ANALYSIS

Friedrich Ebert Stiftung

Defence Industry in Central Eastern Europe

The Defence Sector in Poland

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1. Introduction and Overview

Poland is the NATO member with the highest spending (in relative terms) on defence, including armaments. These expenditures amounted to 4.2% of GDP in 2024 and 4.7% in 2025, i.e., €37.18 billion[1] and €43.9 billion respectively. Of those, 67 to 75% came directly from the state budget and 25 to 33% from the Armed Forces Support Fund (Fundusz Wsparcia Sił Zbrojnych RP, FWSZ) – a special instrument which makes it possible to meet high defence spending targets without all of the expenditure being counted against the main state budget deficit. The Fund is financed by debt (bonds or loans) managed by the state-owned Bank Gospodarstwa Krajowego.

Over the medium term (2025–35), these expenditures are likely to amount to the accumulated sum of €447 billion (as compared to €194.12 billion – the equivalent for 2014–24). Out of this amount, more than €118 billion is expected to be channelled into new acquisitions and R&D, and more than €125 billion into maintenance.[2]

In absolute terms Poland ranks as the 5th largest military spender among NATO member states, comparable to Italy and Canada, and substantially larger than Turkey. France's spending is higher than Poland's by approximately 70%, and Germany's and the UK's are higher by a factor of over two.

At present about 45% to 50% of Poland's total defence expenditure is allocated to personnel (pay, pensions/benefits, training) and operating costs (fuel, repairs, infrastructure). The majority – 50% to 55% – goes to the purchase of weapons, equipment, and related investments.

Since the outbreak of the war in 2022, Poland has been consistently making efforts to strengthen its own defence industry, funnel investments into this sector, and place orders in national companies.

However, procurement is currently realised mainly from foreign companies able to guarantee the prompt delivery of the high-quality armaments and equipment urgently required to close numerous gaps in the Polish defence systems. After the Russian aggression against Ukraine in 2022, the government of the then ruling right-wing Prawo i Sprawiedliwość party, PiS, hastily concluded several costly contracts on large volumes of arms. Contracts with the US included 366 Abrams tanks, 486 HIMARS rocket launchers, 32 F-35 airplanes, and 96 AH-64

1 The Euro/Polish zloty exchange rate usually fluctuates between 4.18 and 4.28 PLN to 1 EUR; in this paper the rate of 4.25 has been applied for ease of comparison.

2 See „Poland's Investment in Defence. Military buildup and seeking efficiencies in working towards targets", a report by Delloite, March 2025.

Apache attack helicopters. Similar weaponry, in larger quantities, was ordered from South Korea: 1,000 K2 tanks; 288 K239 Chunmoo multiple-rocket launchers; 48 FA-50 light multi-role fighter and lead-in trainer jets; and in addition 672 K9 self-propelled howitzers, which are an equivalent to Polish Krab SPHs. The present government is tacitly reviewing some of these contracts, while also taking into consideration the dramatically changed art of warfare evidenced on Ukrainian battlefields.

The Polish Defence Industry: A Historic Overview

The country's defence industry has a long tradition. Its foundations were laid in the interwar period, when – in view of the deteriorating situation in Europe, including Poland's security – the Central Industrial District (Centralny Okręg Przemysłowy, COP) was created in 1936–39. Five important factories were built within a very tight three-year window. By the summer of 1939 they were completed and became fully or partially operational, producing artillery (Zakłady Południowe, Southern Works; present name Huta Stalowa Wola, HSW), aircraft engines (Państwowe Zakłady Lotnicze (PZL) – Fabryka Silników, Rzeszów), PZL-37 Łoś (Elk) bombers (PZL – Fabryka Samolotów, Mielec), ammunition (Wytwórnia Amunicji nr 3 in Dęba), and tires (Stomil, Dębica). The Truck Manufacturing Works in Lublin was completed but production was not launched due to the start of World War II.

After war, the Polish People's Army, with up to 400,000 active troops, was the second strongest and largest military force within the Warsaw Pact (WP), second only to the Soviet Armed Forces. Consequently, Poland maintained a considerable domestic arms industry which was inherited from before the war and developed further. It produced tanks, armoured personnel carriers (APCs), artillery, airplanes, helicopters (as one of five nations worldwide with this capacity), naval vessels (a key role for the entire WP fleet), small arms, ammunition, explosives, propellants, and various types of equipment. The licensed production of Soviet designs, where possible, was adapted and served as the basis for domestic projects – e.g., in the aeronautical industry.

The sector's performance between the dissolution of the Warsaw Pact and NATO/EU Accession (1990–2004) was characterised by an existential crisis. The defence industry lost its primary customers (WP countries), and the production capacities turned out to be too large for the diminished needs of the Polish armed forces. Orders plummeted as the workforce was drastically reduced. The enterprises were often left underutilised, and investments in modernisation, R&D and new technologies fell sharply. Many companies of the sector converted their production lines to civilian goods. Paradoxically, this period saw the quiet rise of innovative private companies, such as the WB Group (founded in 1993), which focused on high-tech niches largely ignored by the struggling, state-run manufacturing giants.

Membership in NATO opened a new chapter in the history of the country's defence sector. The first phase (post-1999) focused on acquiring and adapting essential systems to ensure interoperability with the allies, particularly in command, control and identification. Key areas included implementing new C4I (Command, Control, Communications, Computers and Intelligence) and IFF (Identify Friend or Foe) systems. Major foreign acquisitions were vital, such as the purchase of 48 F-16 multi-role fighters, 247 Leopard 2 2A4/2A5 tanks, and a licence from the Finnish Patria Vehicles Oy company to produce the Rosomak (Wolverine) APC. The APC was manufactured by Wojskowe Zakłady Mechaniczne S.A., now Rosomak S.A. (public company), in Siemianowice Śląskie. Thus far, over 1,000 vehicles have been delivered in different versions.

The further industrial adaptation included: the standardisation of the ammunition, i.e., shifting from Warsaw Pact-standard calibres to those of NATO; the acquisition of technologies and certifications to maintain and service Western airplane platforms (F-16s, C-295 CASA); and offset agreements which legally mandated that foreign suppliers invest in or transfer technology to the Polish defence industry. This mechanism became the primary engine for bringing modern, NATO-compatible technology and production standards into Polish companies.

As a result, the current Polish defence industry emerged as a combination of a robust pre-1989-transformation industrial base and the structural adaptation to NATO standards through a mixture of foreign technology transfer and domestic ingenuity. It is primarily dominated by the state-owned Polska Grupa Zbrojeniowa (PGZ – Polish Armaments Group), but it also comprises innovative private start-ups and foreign firms operating in Poland.

2. The Situation Today

The core of the industry is PGZ, a state-owned holding company consolidating over 50 entities. It brings together key manufacturing, research and service facilities and is responsible for the production of heavy land systems, ammunition, and complex electronics. The centralisation ensures that the state retains control over key defence technologies.

Private companies, of which the WB Group is the best known and the most successful, are often innovative in niches like high-tech areas. They typically focus on electronics, C5ISR (Command, Control, Computers, Communications, Cyber, Intelligence, Surveillance, Reconnaissance) systems, software, and unmanned aerial vehicles (UAVs), providing flexibility and cutting-edge solutions that complement the state-owned manufacturers. The private sector includes 13 larger enterprises and approximately 50 smaller, highly specialised firms. Private suppliers also provide personal gear like uniforms, clothes, footwear, and individual equipment.

In 2024 the turnover of PGZ exceeded €3 billion, and that of the WB Group, the biggest private company of the defence sector, was €680 million.[3] The value of signed contracts is much higher, indicating significant future turnover; in 2024 alone, PGZ signed new domestic orders totalling over €28.24 billion. [4] The government has committed to placing half of the orders with Polish firms. Abroad there is a rising demand for high-performance equipment, proven in Ukraine (like the Piorun missile system or the FlyEye drone).

A number of foreign companies, usually players on the global market, also have their production facilities on Polish soil.[5]

a) Companies

State-owned:
The major PGZ subsidiaries and affiliated companies are:

- → Huta Stalowa Wola S.A. (HSW), the centre of the Polish artillery and heavy military engineering industry, specialising in complex land systems: artillery, heavy tracked and wheeled special vehicles, engineering equipment and integrated fire control systems. Its flagship products are: the Krab 155 mm self-propelled howitzer; the Rak 120 mm self-propelled automated mortar system; and the Baobab-K automated mine-laying vehicle. The company has just launched the production of the new tracked Borsuk (Badger) Infantry Fighting Vehicle (IFV). On 4 December 2025, the first batch of 15 serial-production Borsuk IFVs was officially handed over to the Armed Forces. The present contract provides for the delivery of 111 units by 2029 and is valued at €1.5 billion. According to the framework agreement there will be the acquisition of up to 1,400 vehicles based on the Borsuk's Universal Modular Tracked Platform (UMPG) chassis. The HSW's turnover in 2024 was €805 million, and it employs 1,700 persons in Stalowa Wola and 2,500 when including its subsidiaries. [6]

- → Fabryka Broni "Łucznik," FB Radom (Arms Factory "Archer" in Radom) is the exclusive producer of standard-issue firearms for the Polish Armed Forces and a key global exporter of small arms. It manufactures pistols, assault rifles, submachine guns, and their civilian/export derivatives. It is best known for MSBS Grot – the standard modular assault rifle of the Polish Armed Forces, 9 mm standard issue pistol VIS 100, and 9 mm submachine gun Glauberyt PM-98. The company's turnover in 2024 was €141 million and its work force exceeded 600 employees.[7]

- → Mesko S.A. produces missile systems, artillery ammunition (155 mm, 120 mm) and small-calibre ammunition (5.56 mm, 7.62 mm). It is known globally for its Man-Portable Air-Defense Systems (MANPADS) – shoulder-launched, heat-seeking surface-to-air missiles with highly sensitive seeker and digital processing, designed to destroy visually observed low-flying air targets such as aircraft, helicopters, UAVs and cruise missiles - Grom (Thunder) and Piorun (Lightning). Recently, Mesko's production capacity of small-calibre ammunition has increased fivefold, to 250 million rounds per year. It is significantly boosting its artillery shell capacity, aiming for 150,000 155mm shells annually by 2027. The factory also manufactures the licensed Spike-LR anti-tank guided missile (ATGM). The company's 2024 turnover was €376 million. It employs close to 3,000 persons.[8]

- → Rosomak S.A. is the sole manufacturer of the Rosomak 8x8 APC – which is now the core mechanised vehicle of the Polish ground forces, having proved its combat efficiency during Polish deployments to Iraq and Afghanistan (ISAF), and has been highly valued by Ukrainian forces in the phase of the war from 2023 onwards. Italso manufactures the Legwan (4x4) Wheeled Armoured Carrier and Hardun Heavy Wheeled Technical Evacuation and Rescue Vehicle. The last reported number of employees was 450-500.[9]

- → Bumar-Łabędy S.A. is the key Polish centre for the production and Modernisation, Repair and Overhaul (MRO) of heavy armoured vehicles, particularly Main Battle Tanks (MBTs) and heavy tracked vehicles. It was the producer of the PT-91 Twardy tank (200 units delivered in 1994–2002), and the major contractor for the overhaul and modification of old T-72 tanks and the modernisation of the Polish Army's Leopard 2A4 tanks to the 2PL standard. Now it has been designated as the key centre for the future production and "polonisation" of the South Korean K2PL Main Battle Tank. The company's turnover in 2022 was €145 million. It currently employs 800 persons, but there are plans to increase this number to 1,400 by 2028.[10]

- → OBRUM Ltd. (R&D Centre for Mechanical Appliances) in Gliwice plays a major role in engineering and complex

3 These figures represent massive increases since the eruption of war: €2.4 bn and €330 mn respectively in 2023, €1.76 bn and €140 mn in 2022, and €1.4 bn and €81 mn in 2021.

4 See https://defence24.pl/przemysl/rekordowe-zamowienia-pgz-znamy-liczby , 17 April 2025. Accessed 22 December 2025.

5 For details, see Section 3.

6 https://www.onet.pl/informacje/nowa-technika-wojskowa/zbrojeniowa-huta-stalowa-wola-perspektywy-rozwoju/psp9rw8,30bc1058. Accessed 22 December 2025.].

7 https://tech.wp.pl/fabryka-broni-rozpoczela-potezna-rozbudowe-dzieki-temu-podwoi-produkcje,7097902534498912a. Accessed 22 December 2025.

8 https://www.mesko.com.pl/aktualnosci/podsumowanie-2024-r. Accessed 22 December 2025.

9 https://www.rosomaksa.pl/aktualnosci. Accessed 22 December 2025.

10 https://nettg.pl/gornictwo/216114/kolejny-wazny-kontrakt-bumaru-labedy-firma-otrzyma-850-mln-zl-na-produkcje-pojazdow-opancerzonych. Accessed 22 December 2025.

multi-year, strategic projects (e.g., components for the Borsuk IFV or participation in the European Main Battle Tank project). Among its achievements one could cite: the MS-20 "Daglezja", accompanying mobile bridges crucial for engineer troops (43 units delivered under a long-term contract); development platforms, like the Universal Modular Tracked Platform (UMTP), which gave rise to Anders Light Tank concept (not implemented); and the extensive development of driving and gunnery simulators and training systems for various military vehicles and radar systems. The company employs over 170 highly skilled specialists – engineers, designers, technical staff.[11]

→ PIT-RADWAR S.A. focuses on highly complex C5ISR, radar systems (mobile and fixed), air defence (fire control & command) and IFF solutions. It is the key Polish contractor for radar and command integration into the new medium and short-range WISŁA/NAREW air defence systems. Among its products are also the Bystra modern mobile battlefield radar and the SOŁA/Poprad mobile short-range anti-aircraft missile systems integrated with Grom/Piorun missiles. The company's annual turnover is €150 million, and the employment is 670.[12]

→ Zakłady Chemiczne "Nitro-Chem" S.A. (Nitro-Chem Chemical Works). This company is a global leader in the production of high explosives and Europe's largest producer of TNT and other high-energy materials, and the provider of ammunition filling services. With customers on six continents and being a key supplier of explosives to the US defence industry, it is an export leader in the Polish armaments industry. The core highly specialized staff consists of 470 persons.[13]

→ Jelcz Ltd. designs, manufactures and ensures post-sale service of high-mobility tactical and special purpose trucks in configurations from 4x4 up to 10x10. Its JELCZ 442.32 (4x4) is a standard transport vehicle for the Polish Army. JELCZ 8x8 is dedicated to heavy-duty transport for missile launchers (e.g., HIMARS components) and specialised engineering equipment. The JELCZ 6x6 is the platform used for the Krab howitzer chassis and other medium loads. The company's 2024 turnover was €207 million, and employment was 925.[14]

→ PGZ Stocznia Wojenna Ltd. (PGZ Naval Shipyard) is involved in naval shipbuilding and the MRO of military vessels. It is the primary shipyard for the Polish Navy's largest Miecznik (Swordfish) construction program for three modern multi-role frigates. It has also completed the ORP Ślązak offshore patrol vessel and has modernised the ORP Kaszub corvette.

→ Wojskowe Zakłady Lotnicze, WZL (Military Aviation Works) are key aviation MRO facilities. WZL-1 (with headquarters in Łódź) specialises in servicing helicopters, while WZL-2 (Bydgoszcz) in jet fighters (F-16, in the past also MiG-29, Su-22) and transport aircraft (C-130 Hercules).

In addition to those manufacturers, there also are six government-run (under the direct supervision of the Ministry of National Defence) R&D institutes focused on science and technology, not production, whose work is important to the defence industry: the Military Institute of Armament Technology (WITU), which provides scientific analysis and innovative solutions for small arms, missiles, and artillery; the Military Institute of Communications (WIŁ); the Military Institute of Chemistry and Radiometry (WIChiR); the Military Institute of Armoured and Automotive Technology (WITPiS); the Military Institute of Engineer Technology (WITI); and the Air Force Institute of Technology (ITWL).

Private Companies:

→ WB Group is a group of companies involved in advanced technologies of either military, civilian or dual use, of which four – WB Electronics, Flytronic, Radmor and Arex – have left a strong fingerprint on today's Polish defence industry. They specialise in electronics, C5ISR systems and unmanned systems. Among their flagship products are the Topaz fire control system, the FlyEye UAV, and Warmate loitering munition. It is by far Poland's largest private defence contractor by revenue and employment (over 1,200 personnel, mostly engineers and technical staff).

→ Iceye Oy is a Polish-Finnish company that designs and manufactures Synthetic Aperture Radar (SAR) microsatellites for Earth observation regardless of weather or time of day, and operates the world's largest constellation of such satellites. It has just delivered an initial batch of three SAR satellites to the Polish Armed Forces as part of a strategic agreement (valued at approximately €200 million), establishing Poland's first independent satellite reconnaissance capability. The company's reported revenue was in 2024 was €84 million, but its value is estimated at €2.4 billion.[15] It employs 700 persons globally.[16]

→ Hertz Systems Ltd specialises in navigation systems and space technology, military communications, anti-jam-

11 https://obrum.pl/. Accessed 22 December 2025.

12 „Sprawozdanie Zarządu z działalności PIT-RADWAR S.A. za rok obrotowy 2024", p.p. 9-10, retrieved from https://ekrs.ms.gov.pl/rdf/pd/ . Accessed 22 December 2025.

13 https://businessinsider.com.pl/biznes/afera-nitro-chem-czym-zajmuje-sie-spolka-i-jakimi-pieniedzmi-obraca/79br4l1 , 17 December 2024. Accessed 22 December 2025.

14 https://investmap.pl/jelcz-zwieksza-zatrudnienie-i-planuje-budowe-nowej-fabryki-pod-wroclawiem.a311623 , 30 December 2024. Accessed 22 December 2025.

15 https://www.cbinsights.com/company/iceye/financials , Accessed 7 December 2025.

16 https://www.iceye.com/hubfs/ICEYE_PressKit.pdf , June 2025, p. 1. Accessed 22 December 2025.

ming, and counter-drone systems (C-UAS). Among its flagship products is the HGPST T military platform satellite navigation receiver integrated with the SAASM (Selective Availability Anti-Spoofing Module) cryptographic module. This has been supplied to the Polish Armed Forces since 2006 for use on platforms like the Rosomak, Pilica, and Kormoran II – thus these platforms can maintain secure and reliable positioning, navigation and timing under jamming or spoofing attacks. Its products also include the Hawk counter-drone detection and neutralization system. The company also developed Poland's first commercial satellite (SAT-AIS-PL). The last publicly declared number of employees was 66.[17]

- Teldat Ltd. is a company whose area of production is military ICT for battle and crisis management, automated Command & Control systems, Battlefield Management Systems (BMS) and specialised military computers/terminals. The Jasmine Platform ("System of Systems") is its flagship product, being a comprehensive network-centric data communication platform that includes the software for Headquarters Management System, Battalion-level BMS and Dismounted Soldier System. This platform is the reference system used by the Polish Armed Forces. The company's annual turnover reaches €67.5 million, and the employment is within the range of 200 – 250 persons.[18]

- Transbit Ltd. is a manufacturer of ICT and tactical communication systems: military communications, radio relay and radiostation systems, tactical networking (routers/switches), and UAV data links. Its flagship products are: the Storczyk 2010, an integrated digital special communications system used at the tactical level; RADION, a tactical battlefield communications system based on digital broadband radios for IP radio networking; and UAV Radio Data Links that provide two-way command, video, and telemetry data for UAVs over ranges up to 150 km. The personnel is 129.[19]

- Transition Technologies Managed Services (TTMS) Ltd., a part of the Transition Technologies S.A. group, is focused on secure software and highly sensitive defence systems, often working directly with NATO standardisation bodies. It also operates in the domains of cybersecurity and of AI for defence. It elaborates classified data management platforms and secure communication software for military applications. Its annual turnover reaches €55 million, and the employment exceeds 800 persons.[20]

- AMZ-Kutno S.A. designs and manufactures wheeled armoured vehicles, specialist vehicles (e.g., ambulances) and adapts vehicles to various military needs. Its flagship military products include: the Żubr 4x4 armoured personnel carrier; and the Bóbr-3, a light armoured reconnaissance transporter (to be delivered in 2026–28). Annual turnover: €30 million, number of employees around 160. [21]

- Remontowa Shipbuilding S.A. is a private-sector leader (part of Remontowa Holding) also with a long history in military construction. It has been the main builder of the new generation of Kormoran II – a highly advanced minehunter, as well as rescue vessels, hydrographic ships, and tugs for the Polish Navy. The employment is around 500, shipyard specific, but is part of the larger Remontowa Holding workforce.

- Lubawa S.A. is primarily known for its advanced technical textiles, camouflage & Signature Management (visual, thermal, radar), protective equipment (tents, body armours, helmets and vehicle liners for ballistic protection) and large inflatable decoys / full-size simulators of tanks, aircraft and missile launchers, used for strategic deception. Its annual turnover reaches €120 million, and employment exceeds 1,000 persons.[22]

- Asseco Poland – one of the largest IT firms in Central Europe – can be added to that list, although defence accounts for only a portion of its business. Its software for Command & Control and Digital Military Communications is essential for the Polish military.[23]

b) Sectors

The Polish defence industry can be generally segmented into four key sectors:

- Heavy land systems and artillery. This is the industrial core where traditional capabilities are concentrated: the manufacturing and overhaul of tracked vehicles, armoured platforms, and self-propelled artillery. Here the technological focus is on "polonisation" of foreign platforms (e.g., K2PL production) and on development of indigenous systems (e.g., Borsuk IFV, Rak mortar).

17 „Dodatkowe informacje i objaśnienia dla Spółki Hertz Systems Ltd Sp. z o.o. na dzień 31.12.2024r.", note 16 at page 5, retrieved from https://ekrs.ms.gov.pl/rdf/pd/ . Accessed 22 December 2025.

18 https://www.bizraport.pl/krs/0000500786/teldat-spolka-z-ograniczona-odpowiedzialnoscia-spolka-komandytowa . Accessed 22 December 2025.

19 „Transbit Spółka z o.o. Sprawozdanie finansowe za okres 01.01.2024 - 31.12.2024. Sprawozdanie Zarządu z działalności jednostki", page 2, retrieved from https://ekrs.ms.gov.pl/rdf/pd/ . Accessed 22 December 2025.

20 https://ttms.com/pl/o-nas/ . Accessed 22 December 2025.

21 „Sprawozdanie Zarządu z działalności spółki AMZ-KUTNO S.A. za rok 2024", p. 4, retrieved from https://ekrs.ms.gov.pl/rdf/pd/ . Accessed 22 December 2025.

22 „Sprawozdanie z działalności Lubawa S.A. oraz Grupy Kapitałowej Lubawa za okres od 1 stycznia do 31 grudnia 2024", p. 48, retrieved from https://ekrs.ms.gov.pl/rdf/pd/ . Accessed 22 December 2025.

23 The whole company's annual turnover, in all branches, reaches €4 bn and employment surpasses 30,000.

- → C5ISR, radar and electronic warfare. This High-Tech Core is crucial for modern network-centric warfare. In this sector there is intense competition and a high level of domestic innovation. The companies specialise in the design and production of mobile and fixed radar, command and control (C2) software, tactical communications, and identification systems. Private companies are crucial for this sector. The challenge is to secure the software integration, to elaborate anti-jamming/anti-spoofing technologies and to develop the integrated command backbone for the entire Polish Armed Forces.

- → Ammunition and missiles. Since 2022 this has become a critical area. There is a dramatic need to increase the production volume, focusing on supplying key NATO standards munitions and missile components.

- → Aviation and aerospace. This sector involves a mix of legacy Polish companies, major international players,[24] and the highly innovative "New Space" firms. The core specialisations are MRO services for military aircraft and the rapidly growing space sector (SAR satellites and observation).

Key Geographical Clusters
The Polish defence industry is concentrated in a few geographic areas. This facilitates cooperation and specialisation.

- → Silesian defence hub – Gliwice, Silesia, Southern Poland with the focus on heavy land systems, MRO, and specialised engineering. Its key companies/entities are: Bumar-Łabędy S.A., OBRUM Ltd., and WITPiS (Military Institute of Armoured and Automotive Technology).

- → Warsaw/central cluster, focused on high-tech C5ISR, radar, R&D, and centralised defence administration, including WB Group, PIT-RADWAR, and numerous R&D institutes.

- → Aviation Valley – a concentration of companies in south-eastern Poland dealing with aviation manufacturing, components, MRO and training: PZL Mielec (Lockheed Martin/Sikorsky), PZL Rzeszów (Pratt & Whitney), PZL Świdnik (Leonardo). PZL Warszawa-Okęcie (Airbus Defence and Space) and ITWL (Air Force Institute of Technology) are located in Warsaw.

- → The naval cluster in Gdynia/Gdańsk, where PGZ Stocznia Wojenna Ltd., Remontowa Shipbuilding S.A., and naval MRO entities are located.

c) Exports

In 2024 the value of Poland's overall exports of weapons was close to €3.2 billion, an increase from €1.75 billion in 2023 and €390 million in 2020. Exports under heading 93.01 (World Customs Organisation's Harmonized Commodity Description and Coding System), which covers major military hardware – like artillery or rocket launchers – were worth €320 million in 2023, out of which 93% went to Ukraine.[25] In addition to land vehicles, ammunition and UAVs were key exported products. Among other relatively large partners were the USA and the Philippines, with values close to €200 million each.[26] Poland's supplies to Ukraine distorted the picture: Prior to 2022, Poland was a moderate regional exporter (typically outside the global top 15-20), mainly focused on selling modernised Soviet-era equipment and specialised Polish products to specific international markets.

It is likely, however, that following the modernisation of the sector thanks to increased spending and investments, Polish exports of this merchandise will be permanently increased.

The WB Group took advantage of the situation, and with its advanced electronics (Topaz, Fonet communications system), FlyEye UAVs, and Warmate loitering munitions, established itself as a successful private company in international cooperation and exports. The company has established four subsidiaries worldwide: WB America in the USA, WB Ukraine, WB India and WBE Technologies for South-East Asia.

Apart from WB Group's electronics and UAVs, the Piorun and Grom MANPADS, the Grot firearms, the Krab self-propelled howitzers, and TNT are Polish flagship export products.

3. Foreign Investments/Participations

a) Foreign companies in Poland

A number of foreign companies, usually players on the global market, have their production facilities in Poland. Valuable experience was gathered at the time of the transformation of the sector, especially at the beginning of the 21st century, from purchasing contracts with overseas or European investors which usually included offset clauses. Major international contracts required significant technology transfer and the establishment of local production, service, and MRO capabilities within Poland. This practice was aborted by the previous Polish (PiS) government, when it denounced the contract with Airbus Helicopters on the purchase of fifty H225M Caracal helicopters (the contract included offset provisions) in 2016, and after the outbreak of war in Ukraine bought a large quantity of weaponry off the shelf in the US. Today this requirement is being restored in

24 See Section 3.

25 COMTRADE (UN Comtrade Database) based on data from Statistics Poland (Central Statistical Office).

26 All data from the report of Poland's Ministry of Foreign Affairs: „Eksport uzbrojenia i sprzętu wojskowego z Polski. Raport za rok 2024", Warsaw 2025.

current large-scale negotiations. For instance, the deal with SAAB on the acquisition of three A26 submarines is to be accompanied by significant elements of industrial cooperation and technology transfer with the Polish defence industry, including a role for the PGZ Stocznia Wojenna Ltd.[27]

The critical Wisła/Narew air and missile defence programmes rely heavily on the US and European systems with local integration. The Patriot system and the Integrated Battle Command System (IBCS) are being acquired from the US, with Polish industry involved in integrating domestic sensors (like PGZ's P-18PL radars) and communications systems. Lockheed Martin provides its PAC-3 Missile Segment Enhancement (MSE) system for the Wisła Programme in strategic partnerships with PGZ subsidiaries WZL-1 and Wojskowe Zakłady Uzbrojenia S.A. in Grudziądz. MBDA, a trans-European company, is providing the CAMM-ER missiles for the Narew short-range air defence system, which will be integrated with the PGZ-produced Pilica+ systems. Contracts include technology transfer for Polish manufacture of components.

Aeronautics is the domain where foreign involvement is particularly visible. PZL Mielec is owned by Lockheed Martin, via its acquisition of Sikorsky Aircraft Corporation in 2015; reportedly it is the largest Lockheed Martin production facility outside the United States. The Polish company focuses on manufacturing the S-70 Black Hawk multi-role helicopter for the Polish Armed Forces (8 units for the special forces) and foreign clients.. In Mielec as well, major components for F-16s are being produced, such as the rear and centre fuselage, cockpit structure and cockpit side panels.

PZL-Świdnik S.A., the largest helicopter manufacturer in Poland, is fully owned by Leonardo S.p.A., via its acquisition of AgustaWestland. The Italian company has opened a production line for its AW149 medium multi-role military helicopter, with the majority of the Polish Armed Forces' ordered units being fully assembled and integrated in Świdnik. The factory is also involved in the assembly of the AW101 helicopters for the Polish Navy, and continues the production of Polish indigenous PZL W-3 Sokół and PZL SW-4 Puszczyk helicopters.

GE Aerospace and Airbus Helicopters have signed cooperation agreements with PGZ entities, focusing on MRO services.[28]

Safran, the French multinational aerospace and defence company, produces mechanical components for aviation engines in Sędziszów Małopolski and will transfer the production of its Geonyx inertial navigation and pointing systems, which are supplied for PILICA+ and NAREW programmes, to Wojskowe Zakłady Elektroniczne S.A., a PGZ subsidiary.[29] It is also exploring the potential for the assembly, manufacturing, and integration of the AASM Hammer smart precision-guided air-to-ground munition in Poland.

Northrop Grumman has a Memorandum of Understanding (MoU) with WZL-2 for future cooperation on the E-2D Advanced Hawkeye aircraft used for airborne early warning and command & control.[30]

Following the 2022 Russian assault on Ukraine, South Korea has become a major strategic partner on land and in air, with a strong emphasis on local production in Poland. PGZ and Hyundai Rotem have reached a consortium agreement for local production of K2 tanks (K2PL variant) with significant technology transfer, aiming to establish Polish manufacturing and MRO capabilities for advanced land platforms, including future tanks and unmanned systems. Huta Stalowa Wola S.A. will be the key domestic producer of the "polonised" K9PL howitzer. The K239 Chunmoo MLRS (Homar-K) will also be integrated with Polish technologies, and the WB Group has formed a joint venture with Hanwha Aerospace to produce the CGR-080 missiles for this system.[31] Korea Aerospace Industries (KAI) is setting up a service facility in Poland, which will be operated by a PGZ subsidiary, ensuring local maintenance and repair capabilities of the FA-50 aircraft.

b) Polish companies in international programmes/ consortia

Polish companies have only recently started attempting to strengthen their role as technology providers and partners in international programs, especially within NATO and the EU. PGZ companies, research institutes, and the WB Group are active in consortia that compete for funding under the EU Defence Fund, focusing on areas like space, robotics, and future soldier systems. Polish IT and defence firms like Asseco Poland are trusted contractors for NATO agencies, providing high-security IT infrastructure, command and control software, and cybersecurity solutions.

In November 2025, Iceye and Rheinmetall established their joint venture, Rheinmetall ICEYE Space Solutions GmbH, based in Neuss, Germany.

In October 2025 the PGZ and Rheinmetall signed an MoU with the specific aim of founding a joint venture to create a European Support Vehicles Centre which would deal with armoured vehicles for recovery, engineering, and bridge-laying.[32]

4. Technological and Industrial Potential

Over the past four years, the nature of war has changed dramatically, as evidenced on the battlefields of Ukraine. The awareness of this is high among Poland's political de-

27 Sweden has also offered to purchase Polish armaments, including a rescue ship built at a Polish shipyard, as part of the broader strategic partnership.

28 https://www.geaerospace.com/news/press-releases/ge-aerospace-and-wzl-2-sign-memorandum-understanding-f110-mro-support . Accessed 22 December 2025.

29 https://wze.com.pl/2025/01/08/wze-rozpoczyna-produkcje-nawigacji-inercyjnej-geonyx/ . Accessed 22 December 2025.

30 https://news.northropgrumman.com/e-2d/Northrop-Grumman-Strengthens-Polish-Industrial-Cooperation . Accessed 22 December 2025.

31 https://www.wbgroup.pl/en/aktualnosci/wb-group-and-hanwha-aerospace-executive-agreement/ . Accessed 22 December 2025.

32 https://www.rheinmetall.com/en/media/news-watch/news/2025/10/2025-10-13-polska-grupa-zbrojeniowa-and-rheinmetall-sign-strategic-agreement-on-support-vehicles . Accessed 22 December 2025.

cision-makers. The dynamic private sector, to a large extent, drives the country's defence industry towards high-tech solutions. However, the enemy's potential must also be taken into account. In this particular case, in order to deter the possible aggressor, or eventually defend one's territory – as well as that of the allied nations – both will be needed: the most technologically advanced arms, and adequate quantities of traditional land systems.

The description of the Polish defence sector in Sections 1 to 3 shows it possesses the necessary expertise to produce weaponry required for successful traditional warfare. There is political consensus around the necessity of keeping military expenditures at a very high level, which means that the inflow of financial resources will be steady. With enormous budgetary investments and the placement of vast orders in national enterprises, and as a result of technological leapfrogging, within just a few years the country is likely to build sufficient potential to deliver heavy armaments in substantial numbers and to a standard surpassing that of the enemy.

The Polish defence sector is undergoing an unprecedented transformation, moving from a fragmented industrial base focused on small-scale modernisation and MRO towards a consolidated, high-volume manufacturing powerhouse. Its current strategy is leveraging large foreign acquisitions to enforce a policy of "polonisation," ensure the transfer of know-how, increase production capability, and establish long-term MRO capacity.

Its primary assets lie in the production of heavy armoured vehicles (tanks, IFVs, APCs), artillery (self-propelled howitzers, self-propelled automated mortars), MANPADS, TNT, UAVs and loitering munitions, assault rifles, C5ISR, radar and communication systems, anti-drone systems, and satellite reconnaissance. Intellectual potential exists in the domain of aeronautics, especially helicopters, but this capability has been absorbed by foreign companies (from allied countries). In the not-too-distant future, the country could become a major player in the production and supplies of ammunition.

It currently lacks competence and production capacities for air defence and anti-ballistic (including hypersonic) missile systems, as well as in naval shipbuilding.

5. Country-Specific Challenges and Opportunities

a) The urgency of substitution and investment

Poland has been one of the largest and most strategically important providers of military aid and arms to Ukraine since February 2022. This support included significant donations from the Polish military's existing stockpiles: 318 tanks (T-72M variants, PT-91, and 14 Leopard 2A4s), 586 armoured vehicles (including BWP-1 IFVs and Rosomak APCs), 137 post-Soviet artillery systems, 10 MiG-29 fighter jets, and 10 Mi-24 helicopters were removed from the inventory.[33] While these arms were critically needed by Ukrainian forces, at the same time, this transfer made it urgent that they be replaced. Consequently, current investments in the defence sector not only serve Poland's future strategic aims but constitute an exigent necessity.

b) Geostrategic imperatives and warfare needs

Poland is a frontier state sharing long borders (650 km) with Russia and Belarus. West of these borders lie the Central Polish Lowlands (Niziny Środkowopolskie), a vast, mostly flat geographic zone. This region holds immense geostrategic and military significance due to its lack of natural barriers, which facilitates the rapid movement of hostile forces. The lowland plain focuses all major East-West communication and transportation arteries, including key river crossings on the Vistula and Odra (Oder). Therefore, Poland cannot neglect the need to accumulate warfare assets capable of impeding the rapid movement of hostile armoured formations. Investments in producing the categories of weapons that would best serve the goal of immediately stopping such a raid – or deterring it entirely – is a must.

c) Emerging role in the space sector

Poland has become a notably important player in the European space sector since 2023. This ascent was catalysed by the decision to send Sławosz Uznański-Wiśniewski, Poland's second astronaut in history, on a mission to the International Space Station (25 June to 15 July 2025). This mission made it necessary for Poland to quadruple its ESA optional contribution to over €300 million for 2023–25, elevating its funding level to that of mid-sized space powers. This substantial investment ensures a high industrial return of funds to domestic companies, notably enabling Polish firms to transition from component suppliers to prime mission contractors. This new position was confirmed by the successful launch on 28 November 2025, of Polish-built satellites aboard Falcon 9: MikroSAR (Iceye), the PIAST constellation (a project led by the Military University of Technology WAT, with satellites built on the Hypersat platform by Creotech Instruments S.A.), and the PW6U Nanosatellite by SatRev S.A. Poland has acquired a sovereign capability in dual-use satellite reconnaissance for security purposes, solidifying its role as a key, technologically capable partner in the European space supply chain.

Poland's burgeoning domestic space launch capabilities have been demonstrated by the successful launches of the two-stage *Bursztyn*[34] and *Perun*[35] rockets. Most recently, on 25 November 2025, a new and as-yet-unnamed three-stage rocket—developed by WITU, WZL-1, and Special Pro-

33 For details see https://geekweek.interia.pl/militaria/news-ile-broni-polska-przekazala-ukrainie-rzad-odslania-karty,nId,22429883 . Accessed 22 December 2025.

34 Developed by *Sieć Badawcza Łukasiewicz – Instytut Lotnictwa* (the Research Network Łukasiewicz – Institute of Aviation) and tested since 2017.

35 Developed by SpaceForest Ltd., tested since 2023.

duction Works Gamrat Ltd.—was launched from the Ustka military testing range on the Baltic coast[36].

d) Workforce and skill challenges

The unprecedented growth of the Polish defence sector is profoundly affecting its industrial structure, the size of its labour force, and the resulting skill requirements. The sector is actively expanding its workforce, leading to a surge in demand for qualified personnel, significant recruitment efforts, and intense competition for talent. A significant long-term risk, however, is the ageing workforce. Up to one quarter of the engineers and R&D specialists in the sector are reportedly nearing retirement age, creating a critical need for rapid recruitment and knowledge transfer to younger generations. The most sought-after skills reflect the industry's necessary shift towards high-tech, complex systems integration.

6. Assessment of the Potential for Co-Operation

Polish companies could be valuable partners in designing, developing, and producing high-quality European heavy armoured vehicles (tanks, IFVs, APCs, and specialised support vehicles for recovery, engineering, or bridge-laying). Accumulating these weapons, in sufficient numbers, in EU Member States' stocks would significantly enhance the efficiency of deterrence against a potential aggressor. The MoU between PGZ and Rheinmetall in October 2025, which foresees a European Support Vehicles Centre, can be seen as a manifestation of common interest in such cooperation. Poland would be a desirable participant in EU joint endeavours to fill the following critical capability gaps, as listed in the European Commission and High Representative's "Joint White Paper for European Defence Readiness 2030" (March 2025):

→ *Air and missile defence: an integrated, multi-layered, air and missile defence that protects against a full spectrum of air threats (cruise missiles, ballistic and hypersonic missiles, aircraft and UAS).* Polish authorities should be critically interested in the "European dome" since they fully realise the risk and effects of such attacks, and Poland alone is unprepared to repel them and has no technological and industrial potential to build an equally efficient national barrier. High-tech firms of the electronics, radar, optoelectronics, communications, anti-drone and new space technologies segments could contribute to the emergence of the European sky shield.

→ *Artillery systems: advanced fire systems including modern artillery and long-range missile systems designed to deliver precise, long-range attacks against land targets (deep precision strike).* In cooperation efforts with other EU producers, Polish experience with the Krab self-propelled howitzer, praised for its efficiency in Ukraine, and with adapting the similar South Korean K9, together with the experience of well-established companies, private start-ups, and research institutes in optoelectronics and communication components could prove useful.

→ *Ammunition and missiles: building on the European External Action Service initiative "Ammunition Plan 2.0", a strategic stockpile of ammunition, missiles and components along with sufficient defence industrial production capacity to ensure timely replenishment.* Polish production capacities of different types of ammunition, TNT and other explosives could be combined with other EU countries' potential to achieve synergy.

→ *Drones and counter-drone systems: unmanned systems, including aerial, ground, surface and underwater vehicles that can be controlled remotely or operate autonomously using advanced software and sensors and enhance the capabilities that these technologies enable (e.g., situation awareness, surveillance).* Polish firms have good records in these types of production. Their manufacturing relations with Ukraine could also be helpful in elaborating future projects.

A number of Polish companies from the defence sector could make important contributions to the prompt building of European capabilities in outer space intelligence and surveillance, as well as in secure communications.

The sector's involvement in reaching a competitive edge in *AI, Quantum, Cyber & Electronic Warfare* would likely be less substantive today, although some firms and R&D institutes are trying to make progress in those domains. It also is less likely that Poland might play a role in catching up with such strategic enablers as Strategic Airlift and Air-to-Air refuelling aircraft or maritime domain awareness.

In turn Poland would be crucial, in a natural way, in creating military mobility through an "EU-wide network of land corridors, airports, seaports and support elements and services" in order to "facilitate the seamless and fast transport of troops and military equipment across the EU and partner countries"; this also refers to military fuel infrastructure.

36 https://geekweek.interia.pl/technologia/news-polacy-buduja-i-testuja-wlasne-rakiety-poczatek-kosmicznej-r,nId,22460163 . Accessed 22 December 2025.

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