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WRITTEN BY

RICCARDO CASTAGNOLI

EDITED BY

DIMITRA PATERAKI

SUPERVISED BY

BELÉN PADRÓN SALINAS

Introduction

Since the beginning of the Russian invasion of Ukraine, Poland has been among the most active countries in supporting its eastern neighbour to halt the advance of Russian forces and to conduct its counteroffensive. This decision was consistent with Polish strategic objectives, allowing Poland to launch its modernisation project and expand its military capabilities. Although Poland's strategic rationales vary depending on the political stance of its elites (Pawłuszko, 2022), there are three common denominators: the intent to deter Russia, the need to secure US support, and the ambition to become the Central-Eastern European region's leading power.

Poland considers strengthening its armed forces as essential for achieving these goals. In fact, Warsaw aspires to build the most potent European land force by the beginning of 2026 (Tilles, 2023). While this objective is ambitious, the Russian invasion has catalysed the modernisation of the Polish military and its arms industry (Cucino & Scarazzato, 2023). This paper will address Poland's recent strategic investments, aimed at developing multiple components of its armed forces, including land, air, sea, drone, and anti-missile forces, and analyse the potential challenges that such a rapid upgrade and amplification of its military capabilities entail.

Poland's Accelerating Remilitarisation

To this day, Poland is investing the most in defence among EU member states in terms of GDP percentage: it allocated 3.9% of its GDP to defence in 2023 and 4.2% in 2024 (Ptak, 2023; Wypartowicz, 2024), which makes it the leader in both NATO and the European Union. Moreover, Poland's defence budget proposal for 2025, presented by Prime Minister Donald Tusk on 28 August 2024, amounts to \$48.7 billion, 4.7% of its gross domestic product.

Polish remilitarisation is not only based on preparing to face the threats that Russia poses to its neighbours and increasing Poland's influence across the region, but it also reflects a desire for the country to provide for its security in case of a potential disengagement of allies (McBride, 2022). Although Article 5 of the North Atlantic Treaty, the core of the military alliance, states that an attack on one NATO country is an attack on all its members (The North Atlantic Treaty, 1949), Poland's government is cautious about overly relying on US support. Polish officials consider US military presence a deterrent vis-à-vis the Russian Federation and have recently strengthened cooperation with the United States. However, the main provider of European security to this day is slowly but steadily strategically reorienting its focus towards Asia (Colby, 2024). Therefore, aware that Europe alone is not yet ready to provide for its defence, Poland's Ministry of Defence has concentrated its

efforts towards territorial defence and its region of interest under the Komorowsk Doctrine (Doeser, 2018).

Such a concept, elaborated by then-President Bronisław Komorowski in 2013, refers to the formulation of a defence strategy that would enable the country to protect itself without depending on immediate support from its allies (Cienski & Kinstler, 2015). After Poland had participated in international military operations in the previous years, mainly ISAF in Afghanistan, the Polish President stated that the armed forces would focus only on strictly necessary regional operations (President of the Republic of Poland, 2013). Therefore, military investments could be redirected towards modernising the Polish Army and enhancing territorial defence capabilities (Doeser, 2018).

From this standpoint, Polish policymakers have considered donating armoured vehicles and military equipment to Ukraine as an opportunity to improve Polish armed forces and phase out most of its old Soviet stocks (Czulda, 2022). From 24 January 2022 to 30 June 2024, Poland sent at least 324 main battle tanks, mostly Soviet T-72 and PT-91 Twardy, 42 BMP-1 and 24 howitzers to Kyiv (Trebesch et al., 2023). The replenishment of lost equipment was addressed through the purchase in 2022 of 366 Abrams tanks, including 250 M1A2 in April, heavy armour-plated and with battle management systems, and an additional 116 M1A1 in December, to rapidly replace Soviet-era tanks donated to Ukraine (Adamowski, 2022; Judson, 2022).

The acquisition of US Abrams' main battle tanks is only one of the projects aimed at enhancing and modernising Polish military capabilities. The focus on recent military spending has been placed on South Korea (Karnitschnig & Kość, 2022). Poland has already ordered between \$10 billion and \$12 billion worth of weaponry from Korea, including 1,400 infantry fighting vehicles, 180 K2 Black Panther tanks, 200 K9 Thunder howitzers, and 218 K239 Chunmoo rocket launchers (Karnitschnig & Kość, 2022). Poland's focus on South Korean technology signals its intent to diversify its defence partners while modernising its armed forces, showing dissatisfaction with the inability of Europe's defence industry to fulfil its needs (Alipour, 2024). Thus, the Korean industry is expected to supply around 1,000 K2 tanks and 648 self-propelled K9 Howitzers by the mid-to-late 2020s (Carbonaro, 2023). In particular, the plan is to produce 820 K2 main battle tanks in Poland under the licence obtained by South Korea for the next ten years, and production is set to start in 2026 (The Economist, 2023).

The K2 main battle tanks will become a powerful deterrent against Russia and, alongside the Abrams, will likely remain the two types of tanks Poland will rely on, while the German Leopards will be phased out (Czulda, 2022). Although such a decision might have repercussions on European armies' interoperability, considering that German Leopards are

already spread around the continent (Statista Research Department, 2024), the detrimental effect might be mitigated by the Polish government's renovated willingness to participate in common European projects, mainly the "Main Ground Combat System"(MGCS) Franco-German initiative to develop a European main battle tank, which would strengthen Europe's strategic autonomy (Army Recognition Group, 2024).

Warsaw's Strategic Leap: Expanding Multi-Domain Military Capabilities and Strengthening the Domestic Defence Industry

Despite being the priority, the land component of the Polish Armed Forces is not the exclusive focus of Polish policymakers who also seek to increase the capacity of anti-aerial and anti-missile systems, aerial and naval forces and secure its borders. To this end, Poland has invested \$2.5 billion in building a system of fortifications and barriers along seven hundred kilometres of its eastern border with Belarus and with the exclave of Kaliningrad, known as the East Shield (Badahal, 2024). This plan aims to strengthen anti-drone surveillance, protect Polish territory and hinder the mobility of enemy troops.

Air and Sea Capabilities:

The 2026 Polish Technical Modernisation Plan (TMP) includes plans to procure combat aircraft, attack helicopters, short-range air-defence systems, submarines, and cybersecurity (Kamiński & Śliwa, 2023). After securing the purchase of 32 F-35A Lightning II fighters in 2020 (Karnitschnig & Kość, 2022), Poland purchased 48 FA50 light attack aircraft from South Korea to replace the MiG-29s sent to Ukraine (Jones, 2023). For its Kruk programme, it has ordered 96 Boeing AH-64E Apache attack helicopters (Martin, 2024). Additionally, as part of the Orka programme, it plans to urgently acquire up to four new submarines for the Polish Navy (Kamiński & Śliwa, 2023). At the same time, the Polish Armaments Group (PGZ) has selected Babcock, a UK company, as a partner to transfer technologies and skills for the construction of new frigates in Poland (Cucino & Scarazzato, 2023). Considering the Polish Air Force and Navy's current capabilities, such purchases will be a key asset to guarantee a continuous presence in the Baltic Sea, patrol the country's borders and prevent potential enemies from gaining air superiority.

Missiles and Anti-missile Systems:

Furthermore, with the same goal, Poland has operated on multiple levels to upgrade its air defence capabilities. Firstly, it signed a \$2.4 billion contract with the UK to acquire MBDA short-range radar-guided missiles (CAMM) and missile launchers to be integrated with 22 Polish PILICA+ air defence batteries. Such missiles are designed to safeguard critical mobile military assets and can intercept air threats at distances of up to 25 kilometres (Cucino & Scarazzato, 2023). The following year, it reached a \$2.5-billion agreement with the United States for acquiring an integrated battle command system (IBCS), considered an operational

brain for air and missile defence systems, which is estimated to be delivered by 2031, and strengthen its borders' defence (Adamowski, 2024a). In addition, Poland has spent \$10 billion to purchase 468 HIMARS rocket launchers, which have proved capable of bypassing Russia's S400 anti-missile system in Ukraine, offering NATO members an advantage (McBride 2022; Morris, 2023). Concerning anti-missile capabilities, Warsaw has recently secured the production of 48 Patriot launchers, a powerful deterrent for NATO's eastern flank. The agreement signed with US defence contractor Raytheon sets the first deliveries in 2027 (Skujins, 2024).

Drone Capabilities and the Space Domain:

Moreover, defence planners have prioritised building drone capabilities at all levels of the armed forces. Drones will be assigned to small formations for surveillance, combat, and support missions. For this reason, the Polish military has ordered both Bayraktar TB2 drones equipped with anti-tank missiles and MQ-9B SkyGuardian drones. At the strategic level, the Russian full-scale invasion of Ukraine has induced Poland's Ministry of Defence to introduce a new military component, the Drone Force (Adamowski, 2024b). Indeed, incorporating drone units in the armed forces has become the global norm for advanced militaries and will drive the Polish Armed Forces' modernisation in the long term.

Polish officials also considered the space domain, who announced the initiative to deploy military observation satellites by 2025 to fulfil the army's operational needs. Such satellites guarantee continuous Earth observation capabilities, regardless of atmospheric conditions, and constitute a technological leap forward for Polish defence forces (Anderson, 2024).

The Rise of the Polish Defence Industry:

Besides expanding and modernising its military capabilities through importations from strategic partners, Poland has invested in developing its domestic production capacity. The country aims to create the conditions for its defence industry to both fulfil the long-term needs of the Polish Armed Forces and competitively export weapons to the rest of Europe (The Economist, 2023). From this perspective, a critical factor in the decisions regarding the provision of equipment coming from foreign suppliers has been the concept of Polonisation, the participation of Polish companies in the manufacture of imported weapon systems (Graf, 2022; Cucino & Scarazzato, 2023). The two most significant examples are the latest battle tanks agreement with South Korea, which has established the production of hundreds of K2 main battle tanks in Poland, and the order placed for 1,400 Borsuk infantry fighting vehicles, which will be produced in Poland but are based on a Korean chassis (Czulda, 2022).

Indeed, a crucial ambition for the transformation process concerns the increase in production capacity of the Polish military-industrial complex. For newly acquired capabilities

to reach their full potential, Poland must expand its defence industry and deepen its cooperation with European partners. The country already has Central Europe's biggest domestic arms industry, trying to target new markets and move beyond its post-soviet legacy (Cucino & Scarazzato, 2023). In particular, the Polish Armaments Group has prioritised continuing the production of heavy vehicles and ammunition. At the same time, it is focusing on improving the army's expertise and procuring new technologies (Kim, 2024).

To expand its network and amplify Poland's reputation as a military industry centre, the PGZ has organised a series of events, meetings, and worldwide exhibitions. In September 2024, 750 exhibitors from thirty-four countries gathered in Poland for the 32nd International Defence Industry Exhibition (MSPO). This year was the biggest MSPO yet, attracting fifty-three exhibitors from the United States and another thirty-four from the United Kingdom. The PGZ and other Polish companies benefitted from the exhibition by signing contracts, building connections and concluding deals with foreign partners (Głowacki, 2024). Furthermore, Polish military and political leaders have capitalised on meetings, tightening bonds with global partners and increasing Poland's prestige as a security hub.

The Challenges of Modernisation: Interoperability, Recruitment, and Infrastructure

The Polish Strategic Review of 2016, updated after the Russian attack, set the objectives the Polish Armed Forces are required to achieve by 2032, which will become one of the most modern and largest militaries in Europe, prepared to mobilise and conduct rapidly effective collective defence operations (Ministry of National Defence, n.d.). Although investments in enhancing military capabilities have been notable and are aligned with this ambition, there are still issues in three areas.

Firstly, the purchases completed with external partners by the aspiring European first military power have raised concerns about the interoperability of systems and vehicles among EU members (Ippolito, 2023). While they have recently enhanced interoperability among their armed forces, military equipment acquisitions from third states might complicate the task and delay the work. However, as the recent Report on the future of European competitiveness (2024) clearly stated, and as Poland's Minister of Foreign Affairs Radosław Sikorski noticed (O'Neill, 2024), the European defence industry suffers from a capacity gap and is underfunded and fragmented. Thus, it could not fulfil Poland's orders, which had to look for new equipment outside Europe. The slowed pace of upgrading existing assets and the limited purchase options of European military equipment may have contributed to Poland's decision to turn to extra-continental suppliers (Chang, 2022).

Addressing this issue would likely increase the appeal of common European military projects for EU member states and affect future investment decisions of many countries.

Secondly, retaining military personnel and staffing the newly formed military units remain two of the most prominent challenges for the Polish Armed Forces (Parzonka & van Rij, 2024). Although a massive recruitment operation was announced with the ambition to enrol an additional 150,000 troops in the next decade, training timelines and demographic concerns may condition the full use of new capabilities (Carbonaro, 2023). The magnitude of such a change has led Ben Barry, a land warfare specialist at the International Institute for Strategic Studies, to question whether Poland can manage the infrastructure investments and institutional reforms necessary to train a larger army (The Economist, 2023).

Thirdly, another issue is the condition of infrastructure across the country. Poland's minor roads and few strategic bridges have limited capacity to withstand the weight of the newly purchased heavy-armoured vehicles (Kamiński & Śliwa, 2023). Moreover, although some progress has recently been made, the Polish Army does not yet possess the means to protect critical infrastructure in the event of an enemy attack.

Conclusion

This article has explored Poland's swift military modernisation, hastened by Russia's full-scale invasion of Ukraine, and covered its recent strategic investments in land, air, sea, missile, and drone capabilities. It has then discussed Poland's ambition to bolster its defence industry, mainly by signing licensed production agreements. Lastly, it has examined the potential challenges the country may face in the years ahead, including interoperability with European allies, recruitment needs, and infrastructure conditions.

In conclusion, Poland is experiencing a military surge with few precedents in recent European history. Its colossal investments to enhance its military capabilities across domains may position the country as one of the most influential military powers globally. However, such a rapid and large-scale modernisation entails inherent challenges. Poland must overcome these hurdles to reach its full potential and consolidate its military capacity and capability (Parzonka & van Rij, 2024). Conversely, without developing a strategic vision for defence and security that addresses potential vulnerabilities at a national and regional level, neither the purchase of high-quality military equipment nor the increase of its armed forces capacity would be sufficient for effectively tackling security threats in a volatile geopolitical environment. In this case, Poland's rapid military development would not result in achieving its strategic, long-term goals, and, despite the well-planned enhancement of its military capabilities, the country would struggle to be recognised as a credible security provider for

entire region and a strong deterrent per se against the Russian Federation.

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