

DEVELOPING, MAINTAINING AND IMPROVING INFRASTRUCTURE

Getting NATO back on track: the importance of fixed rail infrastructure.

Targeting civilians and critical infrastructure (including power facilities) across Ukraine has been a consistent tactic by the AFRF, demonstrating the value of such targets to create a favourable environment in which to fight, or conversely, to hinder the enemy's ability to fight. The Ukrainian railway system offers a clear example of the type of infrastructure that offers a marked advantage during manoeuvre warfare, as well as demonstrating how good cooperation between the civilian and military organisations can heavily effect success.

Throughout the war, Russia has carried out consistent attacks on the country's rail infrastructure, to the point that it has become one of the most important symbols of the Ukrainian resistance. Efforts to swiftly seize control of Railways logistical centres in major cities like Kharkiv and Kyiv, reflect the Russian heavy dependence on the rail network: with such a vast territory encompassing complex terrain, the logistical support of its standing army's motorized ground troops has always relied on rails. A condition further confirmed by the failed attempts to gain control of the rail hubs in Chernihiv or around Kyiv, entirely driven by the logistical impossibility to sustain ground offensives too far from the railhead¹⁸.

In general, the Ukrainian railroad system has proved surprisingly robust and adaptable. Being designed and built on the base of military principles and needs, the network extensively stretches throughout the country with many branches, offering various alternatives in case of damages to the infrastructure. No less important, being both the infrastructure and rail traffic managed by a state-owned civilian company, national needs are always prioritized. In fact, after an initial period of adaptation to the new challenge, the company is now operating a "flat" management structure, which, in the name of decentralization, allows route managers to make on-the-spot decisions without seeking permission from their superiors¹⁹.



Figure 5. Russian logistic vehicles being transported continentally, through Belarus (still from Russian MOD footage)

The Ukrainian experience tells that the need to preserve the integrity and efficiency of rail networks to ensure their resilience is something that can only be achieved with a comprehensive approach, fostering a structured dialogue between the civilian and military components.

A dialogue that, however, requires technical competences and specific equipment that within the Alliance have been almost completely lost²⁰ as a direct consequence of the NATO shift of focus to stabilisation operations all over the world in the aftermath of the collapse of the Soviet Union and the end of the bipolar world. As a consequence of these choices, NATO railway capabilities remain today unsurprisingly predominantly perceived as an exclusive logistical capability. Considerations that are certainly valid at a political, strategic and operational level, where both the EU and NATO are pursuing "Military Mobility"

¹⁸ Ferris E., "Russia's Military Has a Railroad Problem.", <https://foreignpolicy.com/2022/04/21/russias-military-has-a-railroad-problem/>

¹⁹ Bettiol C., "Guerra in Ucraina: ferrovieri e ferrovie.",

<https://www.balcanicaucaso.org/aree/Ucraina/Guerra-in-Ucraina-ferrovieri-e-ferrovie-222201>

²⁰ With the exception of the Italian Army, the undisputed sector leader in the NATO community.

solutions to simplify and standardise the procedures of cross-border military rail transport to facilitate the unhindered movement of Units within EU borders. Not less important, with the return to missions within the Art. 5 framework, the logistic deployment of units over long distances, especially to NATO's eastern borders, has again become a subject of military planning. However, during the course of various national and multinational exercises, such as DEFENDER EUROPE, it has become clear that NATO partners now lack both the experience and the equipment (including suitable railway wagons, heavy-duty transport vehicles, as well as fixed and mobile loading ramps) to efficiently and autonomously carry out such deployments without resorting to support of the civilian society.²¹

Despite the doctrinal accuracy of the above considerations, the Russian-Ukrainian war also confirmed, if ever there was a need, the significant tactical relevance railway competences can have for MilEng. An importance certified by the ability to sustain tactical manoeuvre's mobility with technical competences in the railway infrastructure management and the erection of railway bridges.

For the above reasons, the renovated attention to railway support as a game-changer for the outcome of military operations, especially conducted in a high-intensity modern operating environment, should spark an internal debate within the NATO community to assess if and how military standing railway competences should be further implemented, both in terms of equipment and capabilities, in favour of an enhanced mobility support to military units.

CONCLUSIONS

- **Tactical Relevance of Railway Competences.** Railway capabilities deserve inclusion within the MilEng domain, particularly when it comes to sustaining tactical maneuverability and managing railway infrastructure
- **NATO's Capability Gap.** NATO should internally debate on the implementation and enhancement of military standing railway competences, aligning capabilities and equipment

²¹ Defence Technology Review 5/2022: "Bridging the gap."