-first Century: Enabling the Mobility, Endurance, and Sustainment of NATO Land Forces in a Future Major Conflict," in Advanced Land Warfare: Tactics and Operations, ed. Mikael Weissmann and Niklas Nilsson (Oxford: online ed., Oxford Academic, April 20, 2023); Matthew Uttley and Christopher Kinsey, "The Role of Logistics in War," in The Oxford Handbook of War, ed. Yves Boyer and Julian Lindley-French (Oxford: online ed, Oxford Academic, 2012); Van Creveld, Supplying War.

25 Bury, "Conceptualising the Quiet Revolution," 119–120.

26 Aldemar Serrano et al., "Evolution of Military Logistics," Logistics 7, no. 2 (2023).

27 Kinsey and Ti, "Combat Logistics", 73–75; Sollfrank and Boeke, "Enablement and Logistics," 12.

28 Bury, "Conceptualising the Quiet Revolution"; Adam Eckerd and Keith Snider, "Does the Program Manager Matter? New Public Management and Defense Acquisition," American Review of Public Administration 47, no. 1 (2015): 36–57; Anthony King, Command (Oxford: Oxford University Press, 2019); Carlos Ortiz, "The New Public Management of Security: The Contracting and Managerial State and the Private Military Industry," Public Money & Management, 30, no. 1 (2009): 35–41.

29 Zoe Stanley-Lockman, "Revisiting the Revolution in Military Logistics: Technological Enablers Twenty Years on," in Disruptive and Game Changing Technologies in Modern Warfare: Development, Use, and Proliferation, ed. Margaret E. Kosal (Cham: Springer, 2019), 199–201.

the traditional military supply chain logic of "just-in-case" was replaced by a commercial logic of "just-in-time." Stocks were not maintained to the same extent, redundancies were eliminated, and many services were outsourced to private, often civilian commercial companies.[30] These practices reduced costs and boosted the efficiency of military logistics, but they also increased vulnerabilities. The minimal slack in supply chain management systems left little space for rebound in case of shocks and disruptions, whether military or non-military in character.[31] Sharing infrastructure and equipment with commercial actors entailed scheduling compromises, a loss of in-house knowledge and capability, and reliance on less secure and robust technology and systems. Critics have highlighted that such liabilities involve great risks in the defence domain, where logistics systems must be judged by their operational rather than cost-effectiveness.[32]

In terms of geopolitics, the fall of the Soviet Union and the diminished threat in Europe entailed a dismantling or neglect of many logistical deterrence and defence structures and systems. NATO strategy was refashioned to focus on out-of-area operations instead of collective territorial defence. Transport infrastructure was no longer designed primarily with military requirements in mind. At the same time, NATO's enlargement to former Eastern Bloc countries in the early 2000s brought about new needs and challenges from the perspective of Allied territorial defence. The front line between NATO and Russia moved from Germany deep into Eastern Europe. In the new member states, roads and railways were often in poor condition and incompatible with NATO equipment. The distance multiplied for Allied troops and materiel to travel from the point of disembarkation to the front lines, as did the number of national borders to cross to reach them. The defensive border lengthened, first running from Estonia to Poland and, more recently, extending along the length of Finland.[33] Furthermore, as European integration accelerated, EU legislation increasingly took precedence over national legislation in fields of central importance for military mobility, such as customs. While regulation was thus unified and streamlined across member states, in some cases, it also partly complicated military logistical considerations owing to overlapping institutional structures.

Together, the shifts in technology, management philosophy and practice, geopolitics, and strategy left Europe logistically ill equipped and vulnerable as conventional security threats gradually re-emerged in the 2010s and 2020s. With Russia acting increasingly aggressively in Europe, military logistics again had to be adapted to a new reality. The following section outlines these efforts within the field of military mobility.

2.2 First steps towards improved mobility 2014–2021

Russia's illegal annexation of Crimea in 2014 and the ensuing first war in Ukraine served as a wake-up call for NATO.[34] In the first years, reassurance of eastern-flank allies was pursued through relatively moderate measures such as air policing, maritime patrol activities, and the enhancement of the NATO Response Force (NRF).[35] NATO also renewed its emphasis on collective defence exercises, not only increasing their frequency but also expanding their scale.[36] These larger exercises quickly revealed a range of challenges to military mobility in Europe with regard to infrastructure, capabilities, regulation, and command and control.

Urged by eastern-flank allies, NATO gradually took a more decisive stand on deterring Russia and reinforcing military presence on the eastern flank. In 2017, it established the enhanced Forward Presence (eFP) in front line states, with forward-placed Allied battlegroups to ensure wider Allied engagement in case of

30 Bury, "Conceptualising the Quiet Revolution".

31 Bury, "Conceptualising the Quiet Revolution"; Martin Christopher and Matthias Holweg, "'Supply Chain 2.0': Managing Supply Chains in the Era of Turbulence," International Journal of Physical Distribution & Logistics Management 41, no. 1 (2011), 63–82; Anna M. Dowd, Dominik P. Jankowski and Cynthia R. Cook, European Warfighting Resilience and NATO Race of Logistics, CSIS Briefs (Washington, D.C.: Center for Strategic and International Studies, 2023).

32 Bury, "Conceptualising the Quiet Revolution," 132.

33 Dowd, Jankowski, and Cook, European Warfighting Resilience; Scaparrotti and Bell, Moving Out.

34 This section builds heavily on the forthcoming book chapter: Calle Håkansson, "EU–NATO Relations on Territorial Defence: The Case of Military Mobility," in European Security after Ukraine, ed. Marianne Riddervold and Pernille Rieker (Edward Elgar Publishing, forthcoming).

35 Eva Hagström Frisell and Karl Agell, "NATO's Return to Deterrence and Defence 2014–2024," in Western Military Capability in Northern Europe 2024, Part III: NATO's Strategy for Deterrence and Defence towards 2030, ed. Albin Aronsson et al., FOI Reports FOI-R--5636--SE (Stockholm: Swedish Defence Research Agency—FOI, 2024), 25–27. See also: Alexander Mattelaer, "Rediscovering Geography in NATO Defence Planning," Defence Studies 18, no. 3 (2018): 339–356.

36 Albin Aronsson and Björn Ottosson, Västlig övningsverksamhet 2014–2019: Anpassning, utveckling och framsteg, FOI Reports FOI-R---4875--SE (Stockholm: Swedish Defence Research Agency—FOI, 2020), 21–32; Hodges, Lawrence, and Wojcik, Until Something Moves; Scaparrotti and Bell, Moving Out.

Russian aggression. The following year, the eFP forces were backed up by plans for rapid reinforcement in the event of crisis or conflict.[37] Recognising that effective deterrence and defence rely on credible reinforcement capabilities, Allied leaders committed to enhancing such capabilities and prioritising improvements to military mobility throughout NATO territory and in all domains: land, sea, and air.[38] The new commitment was concretely enacted through the establishment of the Joint Support and Enabling Command (JSEC) in Ulm, Germany. This new command was tasked with supporting and coordinating the movement of forces across the Supreme Allied Commander Europe's (SACEUR) area of responsibility.[39]

At the same time, momentum for enhanced defence cooperation was also building within the EU. Russia's aggression against Ukraine, the withdrawal of the United Kingdom from the Union and the election of Donald Trump as president of the United States all called for bolstering European security.[40] In 2016, the EU and NATO strengthened their partnership by signing the first Joint Declaration on EU–NATO cooperation. A second declaration followed in 2018, explicitly identifying military mobility as a shared strategic priority.[41] Since then, military mobility has emerged as the "flagship" of EU–NATO collaboration with the aim of addressing bureaucratic and regulatory hurdles that slow military mobility across Europe.[42]

Intensified cooperation and coordination with NATO also helped put military mobility on the EU's broader security and defence agenda.[43] Since 2017, a number of EU initiatives on mobility ensued. These included, notably, a dedicated EDA working group established in the autumn of 2017 and the EU Action Plan on Military Mobility, with a parallel EDA Military Mobility Roadmap adopted in early 2018.[44] One of the first practical tasks following the adoption of the Action Plan was the definition of military transport needs across the EU. These efforts were undertaken in coordination with NATO, which provided the EU with military infrastructure requirements to help guide this work.[45] Beyond the common EU framework, EU member states undertook to promote military mobility within the PESCO programme, where mobility was made one of the new binding commitments. Under the leadership of the Netherlands, a dedicated PESCO project on Military Mobility focused on practical cooperation, such as sharing experiences, creating a network of national contact points to streamline border-crossing procedures, and contributing to wider EU–NATO coordination in this area. In this way, the project sought to align national legislation between member states, with a particular focus on expediting border-crossing processes for military assets.[46] A related project, the Network of Logistics Hubs in Europe and Support to Operations (NetLogHubs), was initiated by Germany together with Cyprus and France, with the aim of developing logistics and military transport on the continent.[47]

The EU was at the same time embroiled in budget negotiations for its 2021–2027 MFF. While the European Commission had initially proposed allocating €6.5 billion to military mobility and infrastructure funding, the final agreement saw this figure sharply reduced to a limited amount of €1.69 billion, owing to general budgetary downsizing following Brexit. This cut, which limited the funds specifically to dual-use infrastructure projects, was widely criticised by several

37 Hagström Frisell and Agell, "NATO's Return," 25–27.

38 North Atlantic Treaty Organization, "Brussels Summit Declaration," July 11, 2018, *https://www.nato.int/cps/en/natohq/official_texts_156624.htm*; Hagström Frisell, ed., et al., Deterrence by Reinforcement; Håkansson, "The Strengthened Role."

39 Knappe and Boeke, "JSEC."

40 Håkansson, "The Strengthened Role."

41 President of the European Council, President of the European Commission, and Secretary General of the North Atlantic Treaty Organization, Joint Declaration on EU–NATO Cooperation, July 10, 2018, *https://www.consilium.europa.eu/en/press/press-releases/2018/07/10/eu-nato-joint-declaration/*.

42 Scaparrotti and Bell, Moving Out.

43 Håkansson, "The Strengthened Role"; Hoeffler and Hofmann, "Organizational Overlap."

44 European Commission and High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament and the Council on the Action Plan on Military Mobility, JOIN(2018) 5 final (Brussels, March 28, 2018).

45 Håkansson, "The Strengthened Role"; Hoeffler and Hofmann, "Organizational Overlap".

46 Raoul Bessems, "Moving Outside the Box: Military Mobility as the Key to Enabling European Security and Defense," *Atlantisch Perspectief* 45, no. 4 (2021): 28–32; Tania Laţici, Military Mobility Infrastructure for the Defence of Europe, Briefing PE 646.188 (Brussels: European Parliamentary Research Service, February 2020).

47 European External Action Service and European Defence Agency, (DE) Network of Logistics Hubs in Europe and Support to Operations (NetLogHubs), *https://www.pesco.europa.eu/wp-content/uploads/2025/10/2025-DE-Network-of-Logistic-Hubs-in-Europe-and-Support-to-Operations-NetLogHubs-Website-leaflet.pdf*.

member states and by NATO officials as falling short of the Union's stated ambitions.[48]

Overall, while Russia's aggression against Ukraine in 2014 supplied the first impetus to NATO's strategic shift back to deterrence and defence, efforts to improve military mobility were slow to develop. Only in 2018 were the first real advancements made, including within EU institutions, NATO structures, and through intergovernmental cooperation under the PESCO framework.

2.3 Post-2022: Intensified investments

The need to improve military mobility became significantly more urgent following Russia's full-scale invasion of Ukraine in February 2022. In response, NATO quickly activated its operational defence plans and began deploying additional forces to reinforce its posture along the eastern flank. This rapid mobilisation saw reinforcements sent to key frontline countries such as Estonia, Latvia, Lithuania, Poland, and Romania.[49] However, the deployments once more exposed persistent shortcomings and practical barriers to Europe's military mobility. With the multiplied number of high-readiness forces to be transported rapidly across Europe, enhancing the capacity to move troops and equipment became an even more central operational priority.[50]

On the part of the EU, the so-called Strategic Compass of 2022 emphasised the urgency that the Russian attack on Ukraine entailed for developing military mobility in Europe.[51] In November 2022, the Union rolled out an updated Military Mobility Action Plan 2.0. This plan aims, among other things, to strengthen fuel supply resilience, support strategic, long-term infrastructure investments, and optimise the use of existing transport networks.[52] Subsequent EU efforts have included the 2023 introduction of updated transport network standards; the 2024 launch of the Military Mobility Pledge to remove barriers to military mobility; and the 2025 initiation of work on some 500 "hotspot" projects to upgrade critical infrastructure.[53] The latter include widening railway tunnels, reinforcing road and railway bridges, and expanding port and airport terminals, among other improvements.[54] Furthermore, responding to the heightened security demands, the European Commission accelerated the allocation of funds for military mobility, leading to the full utilisation of the dedicated budget by 2024. In November 2025, the Commission moreover presented its latest military mobility package, which notably includes proposals for speeding up border administration and for pooling and sharing transport capabilities between member states and with civilian companies.[55]

Furthermore, several member states have also launched bilateral and regional projects to tackle mobility challenges more directly. In this context, the Netherlands, Germany, and Poland concluded an agreement to establish a dedicated military "corridor" to streamline troop movements across their territories. The agreement covered steps to harmonise national procedures, improve logistical support along transit routes, such as refuelling and rest areas, and assess options for prioritising military convoys on rail networks ahead of civilian traffic.[56] By mid-2024, Greece, Bulgaria, and Romania had announced the creation of a similar corridor aimed at improving cross-border mobility in southeastern Europe. Likewise, in autumn 2024, the Nordic countries initiated their own work to develop a northern corridor. These efforts have since been integrated into NATO's broader plans for a series of "land corridors," intended to strengthen force mobility in the eastern parts of the Alliance.[57] The corridors have since been rebranded "Military Mobility Areas" (MMAs) to highlight that mobility does not depend on a single route or mode of transport.

Overall, all of these developments illustrate a complex, multi-level effort involving numerous actors,

48 Sabine Siebold, Anthony Deutsch, and Andrius Sytas, "Red Tape, Potholes and Politics Hamper Nato's Defence Efforts as the Russia Threat Rises," Reuters, November 21, 2022, *https://www.reuters.com/investigates/special-report/ukraine-crisis-europe-defence/*.

49 Hagström Frisell and Agell, "NATO's Return."

50 North Atlantic Treaty Organization, "NATO Force Model," April 2, 2025, *https://www.nato.int/cps/en/natohq/topics_234075.htm*.

51 European External Action Service, "A Strategic Compass for Security and Defence," March 22, 2022, *https://www.eeas.europa.eu/sites/default/files/documents/strategic_compass_en3_web.pdf*.

52 European Commission and the High Representative of the Union for Foreign Affairs and Security Policy, JOIN(2022) 48 final.

53 Mihai Sebastian Chihaia, Military Mobility 2.0 Revisited: Lessons Learnt, Policy Brief (Brussels: European Policy Centre, November 13, 2024).

54 European Commission and the High Representative of the Union for Foreign Affairs and Security Policy, White Paper for European Defence—Readiness 2030 (Brussels, March 2025), 8.

55 European Commission and the High Representative of the Union for Foreign Affairs and Security Policy, Joint Communication to the European Parliament and the Council on Military Mobility, JOIN(2025) 846 final (Brussels, November 19, 2025), 8.

56 Ruitenberg, "Europeans Set Up Corridor."

57 Barnes, "Nato Maps Out Plan"; Chihaia, Military Mobility 2.0.

grounded in a common understanding of the strategic importance of improving military mobility across Europe. However, while several important declarations have been made at the political level, the adoption and implementation of the initiatives in many cases remain open. Tangible progress is often difficult to achieve, especially among all 27 EU member states and 32 NATO nations. Meanwhile, minilateral regional initiatives may hold significant potential. To investigate this, the report examines the development of the Military Mobility Area of the Netherlands, Germany, and Poland in depth in the next section, alongside the current state of play in the areas of infrastructure, (lift) capabilities, authorities and legislation, and command and control within the examined countries.

3. Military Mobility in the Netherlands, Germany, and Poland

Military mobility has seen significant developments in recent years, as evidenced by the previous chapter. One of the more tangible initiatives is the Military Mobility Area, which was initiated by the Netherlands, Germany, and Poland, and to which the first part of this chapter is devoted. The initiative and progress of the MMA in streamlining cross-border movements in Europe, along with its challenges, is described and analysed. At the end of the section, an illustrative example of when the MMA was tested for the first time is provided.

However, progress and impediments to mobility are also observed within the nations themselves, and more precisely in the four dimensions of military mobility: infrastructure, capabilities, authorities and legalisation, and command and control. Hence, the second part of this chapter provides an overview and analysis of the present state and progress observed within these four dimensions of military mobility in the Netherlands, Germany, and Poland. The first two dimensions, infrastructure and (lift) capabilities, are primarily national responsibilities. Hence, these sections are organised by country. Meanwhile, authorities and legislation as well as command and control are of a more cross-national character, which motivates a format change to thematic sub-sections.

3.1 The Netherlands–Germany–Poland Military Mobility Area

The Dutch–German–Polish "corridor" of military mobility encompasses the entire territory of the three countries and is intended to streamline military mobility and enable faster, more coordinated troop movements across the continent. The initiative began at the national level, as the three countries realised that planning for military transportation took far too long, involved excessive paperwork, and repeatedly became stalled at their own borders.[58] The initiative was activated by JSEC, which designed the corridor with the Reinforcement and Sustainment Network (RSN) and NATO requirements as a basis, and it was subsequently implemented jointly by Poland, Germany, and the Netherlands.[59]

Although predetermined roads and railways are of particular importance in the MMA, multiple routes are considered in the planning process. Military exercises have demonstrated that NATO cannot rely on only a few routes or corridors. Planning and mapping also cover, for example, bridges that could be knocked out. If a single road or railway is sabotaged or otherwise rendered unusable, the aim is to prevent a breakdown of the entire system. Despite this, there are certain critical chokepoints where redundancy remains limited. Moreover, military mobility in the area is significantly complicated by civilian traffic and movement. Not only might a crisis cause millions of civilians to move in the opposite direction, but injured civilians and civilian vehicles also have to be taken into account. Consequently, one of the objectives of the work within the MMA has been to separate military and civilian movement.[60]

The responsibility for cross-border movements of military troops within the MMA falls under the Host Nation Support (HNS) concept. Accordingly, the nation through which allied troops are passing is responsible for coordinating troop movements and all related activities in close coordination with NATO. In Germany, for example, the Bundeswehr Joint Forces Command is responsible for multinational military movements across the country. As soon as the troops cross the German–Polish border, Poland takes over the host nation support. This requires close coordination between the armed forces, which has been fostered within the MMA initiative.[61]

Along the whole MMA, Convoy Support Centres, providing rest areas, food, and refuelling stations, have been established in sequence along the corridor. While the logistics of the physical corridor are entirely managed

58 Defence Leaders, "Breaking Barriers: Streamlining Military Mobility Across Europe," LinkedIn video, August 2025, *https://www.linkedin.com/posts/defence-leaders_breaking-barriers-streamlining-military-activity-7360618814889160704-XnEo*.

59 Soldat & Technik, "Military Mobility: Musterkorridor für grenzüberschreitenden militärischen Verkehr erfolgreich getestet" [Military mobility: Model corridor for cross-border military traffic successfully tested], September 23, 2024, *https://soldat-und-technik.de/2024/09/mobilitaet/39923/military-mobility-musterkorridor-fuer-grenzueberschreitenden-militaerischen-verkehr-erfolgreich-getestet/*.

60 Interview 5, 2025.

61 Interview 5, 2025.

by the three countries, with no involvement of private actors, the support centres will most likely be provided by the civilian and private sector. Hence, coordinating and caring for the MMAs will demand a whole-of-society approach in the countries involved.[62] In Germany, for example, Rheinmetall has signed contracts to care for some of the support centres.[63] This will include, among other things, the provision and operation of services such as catering facilities, overnight accommodations, energy supply, and security services.[64]

A particular focus of the Dutch–German–Polish MMA has been to harmonise rules and procedures within the MMA so that military movement between the three countries is faster and smoother. This harmonisation, as well as management of potential obstacles, has been assigned to a dedicated working group (WG) with representatives from the three countries. The WG has identified four areas that urgently demand harmonisation and that also align with the four dimensions of military mobility in this report: cross-border and transit processes (corresponding to this report's "authorities and legislation"); the availability of movement assets ("capabilities"); information exchange processes ("C2"); and synchronisation of infrastructure development ("infrastructure"). Over eighteen months, the WG has drafted recommendations covering twenty issues within these four areas on an executive level, to then be agreed by a steering group (SG) on a policy level. The WG has placed emphasis on the administrative and legal procedures for military transport; most of the recommendations put forward concern cross-border and transit processes. Efforts relate, among other things, to the numerous documents and movement clearances required for cross-border transport. The WG recommends that only a single Movement Bid and one integrated Movement Clearance should be required for cross-border movements across the entire corridor.[65]

Once the SG has approved the recommendations, the next step in the process is for the recommendations to be approved and implemented at the national level in the MMA countries. This might entail changing national laws, and in many cases be complicated and time-consuming. As of the autumn of 2025, more than half of the recommendations had already begun to be implemented across the three countries. However, the implementation process on the national level has been time-consuming and complicated by national political tensions and caveats. In many cases, revision of national legislation has been necessary. A telling example of how complex these processes can be was provided when the Military Mobility Area countries decided to introduce common flag rules for military convoys. Although initially perceived as a relatively straightforward issue, the working group quickly discovered that the matter was far more complicated than expected. Implementing such a change required amendments to national laws and regulations, which in turn necessitated the involvement of several other ministries and agencies in each of the three countries.[66] For example, in the Netherlands this meant revising all traffic regulations, including drivers licence requirements, to align with the new recommendations.[67] What seemed like a minor procedural adjustment thus revealed the intricate web of legal, administrative, and institutional factors that can slow progress in improving military mobility.

Furthermore, the process has been made less effective by the absence of a monitoring function on a supranational level, to facilitate coordination and national implementation.[68] While the MMA is to a great extent being developed with a bottom-up approach, further steps require a top-down approach with clear guidance from the EU and NATO, guidance that currently does not exist.[69]

62 Interview 5, 2025; Interview 11, 2025.

63 Björn Müller, "Drehscheibe ohne Schwung" [Turntable without momentum], loyal das Magazin, March 3, 2025 *https://www.reservistenverband.de/magazin-loyal/drehscheibe-ohne-schwung/*.

64 Maximilian Fürstenberg and Beatrix Heykeroth, "Zivile Hilfe, Truppen-Bewegungen: Das bedeutet der 'Operationsplan Deutschland'" [Civilian aid, troop movements: This is what the "operation plan Germany" means], Mitteldeutscher Rundfunk (MDR), April 8, 2025, *https://www.mdr.de/nachrichten/sachsen-anhalt/magdeburg/magdeburg/operationsplan-deutschland-truppen-bewegungen-verteidigungsfall-auswirkungen-104.html*.

65 Interview 5, 2025; Interview 9, 2025; Ministry of Defence of the Kingdom of the Netherlands, Federal Ministry of Defence of the Federal Republic of Germany, and Ministry of National Defence of the Republic of Poland, Final Report Concerning the Establishment of Harmonized Military Mobility Corridors between Their Three Nations: "NLD–DEU–POL Model Corridor Military Mobility" (September 15, 2025).

66 Boeke, "Militaire mobiliteit."

67 Interview 9, 2025.

68 Interview 5, 2025.

69 Ministry of Defence of the Kingdom of the Netherlands, Federal Ministry of Defence of the Federal Republic of Germany, and Ministry of National Defence of the Republic of Poland, Midterm Letter Concerning the Establishment of Harmonized Military Mobility Corridors between Their Three Nations (January 31, 2025).

After concluding the work within the Dutch–German–Polish MMA in the autumn of 2025, it was decided later that year to build upon these efforts. In November 2025, the Netherlands, Germany, and Poland, together with Belgium, the Czech Republic, Lithuania, Luxembourg, and Slovakia, thus signed a new Letter of Intent (LOI) to establish the "Central Northern European Military Mobility Area" (CNE MMA).[70] In doing so, Belgium, the Czech Republic, Lithuania, Luxembourg, and Slovakia committed to implementing the recommendations already agreed upon by the Dutch–German–Polish MMA. In time, the initiative is also intended to expand to the other Baltic states, with the aim of establishing a Tri-Baltic Military Mobility Zone.[71] Overall, this demonstrates how best practices for improving military mobility can spread from a smaller group of states and later be adopted by other European countries.

To provide an illustrative example of cross-border movement within the Dutch–German–Polish Military Mobility Area, the next section outlines and discusses the military exercise DeployEx 2024, which served as the first test of the MMA, as well as the follow-up exercise Serpents Ride 2025.

Exercising the MMA

From 18–20 September 2024, the MMA in the Netherlands, Germany, and Poland was tested for the first time in the military exercise DeployEx 2024. The purpose was to practically assess and verify the procedures and recommendations put forward by the three countries' working group. A German unit of approximately twenty vehicles travelled the roughly 1,000-kilometre journey from the Netherlands through Germany and into Poland.[72]

The small-scale exercise commenced in the Port of Vlissingen in northwestern Netherlands, and travelled northwards to the German border. The convoy made several stops along the route to refuel, rest, and eat. The first stop was at the Oranje Barracks (Oranjekazerne) in Schaarsbergen, Netherlands.[73] Thereafter, the journey continued into Germany, mostly along highways such as the A2 Autobahn, through the state of Lower Saxony. The A2/E2 is the backbone route from Germany to Poland. A stop was made at a specially equipped military refuelling station along the route. The convoy then continued eastwards through the German states of Saxony-Anhalt and Brandenburg, subsequently crossing the border into Poland.[74]

Where in Poland the MMA exercise ended is not publicly known. However, if one were to travel 1,000 kilometres eastward from the Port of Vlissingen in the Netherlands, crossing all the said stops and states in Germany, the journey would likely end in northwestern Poland, where the city of Poznan is one plausible end point. Poznan hosts several military training facilities, and is also the permanent home of the US Army V Corps Forward Command Headquarters and the US Army Garrison in Poland.[75] Furthermore, the route from Germany to Poznan along the A2 Autobahn and parallel railway E20 is commonly used in military exercises, such as the DEFENDER-Europe exercises of 2020 and 2022.[76]

DeployEx was conducted very early in the implementation phase of the MMA and on a national level. However, the initiative for the exercise came from a higher military level, providing a sense of urgency and momentum for testing it early on.[77] The exercise provided valuable lessons. One takeaway was that developing and implementing recommendations takes time. The exercise also demonstrated the importance of personal networks and contacts for resolving military mobility issues. The insights from DeployEx were later shared with the US rotating forces in Germany.[78]

The 2025 iteration of the exercise, Serpents Ride 2025, included the same content except for testing new recommendations and additional training objectives.

70 Ministère de la défense, "Vers une 'zone Schengen militaire': la Défense rejoint un nouveau projet européen de mobilité" [Towards a 'Military Schengen Zone': Defence joins a new European mobility project], November 13, 2025. *https://www.mil.be/fr/news/vers-une-zone-schengen-militaire-la-defense-rejoint-un-nouveau-projet-europeen-de-mobilite/*.

71 Ministry of Defence of the Republic of Lithuania, "Lithuania contributes to smooth military mobility in Europe," November 13, 2025.

72 Ministerie van Defensie, "Militaire mobiliteit: Nederland laat Duits konvooi op rolletjes lopen" [Military Mobility: The Netherlands ensures that the German convoy runs smoothly], Dutch Ministry of Defence, September 18, 2025, *https://www.defensie.nl/actueel/nieuws/2024/09/18/militaire-mobiliteit-nederland-laat-duits-konvooi-op-rolletjes-lopen;* Bundeswehr News, "Erfolgreicher Test."

73 Ministerie van Defensie, "Militaire mobiliteit.

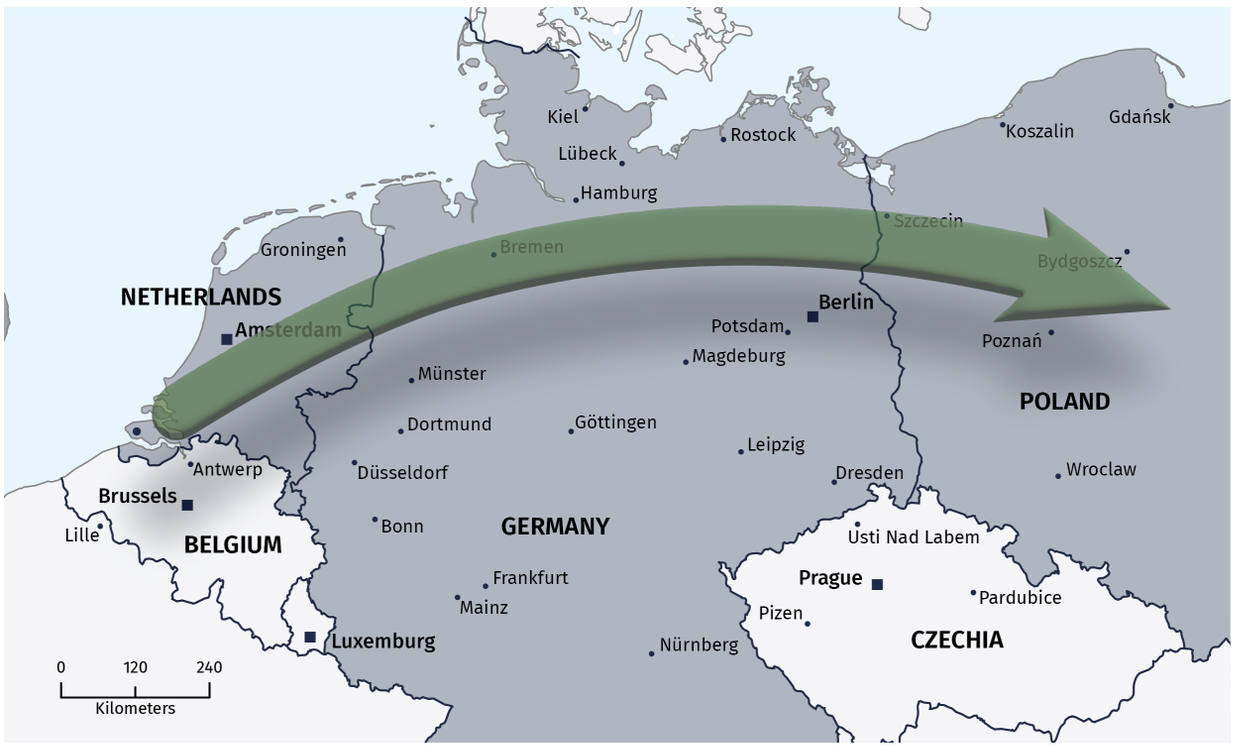
74 Bundeswehr News, "Erfolgreicher Test"; Antonia Colibasanu, Nothing Happens Until Something Moves: Infrastructure Development Priorities on NATO's Eastern Flank, Report (Wilmington: Delphi Global Research Center, 2025); Soldat & Technik, "Military Mobility."

75 Ministry of National Defence, Republic of Poland, "Increasing the US Military Presence in Poland," *https://www.gov.pl/web/national-defence/increasing-the-us-military-presence-in-poland*.

76 Colibasanu, "Nothing Happens Until."

77 Interview 5, 2025.

78 Interview 5, 2025.



Map 1.1 Overview of the route taken in DeployEx
Source: Design by Karin Blext.

Cross-border movement from eastern Germany to Poland and the Czech Republic and then back to Germany was practiced but now with new elements through the involvement of the HNS concept. While it was fruitful to conduct the exercise on a smaller scale for testing procedures, in the event of a crisis the number of troops and the scope of convoys will be far larger, demonstrating the need to conduct larger and more frequent exercises in the near future.[79]

Key takeaways

The Military Mobility Area in the Netherlands, Germany, and Poland is overall perceived as a successful initiative. In a relatively short period of time, the three countries have managed to coordinate and streamline cross-border movement and harmonise regulations across their territory.

A number of lessons learned from the Dutch–German–Polish group's work on the MMA is worth highlighting. According to interviewees, the small team within the WG responsible for managing day-to-day efforts, has succeeded in creating a trusting and cooperative environment in which all issues can be addressed openly. This approach is widely regarded as an effective and efficient working method, fostering mutual understanding and a shared commitment to overcoming practical challenges. This demonstrates how a bottom-up approach can be particularly fruitful in advancing these issues, especially with regard to regulatory and procedural harmonisation.

Finally, while not analysed in depth in this study, the increasing hybrid threats and attacks, whether against physical infrastructure or through cyberattacks, also warrant greater attention in efforts to enhance the cross-border movement in Europe. Only recently, in late 2025, a Polish railway line leading to Ukraine was sabotaged.[80] This calls for greater redundancy and planning across the nations. In cases of sabotage or attacks within the countries, alternative routes need to be ready, available and coordinated with other nations for military transportation.

79 Interview 5, 2025.

80 Pawel Florkiewicz et al., "Polish railway track blast an 'unprecedented act of sabotage,' PM says," Reuters, November 17, 2025, *https://www.reuters.com/world/explosion-polish-railway-track-was-caused-by-sabotage-pm-says-2025-11-17/*.

3.2 Infrastructure

Most of Europe's roads, railways, and bridges are not suitable for moving heavy military vehicles and troops quickly across the continent today.[81] As an illustration, a report published by the Center for European Policy Analysis (CEPA) in 2021 revealed that 90 per cent of highways, 75 per cent of national roads, and 40 per cent of bridges in Europe have the capacity to carry vehicles with a maximum military load classification (MLC) of 50 tonnes.[82] Meanwhile, main battle tanks most commonly used by the allies and frequently deployed in the war in Ukraine, such as the Leopard 2 and M1 Abrams, weigh approximately 75 tonnes each. Transporting such tanks would moreover necessitate trucks and trailers, which, when combined, significantly exceeds the MLC of 50 tonnes. The combination of tank, trailer, and truck would weigh around 120 tonnes.[83] This is just one of many examples of how the current infrastructure is insufficiently adapted for military use. Consequently, the large number of allied troops, heavy vehicles, and equipment that will be travelling through the continent in the event of a crisis will likely encounter several time-consuming challenges on their journey to the eastern flank. The following sections therefore briefly address how the overall infrastructure in the Netherlands, Germany, and Poland is adapted to military requirements that usually exceed the normal civilian routes and capacities.

The Netherlands

The Netherlands refers to itself as "the gateway into Europe." Eighty to ninety per cent of the Netherlands' military train traffic is either going in or out of the country, thereby illustrating its function as a transit nation.[84] Despite the Dutch infrastructure being well developed, experts recently warned in the spring of 2025 that it is still not well adapted for managing large military transport. Problems include, among others, too small rail tunnels, ageing viaducts and bridges that cannot carry the weight of military vehicles.[85] In addition, a national report by the Netherlands Organisation for Applied Scientific Research warned in 2023 that the civilian Dutch infrastructure is in dire need of maintenance. The infrastructure's use has dramatically increased since it was built, owing to population growth and economic development, which has placed it under strain.[86]

The Port of Rotterdam has begun preparing for a potential conflict with Russia by reserving capacity for military vessels and equipment. In the event of a conflict in northeastern Europe, it would likely serve as a key port of embarkation for American troops.[87] The ports of Vlissingen and Eemshaven also play a role in receiving American military cargo; the Ministry of Defence has established its own permanent military facility in Eemshaven.[88] Together with the neighbouring Port of Antwerp, Rotterdam is working closely to ensure coordination and cooperation in the event of strained capacity.[89]

Germany

Germany is considered NATO's logistical hub. Its geographical location gives it a central position in moving military equipment, allied troops, and civilians across the continent. Post-Cold War, however, German infrastructure was not designed or maintained with military considerations in mind. Additionally, a significant part of its

81 Sergei, Boeke, "The Magic Move," Militaire Spectator, April 14, 2023, *https://militairespectator.nl/artikelen/magic-move*.

82 Heinrich Brauss, Ben Hodges and Julian Lindley-French, The CEPA Military Mobility Project: Moving Mountains for Europe's Defense (Washington, D.C.: Center for European Policy Analysis, 2021).

83 Anchal Vohra, "The 'Military Schengen' Era is Here," Foreign Policy, March 4, 2024, *https://foreignpolicy.com/2024/03/04/europe-military-autonomy-nato-schengen/*.

84 Ruitenberg, "Dutch Military."

85 Hans Horan, Pieter-Jan Vandoren, Daniel Fiott and Jan Feldhusen, Assessing Europe's Resilience and Preparedness in an Era of Strategic Risks (The Hague: The Hague Centre for Strategic Studies, 2025); NOS, "Wegen en sporen niet op orde voor vervoer materieel bik escalatie oorlog" [Roads and tracks not in order for transport of equipment in case of escalation of war], April 8, 2025, h*ttps://nos.nl/nieuwsuur/artikel/2562826-wegen-en-sporen-niet-op-orde-voor-vervoer-materieel-bij-escalatie-oorlog;*

86 Netherlands Organisation for Applied Scientific Research, "Vernieuwing oudere infrastructuur essentieel en urgent" [Renewal of older infrastructure essential and urgent], November 14, 2023, *https://www.tno.nl/nl/newsroom/2023/11/vernieuwing-infrastructuur-essentieel/*.

87 Joe Barnes, "NATO Maps Out Plan."

88 Ministerie van Defensie, "Troepenverplaatsing door Nederland" [Troop Movement through the Netherlands], Dutch Ministry of Defence, n.d., *https://www.defensie.nl/onderwerpen/internationale-samenwerking/host-nation-support/troepenverplaatsing-oktober-november-2024*

89 Andy Bounds, "Europe's Biggest Port Readies for Potential War with Russia," Financial Times, July 7, 2025, *https://www.ft.com/content/0c42af06-2139-4848-a980-b90494794c98*.

infrastructure is in dilapidated condition due to decades of "renovation backlog" and underinvestment.[90] Bridges are identified as a particular problem. Many, especially in western Germany, are worn out and have not been repaired despite long-recognised issues. In essence, numerous bridges, railways, and roads cannot bear the weight of modern military vehicles and equipment.[91]

In the summer of 2025, several roads and railways were classified as "military relevant," and will thus be financed by the Ministry of Defence. Now German seaports, such as Hamburg and Bremerhaven, are requesting a similar treatment on the grounds of their importance as allied logistical hubs.[92] For instance, Bremerhaven has been serving as a hub in sending reinforcements to Ukraine.

Economic experts estimate that infrastructure renovation investments of approximately €457 billion over the next ten years are required, a sum that is almost as much as an entire annual German federal budget.[93] In 2025, the German government adopted a special fund of €500 billion for infrastructure investments and the achievement of climate neutrality over the next twelve years, with the aim of catching up on decades of underinvestment in the infrastructure and energy sector.[94] Despite these investments not being directly aimed at adapting the infrastructure for dual-use, general renovation of Germany's infrastructure will benefit military use in the future.

Poland

Poland has invested significantly in military capabilities and critical infrastructure over the past decades, becoming what some people call the "linchpin of eastern flank security."[95] Notably, Poland has been the main channel for transporting military assistance to Ukraine.[96] Much of Polish infrastructure needed to be rebuild post-Cold War, and Poland chose to accommodate much infrastructure to military requirements early on.[97]

Despite its modernised infrastructure and continuous efforts to adjust it for dual-use, the estimated need for further infrastructure adjustments to meet military requirements across the country remains substantial. One particular vulnerability is the limited capacity of smaller roads and bridges throughout Poland to bear the weight of heavy military vehicles. In instances where military transport requires alternative routes, the poor condition of roads and bridges presents significant challenges.[98] Upgrading bridges and civilian airports is now underway nationwide to meet military standards. This has been especially important after large-scale deployment of troops and military exercises exposed several friction points.[99]

Another challenge concerns the differing rail gauges. While Poland uses the European standard rail gauge, the Baltic States use the Soviet standard gauge. This means that when allied troops are arriving from Germany on their way to the eastern flank, a cargo transfer is required at the Suwalki Gap before they can continue their journey.[100] Investment is being made in the Rail Baltica project to extend the European standard gauge to the Baltic states and Finland. However, it is unclear when it will be finished as the project is significantly delayed and has considerably exceeded its estimated cost.[101]

Key takeaways

In all three countries examined in this study, significant parts of civilian infrastructure still require adaptation to meet military requirements. Moreover, existing infrastructure is already under strain and in urgent need of

90 Tagesschau, "Es geht bergab," [It's going downhill], May 5, 2024, *https://www.tagesschau.de/inland/infrastruktur-zustand-100.html*.

91 Interview 5, 2025.

92 Der Spiegel, "Seehäfen wollen Geld von Pistorius" [Seaports want money from Pistorius], August 26, 2025, *https://www.spiegel.de/wirtschaft/unternehmen/seehaefen-wollen-geld-von-verteidigungsminister-boris-pistorius-a-ab38580f-3f5d-4712-8f58-3656dadf6fd8*.

93 Jannik Hartmann, "Military Mobility, Getting Germany's Transportation Infrastructure up to Speed,"

94 Die Bundesregierung, "Investitionsoffensive für das ganze Land" [Investment offensive for the entire country], October 2, 2025, *https://www.bundesregierung.de/breg-de/aktuelles/sondervermoegen-2356240*.

95 Dowd, Jankowski, and Cook, European Warfighting Resilience; Racegun, "Polska infrastruktura drogowa—czy doganiamy Europę Zachodnią?" [Polish road infrastructure—Are we catching up with Western Europe?], February 26, 2025, *https://racegun.pl/polska-infrastruktura-drogowa-czy-doganiamy-europe-zachodnia/*.

96 Siebold, Deutsch and Sytas, "Red Tape."

97 Marius Antoni Kamiński and Zdzisław Śliwa, "Poland's Threat Assessment: Deepened, Not Changed," PRISM 10, no. 2 (2023): 131–147.

98 Kamiński and Śliwa, "Poland's Threat Assessment."

99 Colibasanu, "Nothing Happens Until"; Kamiński and Śliwa, "Poland's Threat Assessment."

100 Kamiński and Śliwa, "Poland's Threat Assessment."

101 Theo Burman, "NATO Ally's High-Speed Rail Project Faces Major Hurdles," Newsweek, May 14, 2025, *https://www.newsweek.com/nato-high-speed-rail-delay-project-2072180*.

renovation. Each country has different priorities regarding which types of infrastructure require the most immediate attention. Although several investments and initiatives are under way, these are unlikely to be sufficient.

One reoccurring challenge is that smaller roads and bridges are not constructed to bear the weight of heavy military equipment and vehicles. In the event of sabotage or congested roads, this limits the options available when having to reroute the journey. The significance of having redundancy was particularly evident in February 2024, when a Dutch-flagged cargo ship collided with a railway bridge over the Hunte River in northeastern Germany. At the time, it was the only terminal in Northern Europe licensed to handle munition shipments to Ukraine. The incident resulted in the shutdown of rail traffic for two months and seriously delayed the supplies to Ukraine. Unfortunately, months later the bridge was rammed by another ship, once again causing shutdown of traffic and detours.[102] This highlights the type of challenges that need to be addressed to improve military mobility. Smaller infrastructure deficiencies should be relatively easy to fix. However, one of the greatest challenges will be posed by the systemic changes of entire systems, such as renovating Germany's railway network.

3.3 Capabilities

The European nations and NATO currently lack many of the capabilities that are required to reinforce the eastern flank. The defence build-up witnessed since the Russian invasion of Ukraine has implied a scramble for armament capabilities, but logistics needs may have been comparatively neglected.[103] To illustrate this, the next section focuses on shortages in *lift capabilities* and *military fuel capacity*, which are currently evident. Lift capabilities, such as flatbed wagons, are used to move large quantities of containerised supplies. Many countries rent wagons on a commercial basis, but rising demands are creating scarcity in Europe.[104]

Moreover, current military fuel capacity, storage, and distribution might not be sufficient to support an increase in fuel demand during prolonged operations. By one estimate, a single US armoured brigade engaged in manoeuvre warfare would on average require 200,000 litres of fuel per day. During the Cold War, NATO funded a pipeline system across Europe, most prominently the Central Europe Pipeline System (CEPS), which carries fuel from France, Belgium, and the Netherlands to Germany. That pipeline system, however, only extends as far as western Germany.[105]

Furthermore, since the capability to transport and storage fuel is limited in Europe, countries tend to rely on commercial actors. There are, furthermore, plans to extend the NATO Pipeline System to Poland and the Baltic states, but construction is estimated to take 20 to 25 years and to cost € 21 billion.[106]

The Netherlands

Alongside Germany, the Netherlands is one of the few European nations to own its own rolling stock for military use, namely a fleet of wagons for transporting military equipment and goods. In addition, the Netherlands is alone in Europe in having its own low-loader option for wheeled wagons, used for heavier loads. The Netherlands is said to be investing in state-owned capabilities as it seeks to be less dependent on the private market. Recently, the Netherlands also invested in state-owned wagons.[107] The country also received EU funding to extend tracks in the Port of Vlissingen so that trains can be loaded and unloaded more efficiently. The funding will also go to the construction of new tracks for 740-metre freight trains across several locations in the Netherlands.[108] 740-metre freight trains are required for transferring military cargo from ships to trains, but not all tracks are suitable for such long

102 Bertrand Benoit, "Germany's Secret Plan for War with Russia," The Wall Street Journal, November 26, 2025, *https://www.wsj.com/world/europe/germany-russia-war-nato-secret-plan-8ce43a8d?mod=Searchresults&pos=1&page=1.*

103 Sollfrank and Boeke, "Enablement and Logistics."

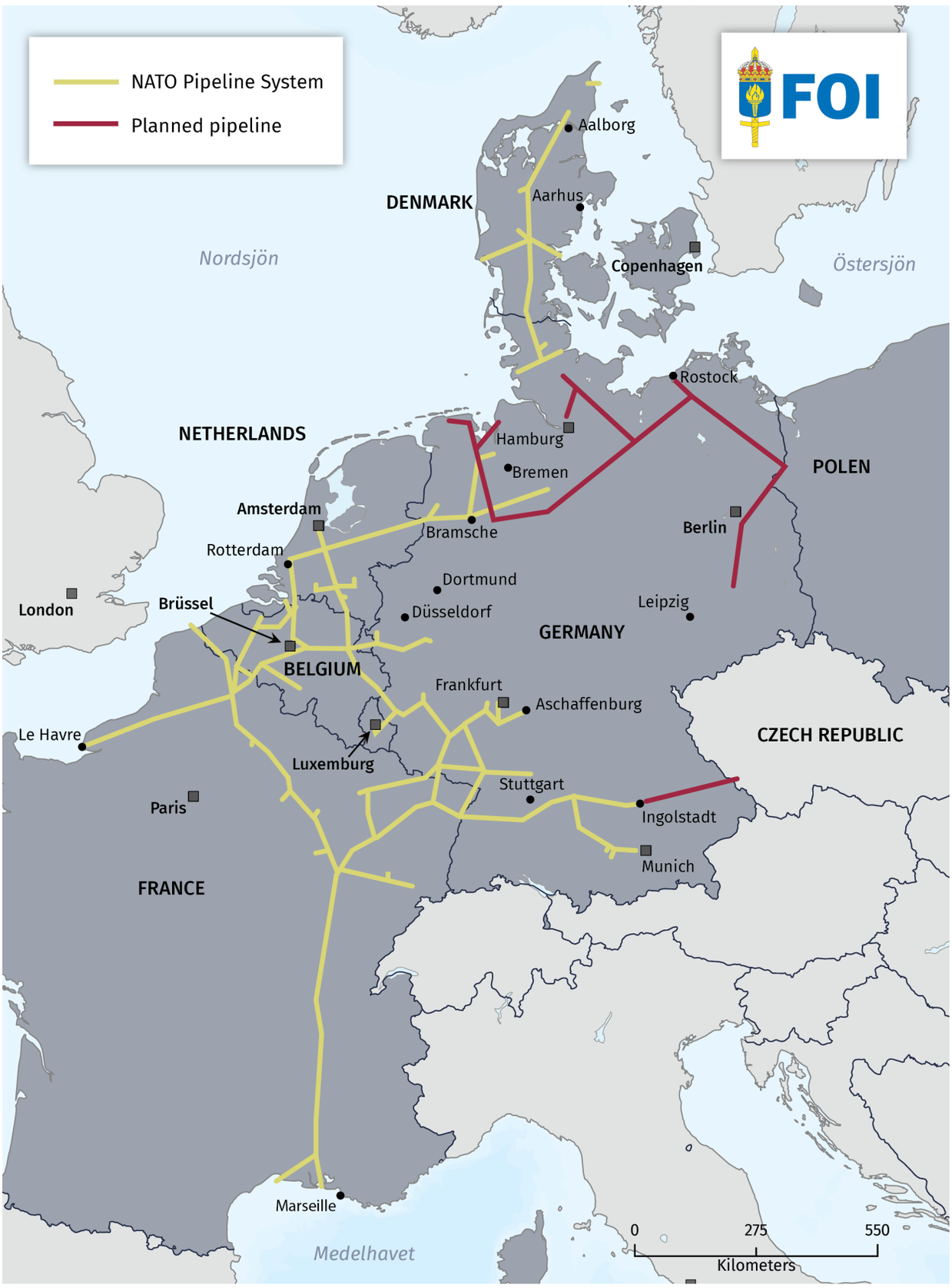
104 Ruitenberg, "Dutch Military."

105 Mathias Gebauer and Christop Schult, "Sprit für die Ostflanke" [Fuel for the Eastern Flank] Der Spiegel, 2025 *https://www.spiegel.de/politik/deutschland/nato-plant-treibstoff-pipeline-durch-deutschland-sprit-fuer-die-ostflanke-a-54cff011-0fd3-4f34-81e2-3cd95ae4ae02*; Piotr Szymanski, "Fuelling Defence: Expanding NATO's Pipeline System to the Eastern Flank," OSW Commentary no.682 (Warsaw: Centre for Eastern Studies, 2025).

106 Gebauer and Schult, "Sprit für die Ostflanke."

107 Ruitenberg, "Dutch Military."

108 ProRail, "Europese subsidie om militair spoortransport te verbeteren" [European subsidy to improve military rail transport], January 24, 2024, *https://www.prorail.nl/nieuws/europese-subsidie-om-militair-spoortransport-te-verbeteren*.



Map 1.2 NATO Pipeline System.
Source: Design by Karin Blext. Inspired by Gebauer and Schult, "Sprit für die Ostflanke."

trains.[109] Despite these efforts to increase its capabilities, experts still estimate that the country only has enough enablers to support one of its three army brigades in an Article 5 scenario.[110]

Regarding fuel, the Netherlands relies on a combination of the interconnected national Defence Pipeline Organisation (DPO) and NATO's pipeline system, CEPS, for its fuel supply. The DPO has an extensive network including storage facilities.[111] In particular, the Netherlands have the largest storage capacity in Europe, apart from France.[112]

Germany

Like the Netherlands, Germany has its own rolling stock and fleet of wagons to transport military goods. Still, experts are sceptical about whether the capacity is sufficient to transport heavy military goods to the eastern flank.[113] For example, DB currently only has rail cars and wagons to move one and a half armoured brigades simultaneously.[114] After hundreds of flatbed wagons were retired after Germany's reunification, Germany is in particularly short supply. Today it is estimated that Germany has only about a hundred flatbeds left, while some experts estimate that a country of Germany's size should maintain a reserve of at least 1,000 available for military transport at short notice.[115] Bundeswehr does rely on commercial providers to assist with logistical capacities. Nevertheless, relying on private actors requires that planning is conducted well in advance to assure access to the capacity needed; in Germany, wagons for military transportation must be reserved approximately 35–40 days in advance.[116]

Due to its location, Germany plays a central role in supplying fuel towards the east. For example, several airports in Germany, such as Munich, Leipzig, and Berlin, are provided with fuel from the CEPS by road. Given that the CEPS ends in the northwestern part of Germany, the country would benefit from extending the pipeline to the eastern states, as it would not only enhance the efficiency of fuel deliveries to eastern Germany, but also improve the fuel supply to Lithuania, where a German brigade is to be stationed in 2027.[117]

Poland

As the Polish military's own rail rolling stock is limited, the armed forces are working closely with commercial providers to ensure that lift capabilities are available.[118] In the case of troops and equipment transiting through Poland by rail, the responsibility will likely fall on the Polish State Railway Group (PKP) and DB Cargo, which are legally obliged to secure the capabilities needed. Just like in Germany, relying on partly commercial providers demands detailed planning to secure enough rolling stock for military transportation, as wagons are not generally reserved for defence purposes.[119] In 2025, however, the Polish MoD announced an allocation of € 100 million to purchase rolling stock for use in transporting military equipment.[120]

In the event of a prolonged conflict, there is a risk that allied troops in Poland will experience fuel shortages.

109 Alexander Molendijk, "Experts waarschuwen: 'Infrastructuur voor militair transport niet op orde'" [Experts warn: 'Military transport infrastructure not in order'] SpoorPro, 2025, *https://www.spoorpro.nl/goederenvervoer/2025/04/08/experts-waarschuwen-infrastructuur-voor-militair-transport-niet-op-orde/?gdpr=accept*.

110 Boeke, "The Magic Move."

111 Ministry of Defence, "Pipeline Network," Defensie.nl, *https://english.defensie.nl/topics/defence-pipelines/pipeline-network*.

112 Ron Stoop, Irina Patrahau, and Ciaran Cassidy, Securing European Military Fuels in a Tense Security Environment: Supply, Distribution and Storage, Report (The Hague: The Hague Centre for Strategic Studies, 2025).

113 Jens Koenen and Christoph Schlautmann, "Nato-Drehscheibe—Bundeswehr ruft Logistikkonzerne zu Hilfe" [NATO Hub—Bundeswehr Calls on Logistics Companies for Help], Handelsblatt, April 22, 2025, *https://www.handelsblatt.com/politik/deutschland/verteidigung-nato-drehscheibe-bundeswehr-ruft-logistikkonzerne-zu-hilfe/100116242.html*.

114 Stoop, Patrahau and Cassidy, Securing European Military Fuels.

115 Hartmann, "Military Mobility."

116 Arkadiusz Pierzak, "Rail Transport in the Aspect of Military Mobility," The Bellona Quarterly 1 (2024): 59–74.

117 Szymanski, Łoskot-Strachota, and Tarociński, Fuelling Defence.

118 Wiktor Biernikowicz, "Rail Transport in NATO's Logistics System: The Case of Poland," European Research Studies Journal XXIV, no. 1 (2021): 748–761.

119 Pierzak, "Rail Transport."

120 Railway Supply, "The Ministry of Defence of Poland Invests €100 Million in Rolling Stock," February 25, 2025, *https://www.railway.supply/the-ministry-of-defense-of-poland-invests-e100-million-in-rolling-stock/#google_vignette*.

Poland's current fuel supply system by road and rail would not be sustainable for long, as it relies on civilian fuel storage. A potential risk is that forces run out of fuel even before hostilities break out, since the concentration of troops in one place creates a higher fuel demand than usual.[121] Poland has thus for years pushed for extending NATO's pipeline system eastwards. Extending the CEPS to the east would primarily serve wartime purposes, but it would also be beneficial in peacetime for military exercises and civilian needs.[122] Additionally, Poland's largest oil company, PERN, has invested over recent years in expanding the fuel storage capacity in Poland. Several new fuel storage facilities have been constructed since 2019, and a new pipeline has been built in southern Poland to enhance energy security in the area.[123]

Key takeaways

As European countries are once again increasing investment in defence, critical resources, including lift capabilities, remain neglected.[124] The Netherlands, Germany, and Poland have all begun to invest in these capabilities, but are continually reaching out to the commercial sector to fill the resource gaps as well.

Relying on commercial providers is not necessarily a bad thing. State-owned capabilities might provide more independence but they would still need to compete with the civilian and commercial sector for time slots, which does not necessarily mean that everything will go that much faster. Military trains are often treated with the lowest priority, competing with civilian and cargo trains for time slots.[125] On the other hand, state-owned rolling stock allows for assembling and loading a train within a day. Meanwhile, relying on commercial actors means having to collect wagons from all over Europe to assemble a train.[126]

In addition, it requires planning ahead and contracts in place before a crisis erupts. An example of this is the two-month delay of a US shipment of ammunition to Ukraine between late 2022 and early 2023. No railways cars were available for the military cargo due to uncertainty surrounding the contract between the US European Command and Deutsche Bahn. In the end, the ammunition was transported by chartered boats.[127] The optimal approach, which all three countries are implementing to varying extents, is to maintain a balance of ownership of rolling stock, thereby ensuring an overview of current assets, while simultaneously relying on the commercial sector to fill the resource gaps that the countries cannot fill themselves.

While the current fuel distribution capacity is not the most urgent issue, considerable challenges would arise if demand for fuel increased in the event of prolonged crisis or conflict. While civilian fuel storage could mitigate the shortfall to some extent, it would most likely not be sufficient in the long term. Fuel distribution faces similar hurdles to those concerning infrastructure: it is functioning for now, but rebuilding that capacity would be extremely time-consuming, costly, and complex.

3.4 Authorities and legislation

The movement of military troops and equipment across Central Europe requires adherence to several layers of rules and procedures. Frequently, countries have their own set of national legislation that military troops have to adhere to in order to cross the borders, in addition to EU and NATO rules. In general, military cross-border movement involves several steps. First, the sending nation must apply for a Diplomatic Clearance, a permit to enter another nation's territory or airspace militarily. Second, the sending nation must request a Road Movement Bid for the military convoy to get the authorisation to travel within the nation. The military troops and convoy are not permitted to move before permission has been received. Third, if the military convoy includes Overweight and Oversized (O&O) cargo, which it most often does, additional permits are required. The same

121 Dowd, Jankowski, and Cook, European Warfighting Resilience; Tymon Miller, "NATO–Russia War Could Expose Poland's Drastic Military Fuel Shortage," TVP World, September 3, 2025, *https://tvpworld.com/88705537/nato-fuel-supply-at-risk-in-eastern-poland-amid-rising-threat-from-russia-osw-warns*.

122 Szymanski, Łoskot-Strachota, and Tarociński, Fuelling Defence.

123 Dowd, Jankowski and Cook, European Warfighting Resilience.

124 Sollfrank and Boeke, "Enablement and Logistics."

125 NDP Corridor WG 25 March 2025.

126 Ruitenberg, "Dutch Military."

127 Sam Skove, "Problems with a German Railroad Contract Slowed US Munitions to Ukraine, IG Says," Defense One, October 24, 2024, *https://www.defenseone.com/policy/2024/10/problems-german-railroad-contract-slowed-us-munitions-ukraine-ig-says/400551/*.

goes for cargos of dangerous goods, weapons of war, and other risk transports.[128]

These procedures must be completed for every entry and transit as troops traverse. One clearance or movement bid only applies to a single one-way passage. In a scenario where troops must be rushed to the eastern flank, the number of documents to be compiled and submitted prior to departure is enormous.[129] Furthermore, the countries usually do not coordinate their clearance processes amongst themselves, which could potentially lead to unsynchronised clearances between the nations and unclear routings.[130]

In addition, a customs declaration is also required for the movement of non-EU military goods and equipment entering European territory. In an attempt to streamline the process, only one document is required, Form 302. Nevertheless, as NATO and the EU both retain their own versions of this form, two parallel customs procedures persist. The NATO Form 302 is used in the context of NATO military operations. Meanwhile, the EU Form 302 is used for movements related to the CSDP. The type of military activity, along with details of whether the movements are moving into, within, or from EU territory, determines which version of the form is required.[131]

Timeframe

Currently the timeframe for responding to applications within the EU is five working days.[132] The EU member states have committed to shortening the response time to three days in the event of a crisis, which is also the NATO rule.[133] However, a 2025 special report by the EU's internal auditor, the European Court of Auditors (ECA), found that there was an instance in which it could take up to 45 days for a country to approve cross-border movement.[134] According to experts, responding within 72 hours is extremely challenging, given that Europe is already struggling to do so within five working days.[135] Today, both the Netherlands and Poland follow the timeframe of five working days for all types of convoys. Meanwhile, Germany can reduce the timeframe to five working days for oversized and overweight convoys if needed, as currently done with the military support to Ukraine. Any other oversized and overweight transport requires around 20 working days to be granted permission.[136]

EU

The European Union's engagement in military mobility is focused on the Union's strengths and competence: its significant influence on legislation and financial resources.[137] Through several initiatives and projects, the EU has committed to reforming the legislative and customs procedures for cross-border movements. For instance, the EDA has developed Technical Agreements (TAs) to harmonised procedures for cross-border movement regulations. Currently, the EDA is working on digitalising the procedure, but as of now, the digital system does not include the process for customs declaration.[138]

Despite ongoing efforts, changing rules and laws about military mobility in Europe is complicated and often more difficult than expected.[139] At its core, defence remains a matter of national sovereignty, while the EU's role is largely limited to coordination, which leaves it relatively weak in this field. The Action Plan on Military Mobility 2.0 provides an illustration of this. While the document obliges EU-level actors, such as the European Defence Agency, to undertake actions, member states are only "invited" to undertake their own. Because member states are neither obliged nor asked by the Commission or the European External Action Service to take action or respond to these "invites," some member states treat the document as non-binding. This has resulted in limitations on monitoring of progress in implementing military mobility activities within the EU. Coordinating military mobility activities among the

128 NDP WG: Movement Bid/Clearance Regulations and Procedures 2024; Interview 9, 2025.
129 Interview 9, 2025.
130 NDP WG: Border crossing 2024.
131 Directorate-General for Taxation and Customs Union, Guidance Document on Customs Formalities in the EU for Military Goods to Be Moved Or Used in the Context of Military Activities (Use of the Form 302) (European Commission, 2025); NDP WG: Customs 2025.
132 Hartmann, "Military Mobility."
133 Müller, "Drehscheibe ohne Schwung."
134 European Court of Auditors, EU Military Mobility.
135 Interview, 9 2025.
136 NDP WG: Cross-border Movement 2024.
137 Boeke, "The Magic Move."
138 Interview 9, 2025.
139 Interview 5, 2025.

member states has also proven difficult. Several member states, including Germany, Poland, and the Netherlands, have expressed concerns about the complexity of the governance arrangements for military mobility. Today, there is no central function or single point of contact coordinating military mobility activities within the EU, which leads to difficulties in finding who does what in relation to the efforts.[140]

National caveats

Many countries have their own set of national rules and regulations for military convoys on their territory, and they all implement them differently. Consequently, cross-border movement is further complicated by flawed national implementation of the administrative procedures. The range of such national caveats is broad. The national processes differ from country to country.[141] In addition, because the European standardisation of cross-border procedures is not yet legally binding, national rules and regulations trump EU initiatives to harmonise the procedure.[142]

To illustrate some national caveats, in the Netherlands, permission for cross-border movement is forwarded to the Dutch National Movement Coordination Centres (NMCCs); in Germany, it is sent to the Joint Forces Command; and in Poland, the process has to go through the military attaché of the hosting nation. Then each permit requires different additional information regarding the military convoy, often about ammunition and very heavy vehicles, depending on which nation it traverses.[143] Some nations even require detailed information such as the name of the drivers, the license plates of the military vehicles, and the serial numbers of their weapons.[144] Germany, with its federal system, provides another example. Germany has sixteen partly sovereign federal states (Länder); each state has a high degree of internal autonomy and executive power. Consequently, moving military troops across Germany may require different permits and rules in each state.[145] However, progress is being made. In mid-2025, the Bundeswehr and the Federal Highways Authority signed a new agreement aimed at creating a uniform framework for heavy military road transport, which could help to streamline the overall process.[146]

Key takeaways

In recent years, several efforts have been made to harmonise the regulatory framework surrounding the cross-border movement of allied troops in Europe. The biggest challenge remains the lack of implementation due to the persistence of national caveats within these frameworks. These factors contribute to a patchwork of rules and procedures across Europe, which continues to hamper progress towards genuine interoperability and seamless military mobility.[147]

Despite the challenges of harmonising these procedures, significant progress has been made in a relatively short period of time and at a relatively low cost. Solving administrative red tape often becomes the first issue to undertake as it is perceived as the more straightforward and "easier" of challenges to address. This is especially the case when compared to the challenges of adapting infrastructure for military use or rebuilding storage for military fuel supply. In addition, it has been demonstrated that solutions to this issue can be implemented ad hoc when required. For instance, this can be seen in the case of the war in Ukraine, where European nations sped up the administrative process for sending aid to Ukraine to one day.

That being said, it is important to address administrative red tape before a crisis erupts, rather than assuming that all procedures and rules can simply be negotiated during a crisis. This is essential, firstly because allied troops will most likely have to be transported through this grey area between war and peace on their way to the flank, and secondly, because doing so provides a crucial deterrent effect.[148]

140 European Court of Auditors, Special Report 04/2025.
141 Boeke, "Militaire mobiliteit"; Interview, 9 2025.
142 Interview, 9 2025.
143 NDP Corridor WG: Cross border movement 2024.
144 Boeke, "Militaire mobiliteit."
145 Hartmann, "Military Mobility"; Interview, 5 2025.
146 Der Spiegel, "Bundeswehr und Autobahn GmbH regeln Fahrten von Militärkolonnen" [Bundeswehr and Authobahn GmbG regulate journeys of military convoys], July 1, 2025 *https://www.spiegel.de/auto/bundeswehr-und-autobahn-gmbh-regeln-fahrten-von-militaerkolonnen-einheitliche-vorschriften-a-b26c8089-b467-47c4-8d72-9a25a7f6676c*.
147 Interview 5, 2025; Interview 10, 2025.
148 Interview 1, 2025.

3.5 Command and control

In a crisis, a substantial number of national and multinational logistical pillars are expected to operate together. It is therefore crucial that responsibility is assigned to the relevant stakeholders beforehand. Relevant coordinating and information-sharing mechanisms also have to be in place, to avoid working in silos, or chaos, when a crisis erupts. This is easier said than done, however.

The national level

With regard to military mobility, the majority of the responsibility lies with the nations involved. For instance, the allocation of funding, the construction of infrastructure, and the planning of available capacities are national responsibilities and competences. It is further a national responsibility to make sure that allied troops can successfully enter and transit territory. These responsibilities are organised under the HNS concept. Under this principle, when allied troops cross the German border, Germany takes over as the Host Nation, coordinating transportation, accommodation, and capabilities, until the troops pass the border into Poland, at which point Poland will take over the Host Nation responsibilities.[149] The cross-border movement of troops is thus enabled through a bottom-up approach. Nevertheless, the military cannot organise all necessary HNS responsibilities by themselves, nor do they have the capacities for it. Instead, it requires a whole-of-society approach, whereby the military, civilian society, and private actors work together to provide for the defence needs.[150]

NATO

NATO, on the other hand, has authority over the command structure, coordinating resources and strategic planning for collective defence.[151] In the event of a crisis or war, command is transferred to NATO Supreme Headquarters Allied Powers Europe (SHAPE). In 2018, NATO established the Joint Support and Enabling Command (JSEC), with the responsibility of coordinating and synchronising the reinforcement of troops and equipment across European borders as well as establishing a common operational picture. While the Joint Force Command (JFC) specifies what is strategically wanted from nations, JSEC translates these needs for the nations. JSEC is not a logistical headquarters but rather has a role of setting conditions and coordinating the cross-border movements among the nations involved; it is responsible for the sustainment flow, but not the sustainment itself. Much of the responsibility still lies with the nations themselves.[152]

One important part of JSEC's responsibility is the Reinforcement and Sustainment Network (RSN). The RSN offers information about Europe's infrastructure such as ports and roads, but it also includes regulations, such as national rules and contracts that are in place. The RSN aims to provide JSEC with an overview when preparing and facilitating cross-border movement.[153] The functioning of JSEC and the RSN builds on the premise that the member states continuously provide JSEC with the relevant information and implement the solutions it develops. Otherwise, it is hard for JSEC to create a common situational picture. However, the extent to which states share accurate and up-to-date information varies.[154] Moreover, JSEC is currently having difficulties in establishing its role. It has gone through significant reorganisation and continues to suffer from an insufficient staffing rate of only 40–45 percent, despite operational activity since 2018.

Furthermore, from a doctrinal and deployment planning perspective, the issue of military mobility needs to be better integrated into NATO's frameworks. Overall, the improved movement of forces and equipment is an essential part of strengthening NATO's deterrence and defence posture. Efficient military mobility not only enables rapid reinforcement in times of crisis but also reinforces the credibility of NATO's collective defence commitments.

The NATO–EU conundrum

In recent years, representatives from JSEC and EU institutions have begun to meet regularly to discuss matters related to military mobility, and there is a mutual

149 Ministerie van Defensie, "Militaire mobiliteit: Nederland laat Duits konvooi op rolletjes lopen" [Military Mobility: The Netherlands ensures that the German convoy runs smoothly], Dutch Ministry of Defence, September 18, 2025, *https://www.defensie.nl/actueel/nieuws/2024/09/18/militaire-mobiliteit-nederland-laat-duits-konvooi-op-rolletjes-lopen*

150 Interview 5, 2025.

151 Boeke, "The Magic Move."

152 Knappe and Boeke, "JSEC"; Interview 10, 2025.

153 Sollfrank and Boeke, "Enablement and Logistics"; Interview 3, 2025; Interview 5, 2025; Interview 10, 2025.

154 Interview 3, 2025; Interview 5, 2025; Interview 10, 2025.

recognition of the importance of coordination and cooperation. The initiative to streamline military mobility across the continent is regarded as a flagship project between NATO and the EU, at least at the political level. Nevertheless, much of the implementation has taken a bottom-up approach, driven primarily by the Netherlands and Germany.[155]

In addition, NATO and the EU have frequently been working in silos, with little coordination between the two. The lack of coordination between the two organisations has become one of the main challenges to military mobility today. One major reason for this is the challenge of information sharing. The EU is relatively transparent and open when it comes to sharing documents and information, while NATO's frequent classification of documents often complicates the process. NATO does operate an IT system that is tailored to each member state's needs and capabilities in the area of military mobility and allows them to follow and learn from one another's experiences. However, the information shared within this system is NATO-classified, and access is therefore restricted to certain ministries and relatively few officials, which complicates cooperation.[156]

Against this backdrop, Germany and the Netherlands are attempting to act as a bridge between NATO and the EU.[157] Together with Poland, these countries have expressed a desire for greater coordination and cooperation between the organisations, as they argue that the issue of information sharing should not prevent NATO and the EU from cooperating on military mobility.[158] Following a robust bottom-up approach on military mobility, countries are subsequently exerting pressure on the EU and NATO to take action.[159]

Key takeaways

A significant challenge today is the staffing situation at JSEC. Without adequate staffing, JSEC's ability remains constrained. Another issue that needs to be addressed is the persistent lack of information sharing from the allies to JSEC. This hampers the command's ability to develop a comprehensive common situational awareness regarding the state of infrastructure and the movement of forces across Europe. Without timely and accurate data from national authorities, it remains difficult to identify bottlenecks and ensure that military mobility efforts are coherent and coordinated across Europe.

In addition, the silo mentality among the actors involved in the process has further hampered progress, and challenges remain when it comes to effective communication and coordination between the EU and NATO. One of the primary challenges in improving military mobility lies in the overlapping mandates and responsibilities of the many stakeholders involved in the process. At the EU level, this includes several actors within the European Commission,[160] as well as the European Defence Agency, the European External Action Service (EEAS), and the EU Military Staff, among others. Similarly, within NATO, while JSEC plays a leading role in advancing military mobility, other entities within the Alliance are also engaged, creating a multifaceted and complex institutional landscape. At the national level, several ministries and agencies are involved in these processes, including the Ministries of Defence, Infrastructure, the Interior, and Finance, as well as local governments and national agencies. The involvement of such a wide range of actors makes coordination challenging and often results in bureaucratic overlap.

155 Interview 9, 2025.
156 Interview 9, 2025.
157 Interview 5, 2025.
158 European Court of Auditors, EU Military Mobility.
159 Interview 5, 2025.
160 Including actors such as DG TAXUD, DG MOVE, and DG DEFIS.

4. Conclusions and future outlook

This report has examined the evolution, current state, and future prospects of military mobility in Europe, with a particular focus on the Netherlands, Germany, and Poland and on their joint establishment of the first European Military Mobility Area (MMA). The analysis demonstrates that military mobility has re-emerged as a core prerequisite for deterrence and defence in Europe, especially since Russia's full-scale invasion of Ukraine in 2022. The ability to move forces and equipment rapidly and reliably across national borders is no longer a technical or secondary concern, but a strategic one that directly conditions NATO's credibility and the EU's contribution to European security.

Although the policy focus on military mobility has increased markedly since 2014 and intensified further after 2022, progress has been uneven. Recent initiatives by NATO and the EU, including increased investment pledges and new policy packages, signal growing political commitment, yet implementation on the ground remains slow and constrained by national caveats, and unsatisfactory investment in physical infrastructure.

The Dutch–German–Polish MMA illustrates both the potential and the limitations of current approaches to improving military mobility. As a bottom-up initiative, it has proven effective in identifying concrete obstacles, fostering trust among participating states, and advancing practical solutions, particularly in the regulatory and procedural domain. The work of the MMA working group underscores the value of practical experimentation and iterative learning. At the same time, the MMA experience highlights persistent structural problems, mainly the absence of robust supranational monitoring and enforcement mechanisms, the complexity of interministerial coordination, and the continued primacy of national legal and administrative frameworks.

The empirical mapping of infrastructure, capabilities, authorities and legislation, and command and control across the three countries further confirms that military mobility challenges are multidimensional and interconnected. Well-developed infrastructure in primary transit and host nations is offset by maintenance backlogs, uneven modernisation, and vulnerabilities in fuel supply and rail capacity. Lift capabilities remain insufficient for high-intensity conflict scenarios, with heavy reliance on commercial providers introducing delays and uncertainty. Regulatory and administrative procedures continue to constitute major bottlenecks, despite being widely recognised as an area where improvements are both necessary and achievable. Finally, while NATO provides overall strategic coordination, shortcomings in information sharing and NATO–EU coordination undermine the effectiveness of command-and-control arrangements.

Taken together, the findings suggest that improving military mobility in Europe requires a more balanced combination of bottom-up and top-down approaches. Initiatives such as the MMA are well suited to addressing procedural harmonisation and fostering practical cooperation among neighbouring states. However, overcoming deficits in infrastructure and capabilities demands stronger central guidance, sustained political prioritisation, and significantly increased investment. In this regard, the EU is well placed to act as a catalyst, using funding instruments to promote dual-use infrastructure and incentivise alignment with military requirements.

Ultimately, the report concludes that while tangible progress has been made, the pace of improvement in military mobility remains insufficient given the current security environment. Bridging the gap between political ambition and operational reality will require not only additional resources, but also a willingness among European states to reduce national caveats, streamline decision-making, and treat military mobility as a shared strategic responsibility. The Dutch–German–Polish MMA offers an important model for how such efforts can be organised, but its success, and that of military mobility in Europe more broadly, will depend on sustained commitment, effective implementation, and closer integration between national, EU, and NATO frameworks.

4.1 Future developments

The lessons derived from the Dutch–German–Polish Military Mobility Area could now be systematically evaluated and translated into common European standards and procedures. The new Central Northern European Military Mobility Area (CNE MMA), comprising the Netherlands, Germany, and Poland, alongside the newly added Belgium, Slovakia, the Czech Republic, Luxembourg, and Lithuania, which was launched in November 2025, has the potential to set a new standard

for the entire European theatre. By promoting the adoption of a common framework for rules and regulations, this initiative could significantly advance the harmonisation of procedures and the practical implementation of military mobility across Europe. To maximise its impact, it will be essential to ensure that the lessons and practices developed within this expanded MMA are fully integrated into both EU and NATO frameworks. Equally important will be a stronger and more coordinated implementation phase than in previous efforts. Furthermore, thorough exercises in military mobility need to be conducted in order to enhance the speed and efficiency of troop and equipment movements across Europe. Going forward, these exercises testing all MMAs need to be expanded to test procedures, coordination mechanisms, and infrastructure under more realistic conditions. Overall, NATO would currently face significant challenges in logistics and sustainment in a high-intensity conflict, including critical issues such as the delivery of fuel and ammunition to the battlefield.[161] In this regard, it is essential that NATO integrates these logistical and sustainment dimensions more systematically into exercises, in order to ensure preparedness for a potential confrontation with a peer rival.

Looking ahead, the central issue will thus be placing greater emphasis on enhancing Europe's military capabilities and upgrading physical infrastructure across the continent while simultaneously continue reducing bottlenecks and procedural obstacles. Strengthening the infrastructure, material and regulatory dimensions of military mobility will be vital to ensuring that Europe can respond swiftly in the event of conflict or war. The lessons learned from the movement of equipment to Ukraine also need to be integrated into current military mobility plans. To date, support to Ukraine has demonstrated that existing processes can be significantly accelerated.

Moreover, the new EU plan presented in late 2025 has the potential to improve military mobility in Europe. It includes measures to address regulatory and legislative barriers, upgrade infrastructure, and enhance the capabilities required to move forces efficiently. Overall, the ambition is to introduce a single permission procedure, with standardised templates and requests, across the Union, which will incorporate and uphold the three-working-day limit for movement requests. In addition, the plan aims to establish an emergency framework that can be activated in times of crisis, minimising regulatory obstacles and giving priority to military transport over civilian transport. Secondly, in the new proposal for the next MFF (2028–2034), a tenfold increase compared to the 2021–2027 period is envisaged.[162] This substantial rise underlines the growing strategic importance of the issue within the EU's broader security and defence agenda. Thirdly, the Commission and the High Representative of the Union for Foreign Affairs and Security Policy/Vice-President of the European Commission (HR/VP) propose a new pooling and sharing initiative, the "Military Mobility Solidarity Pool," to strengthen the Union's available capacities.[163] Nevertheless, all of these efforts ultimately require the full buy-in of the member states, along with their subsequent adoption and implementation.

However, combined with NATO's new guideline of allocating 1.5 per cent of defence spending to infrastructure and enablers, these EU developments could serve as an important lever to stimulate further investment in these priorities across Europe. Today, transport infrastructure across all domains, including roads, railways, and seaports, needs to be upgraded, and prioritising the most critical routes and hubs is urgently required. Nonetheless, one of the risks today is that NATO's new 1.5 per cent spending target on defence and security-related investments may be applied inconsistently, potentially diverting funds to areas that are not the most urgent.[164] Ideally, the additional resources should be directed towards the Alliance's most pressing needs, including transport infrastructure, mitigation of hybrid threats, and the protection of security-critical infrastructure such as energy networks and communications cables. To ensure that increased spending effectively strengthens NATO, rigorous oversight is required both by NATO itself and by its member states.

Efforts to enhance the network of convoy support centres should continue to be a focus. Private companies can play a crucial role in this regard, as recent experiences in Germany have demonstrated. This example further highlights the importance of adopting a whole-of-society approach to military mobility, involving not only public authorities but also private-sector actors in planning, logistics, and infrastructure development. Additionally, the development of fuel infrastructure and ensuring fuel security are critical. In a

161 John R Deni and Anca Agachi, Russia, Ukraine, and collective defence. *Defence Studies*, 25(3), 673–681 (2025).

162 Charles Cohen. Brussels wakes up to long-overlooked military mobility challenge, *Euractive.* September 3, 2025. https://www.euractiv.com/news/brussels-wakes-up-to-long-overlooked-military-mobility-challenge/.

163 European Commission and the High Representative of the Union for Foreigtn Affairs and Security Policy, "Joint Communication to the European Parliament and the Council on Military Mobility."

164 Niccolò Comini and Dalibor Rohac, Beware Europe's Military Bridges to Nowhere, Foreign Policy (2025). https://foreignpolicy.com/2025/08/13/nato-europe-spending-infrastructure-italy-bridge-sicily.

prolonged conflict, the availability and protection of fuel supplies will be essential to sustaining operations on the battlefield.

There is also a shortage of important "theatre enablers" in Europe, including railway flatbeds, fuel trucks, and heavy transport vehicles, among other critical capabilities. The development and acquisition of such enabling lift capabilities could be more closely integrated into NATO's Defence Planning Process (NDPP) in the years ahead. There is also considerable potential for joint procurement and shared ownership of these assets among European allies, provided that such cooperation is aligned with existing defence plans and logistical needs. This could not only reduce duplication and costs but also enhance interoperability and availability across the Alliance. In this context, the new EU pooling and sharing proposal, the "Military Mobility Solidarity Pool," could also help to mitigate these shortfalls. Finally, greater collaboration with the private sector could be instrumental in scaling up these capabilities and ensuring that Europe has the necessary capacity to sustain military operations over time.

The past few years have also underscored the significant importance of protecting critical infrastructure, both against acts of sabotage and other forms of physical attack, as well as against hybrid threats such as cyber-attacks.[165] Ensuring the resilience of such infrastructure is now an essential part of national and collective defence planning, and demands urgent renovation and maintenance of current infrastructure in Europe. These considerations should be integrated to a much greater extent into the planning and execution of military mobility, not only within NATO and the EU as a whole, but also at the national level, as disruptions to transport networks, energy systems, or communications could severely hamper the rapid movement of troops and equipment across Europe.

Overall, this report demonstrates that the importance of improving military mobility will continue to grow in the years and decades ahead. As the European security environment evolves, the ability to move forces rapidly and efficiently across borders will remain a critical requirement. Ensuring that appropriately equipped forces are available in the right place at the right time will remain fundamental to strengthening deterrence and defence.

165 See also: Charlie Edwards et.al., The Scale of Russian Sabotage Operations Against Europe's Critical Infrastructure, *The International Institute for Strategic Studies* (2025).

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German Federal Ministry of Defence
NATO Defence College
NATO Joint Support and Enabling Command (JSEC)
Rand Corporation
Swedish Armed Forces
Swedish Ministry of Defence
Swedish Ministry of Infrastructure

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Military logistics is often said to win wars. In recent years, NATO and the European Union, alongside their member states, have therefore once again placed a strong and consistent focus on improving Military Mobility. This report examines the Military Mobility Area (MMA) between the Netherlands, Germany and Poland, assessing the current state of Military Mobility in a strategically important region for the movement of forces across Europe.

The report finds that cooperation within the MMA has led to tangible progress in several areas. Notably, efforts to streamline administrative procedures, reduce bureaucratic barriers, and harmonise regulations have begun to yield results. However, progress remains uneven across different domains. Significant challenges persist, particularly in relation to the development and adaptation of physical infrastructure. Enhancing transport networks—such as roads, railways, bridges, and ports—to meet military requirements will be a critical task in the years ahead, requiring sustained political commitment and investment across Europe.

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