

GEOPOLITICS AS A DRIVING FORCE:

The Impact of the Ukrainian
Conflict on Defense Strategies
and Arms Markets



BY

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GEOPOLITICS AS A DRIVING FORCE: THE IMPACT OF THE UKRAINIAN CONFLICT ON DEFENSE STRATEGIES AND ARMS MARKETS

by

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GEOPOLITICS AS A DRIVING FORCE: THE IMPACT OF THE UKRAINIAN CONFLICT ON DEFENSE STRATEGIES AND ARMS MARKETS

We are living in an era of profound geopolitical transformation, where security, which was once taken for granted, now needs to be rebuilt. The war in Ukraine has acted as a catalyst, forcing Europe and the United States to reconsider outdated defence, sovereignty and industrial policies. At this pivotal moment, every euro or dollar invested in defence represents a deliberate strategic decision with significant societal implications.

This comprehensive study examines the new architecture of the Western defence industry, forged in the crucible of modern challenges. Key players — ranging from the Italian-German alliance Leonardo-Rheinmetall (LRMV) and the German giant Rheinmetall to the American «Big Four» (Lockheed Martin, RTX, Northrop Grumman and General Dynamics) — are not merely adapting to the new reality; they are actively shaping it.

Through an examination of their strategies, product portfolios and financial successes, this text explores the central dilemma of our time: how can the urgent need for a powerful defence be balanced with the opportunity cost of such investments, such as unbuilt schools, hospitals and other key infrastructure?

This material goes beyond the analysis of armaments, providing a comprehensive investigation into key contemporary trends, such as the shift towards industrial sovereignty as the cornerstone of European strategic autonomy, the transformation of geopolitics into a business model, and the role of the Ukrainian conflict as a catalyst for market growth. At the heart of this study lies the intricate relationship between the state and the defence industry, resulting in an efficient yet ethically ambiguous system where state funding is directly converted into private profits.

From test ranges in Sardinia to assembly lines in Texas and meeting rooms in Brussels to corridors of power in Washington, this is the story of how a new world order is emerging, in which weapons serve not only as a tool of deterrence, but also as a currency of influence, an architect of alliances and a measure of sovereignty in the 21st century.

«Investing in weapons destroys what could have built schools, hospitals, and hope»

In a Europe reshaped by conflict and strategic uncertainty, every euro spent on military hardware is a choice with deep consequences. While armored vehicles and advanced weaponry promise security and deterrence, they also compete with investments in education, healthcare, and social welfare—the foundations of resilient societies. This dossier examines the creation of Leonardo-Rheinmetall Military Vehicles (LRMV), tracing the industrial, technological, and geopolitical threads that position Italy at the heart of Europe's evolving defense landscape. It explores not only the mechanics of armored vehicle production but also the broader implications for European strategic autonomy, industrial sovereignty, and the ethical dilemmas inherent in allocating vast resources to war.

Of particular note is the decision to establish a drone and loitering munition production hub in Sardinia. Historically, the island has been a key NATO base and served as a training ground for Gladio¹, the clandestine anti-communist organization active during the Cold War's strategy of tension. Today, Sardinia is poised to become a modern center of European defense innovation, linking its historical military significance to the continent's ambitions for technological and industrial sovereignty.

LEONARDO-RHEINMETALL AND THE NEW ARCHITECTURE OF EUROPEAN DEFENSE

Geopolitical-Industrial Dossier on the Birth of the LRMV Joint Venture and Its Implications for Italy and the European Union

1. Introduction – The Age of European Re-militarization

Europe is undergoing a profound transformation. After more than thirty years of a “armed peace” following the Cold War, the war in Ukraine has brought collective defense, conventional deterrence, and industrial sovereignty back to the center of the continent's political agenda.

Strategic fault lines reopened along the eastern front have pushed the European Union to reassess its military posture and, above all, to recognize that industrial and technological dependence on the United States is no longer sustainable in the long term.

Italy, traditionally a "bridge" power between the Mediterranean and continental Europe, plays a peculiar role in this new scenario. Its defense industry, led by Leonardo S.p.A., now stands at the crossroads of European autonomy, NATO interoperability, and global competition. In this context, the establishment of the **Leonardo Rheinmetall Military Vehicles (LRMV)** joint venture, formalized on **February 25, 2025**², marks a strategic milestone: the creation of a new Italian-German industrial hub dedicated to next-generation armored ground systems.



Source: <https://defence-network.com/erster-schuetzenpanzer-lynx-ukraine/>

The objective is clear: to equip the Italian Army with a new line of infantry fighting vehicles (IFVs) and main battle tanks (MBTs), progressively replacing the historic Dardo and Ariete platforms, while competitively positioning itself in the broader European land defense market.

2. Origins and Structure of the LRMV Joint Venture

LRMV was created through an agreement between **Leonardo**, Italy's leading aerospace, defense, and security group, and **Rheinmetall**, the German industrial giant specialized in ground systems and defense technologies.

The new company is conceived as an equal joint venture, capable of operating with a flexible structure suitable for both domestic production for the Italian Army and exports to allied markets.

According to Leonardo CEO **Roberto Cingolani**, speaking during the 2025–2029 Industrial Plan presentation, the creation of LRMV represents *“a cornerstone in strengthening the European land defense supply chain, a step toward Europe’s full strategic autonomy in the armored vehicles sector³.”*



Source: <https://www.spiegel.de/wirtschaft/armin-papperger-rheinmetall-ueber-ruestungsindustrie-wer-schneller-handeln-kann-wird-gewinnen-a-f13ec89b-102e-4a5d-89b4-bcfeda7e4253>

The agreement consolidates cooperation already initiated in 2023, with joint participation of Leonardo and Rheinmetall in multiple technological development programs and the deployment of complementary expertise:

- **Leonardo** contributes know-how in sensors, communications, command and control systems, and electronics integration.
- **Rheinmetall** provides mechanical platforms and heavy production capabilities, developed with the Lynx and the new Panther KF51 MBTs.

The operational headquarters of the joint venture was chosen in Italy—a deliberate choice, given the country’s comprehensive defense industrial ecosystem, featuring highly specialized SMEs and military research centers capable of supporting complex development cycles.

3. Leonardo and Rheinmetall: Converging Visions

The Leonardo-Rheinmetall agreement is not merely an industrial project but a convergence of strategic visions.

On one side, Leonardo aims to strengthen its role in the land domain, traditionally less developed than aerospace and space; on the other, Rheinmetall seeks structural penetration into Southern European and Mediterranean markets, where German industry is less established.

The joint venture model avoids industrial duplication and allows faster responses to Italian Army Requests for Proposals (RfPs). During the transitional phase, a **Temporary Business Grouping (RTI)** was established to promptly meet operational needs pending full LRMV operations.

This ensured continuity in design and production, preventing capacity gaps.

On **February 3, 2025**, at the Nettuno military range, during a live-fire demonstration of the Lynx vehicle, the joint venture was officially presented to Italian Defense leadership. Attendees included the Chief of Defense Staff, General Luciano Portolano, the Army Chief of Staff, General Carmine Masiello, and representatives from Leonardo and Rheinmetall.

Sources present reported the demonstration highlighted *“the high level of integration between platform and onboard digital systems,”* showing that the Italian-German partnership could indeed produce a competitive product in the European market.

4. European Political-Strategic Context

LRMV’s birth occurs at a pivotal moment for European defense.

The war in Ukraine has underscored the need for a more solid and less fragmented European Defense Technological and Industrial Base (EDTIB). Through the **European Defence Fund (EDF)** and the **ASAP (Act in Support of Ammunition Production) program**⁴, Brussels is promoting transnational industrial integration to achieve economies of scale and reduce external dependencies⁵.

In this context, Italy and Germany emerge as complementary axes:

- Germany leads in ground systems with Rheinmetall, KMW, and Krauss-Maffei;
- Italy offers an integrated system of electronics, sensors, radars, and command systems—essential elements for digital warfare.

LRMV embodies a new European cooperation model: no longer based solely on intergovernmental projects (like the failed Franco-German MGCS), but on balanced, agile industrial partnerships driven by converging market interests.

6. Italian Army Doctrinal Evolution

Over the past decade, the Italian Army has redefined its operational identity. After decades of peacekeeping and stabilization missions, the return of conventional war in Eastern Europe demanded a radical revision of ground force employment concepts.

Experiences in Afghanistan, Iraq, and Lebanon strengthened expeditionary capabilities but eroded heavy armor. The Ukrainian lesson now dictates a paradigm shift: without modern, digitally integrated armored forces, battlefield survival is impossible.

The new strategic orientation, presented at the **International Armoured Vehicles Conference (IAVC)** in Farnborough, January 2025, establishes three guidelines:

1. Rapid adaptation to contemporary battlefield conditions;
2. Technological transformation based on interoperability, sensor fusion, and maneuver digitalization;
3. Industry–Defense integration conceived as structural partnership, not episodic.

A senior Italian Army representative summarized the philosophy:

“Our success in renewing ground capabilities depends on anticipating tomorrow’s battlefield challenges and quickly turning projects into reality. Adaptation and transformation are the two pillars of our doctrine.”

The Army Transformation concept envisions a connected digital platform capable of multi-domain operations (land–air–cyber–space). Tanks and IFVs are no longer mere firepower tools but nodes in an integrated information network transmitting and receiving real-time data.

7. MBT and AICS/A2CS Programs: Next-Generation Armored Systems

7.1 Main Battle Tank: Beyond the Ariete

The Ariete tank, produced by Iveco-Oto Melara, has served for over twenty years but no longer meets modern survival and lethality standards.

Its successor, developed through Leonardo-Rheinmetall collaboration, is a next-generation MBT designed from the outset for digital interconnection and high-intensity operations. Planned features include:

- 130 mm remotely operated turret derived from Rheinmetall’s Future Gun System;
- Next-generation Active Protection Systems (APS);
- Open electronic architecture integrating Leonardo-provided sensors, radars, and C4ISR systems;
- High-efficiency hybrid engine reducing thermal and acoustic signature;
- Human-machine cooperation systems with semi-autonomous diagnostics and assisted navigation.

The platform leverages experience from the German KF51 Panther but with Italian customization in sensors, electronics, and command systems. The goal is an integrated national technology ecosystem around the MBT.



Source: [https://commons.wikimedia.org/wiki/File:Italian Army - 4th Tank Regiment - Ariete tanks during an exercise at Capo Teulada October 2022.jpg](https://commons.wikimedia.org/wiki/File:Italian_Army_-_4th_Tank_Regiment_-_Ariete_tanks_during_an_exercise_at_Capo_Teulada_October_2022.jpg)

7.2 AICS/A2CS: Infantry Combat System

The **AICS (or A2CS)** is Italy's most ambitious mechanized infantry project in thirty years. A modular system integrating vehicles, drones, sensors, support systems, and advanced logistics⁶.

Total estimated value exceeds €16 billion, including in-service support, infrastructure, training, and long-term maintenance.

The main IFV, based on Rheinmetall's Lynx, will be fully adapted to Italian requirements, featuring:

- Maximum modularity for troop transport, reconnaissance, fire support, and command;
- Integrated Leonardo electronics, early warning systems, short-range radar, and UAV connectivity;
- Advanced human-machine interfaces managing sensors, thermal vision, and satellite links;
- Multilayer ballistic protection with reactive armor and active threat neutralization.

The goal is not just Dardo replacement but a **connected combat ecosystem**, interoperable with artillery, army aviation, and digital support units.



Source: <https://www.stern.de/digital/technik/rheinmetall-will-den-usa-4000-schuetzenpanzer-lynx-liefern-30447142.html>

8. The Ukrainian Lesson and New Tactical Scenarios

The conflict in Ukraine has transformed European land warfare concepts.

Massive use of artillery, drones, anti-tank missiles, and electronic warfare showed that armored vehicle survival depends on adaptation to the information environment.

Key lessons from Italian and NATO studies:

1. **Dynamic survivability** – Passive protection is insufficient; only integration of composite armor, APS, electronic countermeasures, and surveillance drones ensures battlefield survival.
2. **Tactical connectivity** – Vehicles must be part of a multi-sensor network sharing real-time positions, threats, and mission data.
3. **Logistical autonomy and sustainability** – Attrition warfare shows supply efficiency and predictive maintenance are as critical as direct firepower.

LRMV aligns with Europe's modernization trajectory: developing platforms that are not only more powerful but also smart, interconnected, and sustainable.

9. Industrial Dimension: Supply Chain and National Know-How

LRMV's industrial aspect is delicate and strategic. The venture strengthens Italy's technological sovereignty in land systems.



Source: <https://report.az/ru/drugie-strany/rheinmetall-i-leonardo-sozdayut-sovmestnoe-proizvodstvo-tankov-i-bmp>

Leonardo, with expertise in electronics and radar, is the national prime contractor for platform integration and supply chain management. Benefits include:

- **Skilled employment:** over 4,000 direct and indirect positions;
- **Dual-use technological spin-offs:** sensors, AI, simulation, robotics;
- **Territorial impact:** in La Spezia, Turin, Nettuno, and Nola.

Partnership with Rheinmetall provides access to proven production and technological standards. The result is a balance between national expertise and European cooperation, positioning Italy as a Mediterranean hub for ground systems

10. Italian Test Centers: Nettuno, Santa Severa, Colleferro, Gardone Val Trompia

Nettuno hosts one of Europe's main testing ranges, conducting trials on:

- Onboard weapons and ballistic systems;
- Structural resilience and active protection;
- Terrestrial drones and unmanned vehicles;
- Platform-sensor interoperability.

Complementary sites include Santa Severa (Rome) and certification centers in Colleferro (Rome) and Gardone Val Trompia (Brescia), covering material, ammunition, and production quality tests. These facilities ensure a complete domestic R&D, testing, and validation cycle—a prerequisite for strategic autonomy.

11. Italy Between NATO, EU, and Strategic Autonomy

Italy balances three strategic spheres: NATO, the EU, and national industrial autonomy. LRMV embodies this triple identity.

Within NATO, Rome remains a key southern ally, contributing to Iraq, Kosovo, Lebanon, and Mediterranean missions. Yet recent experience shows Europe requires autonomous crisis response capabilities alongside collective deterrence.

Geographically and politically exposed to asymmetric threats from North Africa, the Sahel, and the Levant, Italy needs mobile, interoperable armored forces with independent logistics and technical support.

LRMV also serves as a vehicle for industrial and diplomatic influence in the broader Mediterranean. The platforms may serve not only the Italian Army but also NATO southeastern partners (Greece, Turkey, Romania) and North African nations under EU supervision.

LRMV is thus more than a military program: it is a lever of industrial soft power, positioning Italy as an operational bridge between northern and southern Europe.

12. Financial and Export Perspectives

The MBT/AICS programs⁷ are unprecedented strategic investments in Italian defense.

Estimated total economic impact exceeds €25 billion over 15 years, with direct effects on GDP and skilled employment.



Source: <https://meta-defense.fr/ru/2024/07/04/rheinmetall-et-leonardo-kf51-panther/>

12.1 Financial Structure

Funding sources:

- Multi-year Defense budget allocations through 2038;
- PESCO and EDF funds for transnational cooperation;
- Possible European Investment Bank (EIB) credit lines for dual-use defense innovation;
- Regional contributions to SMEs in the supply chain.

Economic returns extend to civilian sectors through transferable dual-use technologies in robotics, sensors, and autonomous systems.

12.2 Export Market

International interest is already emerging from Hungary, Greece, Poland, Egypt, and Saudi Arabia, seeking European alternatives to U.S. and South Korean products.

Export strategy:

1. NATO-standard version for allied nations;

2. Mediterranean version adapted to southern climates and logistics;
3. Advanced Leonardo-integrated version for high-tech clients (e.g., UAE, Qatar).

The global market for next-generation combat vehicles is projected at over \$200 billion by 2040. Italy could capture 5–8%, placing it among the world's top five ground vehicle producers.

13. Conclusions – Italy as European Ground Defense Hub

LRMV marks a new phase for Italy's defense industry and geopolitics. It is not merely military modernization but a strategic infrastructure redefining Italy's role in European security.

Three key elements emerge:

1. **European technological autonomy** – LRMV shows how national industries can cooperate independently to create competitive, European-rooted products.
2. **National strategic resilience** – MBT/AICS ensures Italy retains critical capabilities in heavy mechanics, defense electronics, and system integration.
3. **Geopolitical projection** – LRMV consolidates Italy's role in the Mediterranean and as a key interlocutor in EU security projects.

In perspective, the joint venture could become Europe's reference industrial platform for future armored systems, inheriting lessons from previous multinational programs. The Italy–Germany synergy, balancing mechanical and electronic capabilities, offers a realistic path to continental strategic autonomy.

In an era where security is no longer guaranteed but must be built, Italy—with Leonardo and its partners—has chosen to invest in sovereign, interoperable capabilities, positioning itself at the center of the new European defense industrial order.

14. Final Summary – LRMV at a Glance

Timeline

- 2023: Leonardo–Rheinmetall industrial contacts begin
- Feb 3, 2025: Official JV presentation and Lynx live-fire test at Nettuno
- Feb 25, 2025: Formal establishment of LRMV
- Mar 11, 2025: Leonardo Industrial Plan 2025–2029 announced by Roberto Cingolani
- 2026–2027: MBT and IFV prototyping and testing
- 2028: Pre-series production starts
- 2030: First operational vehicles delivered to Italian Army

Key Actors

- Leonardo S.p.A.: electronics integration, sensors, C4ISR, system control
- Rheinmetall AG: mechanical platforms, armor, artillery, protection systems
- Italian Ministry of Defense / Italian Army: client and operational co-developer
- Iveco Defence Vehicles (IDV): auxiliary industrial partner



Source: <https://electronics.leonardo.com/en/products/atos-1>

Main Programs

Program	Description	Estimated Value	
MBT	Next-gen tank derived from KF51	€8B	Replace Ariete, develop 2030+ armored capability
AICS / A2CS	Integrated mechanized infantry system (new IFV + drones + C2)	€16B	Replace Dardo, digitize ground units
RTI Defense-Industry	Temporary grouping for RfPs	—	Immediate response to Italian Army operational requests

Geopolitical Implications

- Strengthening European strategic autonomy in land systems
- Consolidating the Rome–Berlin industrial axis
- Revitalizing Italian Army as Mediterranean land deterrent
- Positioning Italy as production and technology hub for European armored vehicles

Chapter X – The Sardinian Drone Hub: Musei and Domusnovas in the European Autonomy Mosaic

1. Premise: Why Sardinia Matters

In recent years, European production of remotely piloted aerial systems (UAVs) and loitering munitions has become a crucial element of the continent’s strategic autonomy. In this context, **Rheinmetall’s investment**—through its subsidiaries **Rwm** and **Rheinmetall Italia**—at the sites of **Musei** and **Domusnovas** (Sardinia) represents an emblematic case: not only an expansion of national industrial capacity but also an operational node connecting production, integration, and testing of munitions, warheads, and autonomous weapon systems.

The Sardinian sites are not merely production plants: they are designed as **integrated hubs** combining assembly, testing, and warhead integration, with lines capable of scaling from a few units to hundreds per month. This scale-up is what makes the project strategic for European defense amid rising demand and the need to reduce external dependencies.

2. What Is Produced at Musei and Domusnovas: The “Hero” Family and Beyond

Available information indicates that the Sardinian lines have been equipped for the production of the **Hero family of loitering munitions** (from the lightweight Hero 30 to the longer-range Hero 400), along with electronic components, warhead integration, and final testing. The supply chain is organized as follows:



Source: <https://euro-sd.com/2024/10/major-news/40944/uvision-hero-120-multi-launcher/>

- **Musei:** Assembly and testing of electronic components and “inert” sections (avionics, guidance systems, control units⁸).
- **Domusnovas:** Warhead fabrication and integration, test lines, and final integration of munition–system⁹.

The modularity of the Hero family allows coverage of diverse roles—persistent reconnaissance, tactical engagement of light and medium targets, and attacks on harder targets with higher-power variants—making Italian production relevant for a European market seeking **scalable and interoperable solutions**.

3. Industrial Impact and Production Capacity

The transformation of Sardinian facilities implies a production leap: from episodic output to **industrial-scale capacity**, with lines designed for hundreds of units per month.

This responds not only to urgent demand generated by the Ukraine conflict and European rearmament programs but also creates **industrial spillovers**:

- **Skilled employment:** The project plans hundreds of new local jobs at full capacity.
- **Skill development:** Electronics assembly, weapons system integration, and warhead testing are high-skill activities transferable to other high-tech sectors.
- **Supply chain stimulation:** Activation of these lines encourages sub-suppliers of electronic and mechanical components, specialty materials, and engineering services at regional and national levels.

Strategically, full operational capability reduces Europe's dependency on imported critical systems and munitions, enhancing rapid response capacity in crisis scenarios.

4. Geopolitical Implications: A National Hub, a European Node

Operations in Sardinia carry geopolitical significance on three levels:

1. **Production sovereignty:** Manufacturing long-range attack systems and loitering munitions in Europe reduces vulnerability to external supply chain disruptions.
2. **Industrial cooperation:** Rheinmetall's presence in Italy and coordination with Leonardo fosters synergy between onboard electronics (Leonardo) and integration/testing capabilities (Rheinmetall/Rwm).
3. **Influence tool:** Offering European production capacity can serve as leverage for cooperation with partner countries, provided exports are managed with consistent and transparent political criteria.

The Sardinian project fits within the broader European strategy of developing **critical continental capabilities**—not merely production, but as a center of expertise and certification.

5. Social and Environmental Tensions: Public Debate in Sardinia

The establishment and expansion of the facilities have met with opposition, particularly concerning local and environmental issues. Key tensions include:

- **Environmental impact assessments (EIA):** Expansion requests prompted additional scrutiny and supplementary investigations by regional authorities, with temporary pauses imposed on some interventions.
- **Pacifist and labor movements:** Environmental associations, civil society actors, and local unions (e.g., CGIL) raised doubts about the social value of weapons-based industrial development, challenging the “new jobs” narrative and requesting deeper territorial impact assessments.
- **Political pressures:** Opposing local concerns, political forces (central government and some regional representatives) advocate the installations for national security and economic reasons.

These dynamics highlight that defense industrialization is not a neutral process; it involves territorial governance, social acceptability, labor rights, and environmental protection. Managing this debate requires **transparency, environmental mitigation plans, and industrial reconversion programs** when needed.

6. Regulations, Controls, and Export Responsibility

Offensive systems production raises complex issues of regulatory compliance and export control. Facilities must operate within licensing, oversight, and transparency rules defined at national and EU levels. Two key requirements emerge:

- **Strict export control mechanisms:** Ensuring production does not fuel regional crises or human rights violations.
- **Political-industrial coordination:** Between the Government, Ministry of Defense, and European Commission to define sales guidelines, technology transfer conditions, and ESG (Environmental, Social, Governance) criteria applicable to the defense sector.

A robust governance approach strengthens project legitimacy and protects both the state and the companies from international disputes.

7. Technical Risks and Criticalities

From an industrial and operational perspective, scaling loitering munition production entails risks that must be addressed:

- **Quality and reliability:** Munitions must pass rigorous testing cycles to prevent malfunctions, protecting operational effectiveness and reputation.

- **Sensitive supply chain:** Dependence on critical components (advanced microelectronics, sensors, warheads) requires careful supplier management and contingency plans.
- **Site security:** Industrial accidents, infiltrations, or cyberattacks demand high physical and IT security standards.

Addressing these risks requires investment in **quality control, certifications, and supply chain governance**.

8. Operational and Policy Recommendations

To maximize benefits and mitigate risks, the following recommendations are proposed:

1. **Transparent environmental and social impact plan:** Publish detailed studies and mitigation plans, involving local communities.
2. **Stringent export and third-party auditing:** Establish independent review mechanisms for exports and regulatory compliance.
3. **Training and industrial reconversion programs:** Invest in technical training for local workers and prepare pathways for industrial reconversion benefiting communities.
4. **European technological integration:** Strengthen collaboration with Leonardo and EU partners to develop interoperable standards and shared components.
5. **Supply chain resilience plans:** Diversify critical suppliers and develop national capabilities for sensitive components.

9. Conclusion: Sardinia as a Testbed for European Autonomy

The Musei and Domusnovas project is more than a factory: it is a **testbed for Europe's ability to build critical supply chains, manage ethical and social dilemmas, and balance strategic and local interests**.

If well-governed, it can contribute concretely to **EU strategic autonomy** and **Italy's industrial competitiveness**. Mismanaged, it risks fueling social conflict, environmental damage, and political disputes, undermining sustainability.

Ultimately, drone and loitering munition production in Sardinia is a **multi-level challenge**—technological, political, and social—requiring integrated governance. Only then can the Sardinian hub become a **replicable model of legitimate and sustainable European defense**.

INVESTING IN WEAPONS AS A MEANS OF CONSTRUCTING A EUROPEAN FORTRESS: RHEINMETALL AND THE NEW ARCHITECTURE OF GERMAN DEFENCE POWER

Introduction: The era of German remilitarisation «Zeitenwende» as an industrial imperative

The «turning point» (Zeitenwende) proclaimed by Chancellor Olaf Scholz after 24 February 2022 turned out to be not just a political declaration, but a directive for the entire German economy — and foremost for the defence industry¹⁰. In a Europe rediscovering the realities of major warfare, every euro invested in defence is scrutinised for strategic necessity and moral soundness. Funds directed towards armoured vehicles and ammunition are no longer available for «civilian infrastructure projects», such as schools, hospitals and green energy.

The German defence company Rheinmetall AG is rapidly evolving from a regional ammunition manufacturer into a pivotal player in the European security landscape. This reflects a fundamental shift in German foreign policy, moving away from post-war restraint to actively building up its defence complex and relying on its own industrial power.



Source: <https://www.bloomberg.com/news/articles/2025-05-19/rheinmetall-in-talks-with-latvia-on-manufacturing-arms-locally>

Analysts have noted that Rheinmetall's rapid growth is indicative of a broader trend. We are witnessing the end of an era in which Germany relied solely on diplomacy. Today, the country is placing a strategic bet on its industrial base as the foundation of European security.

This article explores how the group's product portfolio and financial performance position it at the heart of the EU's 'strategic autonomy' concept. Particular attention is paid to how the company is adapting its production strategy to the conditions of a war of attrition, as well as to the ethical dilemmas arising from its transformation into one of the pillars of NATO's defence.

Just as the Italian-German venture LRMV is intended to close a critical gap in land systems, Rheinmetall itself embodies the revival of a fully-fledged German defence industry, capable of not only supplying the Bundeswehr, but also dictating technological standards on the continent.

1. Origins and structure of the concern: From ammunition to a diversified defence giant

The history of the German Rheinmetall Group is a vivid example of strategic metamorphosis. Founded in 1889, the company was long associated primarily with artillery systems and ammunition. However, a series of acquisitions and internal developments over the past two decades have radically altered its image, transforming it into a diversified technology conglomerate. Its modern structure clearly reflects the needs of contemporary warfare, including hybrid conflicts and high-intensity operations.

The Vehicle Systems division has become the hallmark of the new Rheinmetall, spearheading the development of next-generation armoured platforms. This includes developing and producing the promising Lynx family of infantry fighting vehicles and the Panther KF51 main battle tank. The division also participates in the large-scale Boxer heavy armoured vehicle programme through the ARTEC consortium. The division is currently driving the company's growth and is the main beneficiary of the €100 billion Sondervermögen Bundeswehr fund aimed at modernising the German army.¹¹

Meanwhile, the Weapon and Ammunition division remains the foundation of the company's traditional business, and as events in Ukraine have shown, it is also a key «bottleneck» in the event of a full-scale conflict. This division is responsible for producing all types of ammunition. These range from 155 mm artillery shells, which are in short supply in Europe, to tank rounds and small arms ammunition. The company is currently focusing its multi-billion-euro investments in expanding production capacity here, with the aim of tripling annual shell production by 2026.¹²

The Electronic Solutions division is the least visible but critically important for the future of warfare. It brings together cutting-edge developments in high technology. Its areas of expertise include active protection systems (APS), such as «StrikeShield»; new-generation sensors; electronic warfare (EW) systems; modern simulators; and complex fire control systems. This division provides the core electronic architecture for armoured platforms, transforming them from simple iron machines into highly efficient nodes of network-centric warfare capable of exchanging data in real time and countering the most modern threats.



Source: <https://www.edrmagazine.eu/rheinmetall-strikesield-active-close-in-protection-system-selected-for-substantial-testing-by-u-s-army>

2. Rheinmetall and the new architecture of European defence: From national supplier to continental integrator

The establishment of the Lynx Modular Vehicle (LMV) joint venture with Leonardo in Italy was no coincidence¹³. It was a logical outcome of Rheinmetall's strategy of deep integration into the pan-European defence ecosystem. The German company realised that even with advanced technologies, it would be impossible to meet the explosive demand and compete with American giants alone. The solution was the «strategic partnership» model, whereby Rheinmetall supplies platforms and critical components, while local companies provide integration, adaptation and political support.

The LRMV joint venture with the Italian defence group Leonardo is a clear example of this approach. It is not just an alliance for the production of armoured vehicles for Italy, but a multi-level strategic initiative.

The project establishes a robust industrial partnership: Rheinmetall gains structural access to the complex Southern European and Mediterranean markets, which have traditionally been dominated by local players. In turn, Leonardo significantly strengthens its land component, which has historically been a weak link in its portfolio.

The technological symbiosis is equally important. German mechanical reliability (in terms of chassis, turrets and guns) is combined with Italian excellence in electronic systems such as C4ISR, sensors and fire control. This collaboration will transform the landscape of European armoured vehicles for decades to come.



Source: <https://www.idvgroup.com/products/multirole-vehicles/lmv2-light-multirole-vehicle/>

In addition, forming a joint venture with a strong national component enables political barriers to be overcome. Having a headquarters in Italy and actively involving local SMEs mitigates the traditional resistance to transferring critical defence technologies abroad.

Rheinmetall is establishing similar partnerships in Eastern Europe. Creating joint ventures and organising licensed production in Hungary and Ukraine is not only a business venture, but also a means of exerting geopolitical influence. This strategy strengthens Germany's industrial presence on NATO's eastern flank and creates a sustainable network of interdependence within the defence sector. Through these alliances, Rheinmetall is doing more than just selling equipment; it is also establishing uniform standards and operational compatibility among the armies of key allied countries.

3. Political and strategic context: Ukraine, the Bundeswehr Foundation and pressure from NATO

Rheinmetall's activities today depend directly on the macro-political context, which has changed dramatically since Russia's full-scale invasion of Ukraine in 2022. Analysts note that the company is uniquely positioned to spearhead the rearmament of European armies.

The war in Ukraine has provided an unprecedented demonstration of the necessity of Rheinmetall products on the battlefield. Marder infantry fighting vehicles (modernised at the company's plants), Gepard anti-aircraft artillery systems (which use unique 35 mm shells manufactured by Rheinmetall) and Leopard tanks (for which the company plays a key role in maintenance and modernisation) are used daily in combat throughout Ukraine.



Source: <https://deaidua.org/news/2023/12/07/military-support-from-germany-promises-that-are-not-kept/>

The conflict has clearly demonstrated the urgent need for the very products that form the basis of Rheinmetall's portfolio¹⁴. These include 155 mm artillery shells, active protection systems for armoured vehicles and modern infantry fighting vehicles (IFVs), such as the Lynx. Experience gained at the tactical level is swiftly converted into orders from the German Armed Forces (Bundeswehr) and other NATO armies.

A turning point for the company was the German government's allocation of a special €100 billion Bundeswehr fund. Intended for the modernisation of the army, these funds effectively constituted a financial mandate for rearmament, of which Rheinmetall was the main beneficiary.

Large contracts for the supply of new Lynx infantry fighting vehicles (IFVs), PzH 2000 self-propelled artillery systems and millions of artillery shells ensured that the company's production capacity would be fully utilised for many years. «These guaranteed orders have allowed us to invest with confidence in expanding production and new developments», said a company representative.

The strategic context also works in Rheinmetall's favour. The US, acting as the 'arsenal of democracy', is simultaneously putting sustained pressure on its European allies to invest more in their own defence. As the most powerful player in its segment on the continent, Rheinmetall is the natural beneficiary of this policy. Expectations that Europe should take more responsibility for its own security are materialising in the form of concrete contracts for the German company.

4. Key programmes: Lynx, Panther, and the revival of artillery power.

Just as the Italian army relies on main battle tanks and AICS as part of the LRMV, Rheinmetall's product line forms the backbone of Europe's re-armed land forces. The conflict in Ukraine has shifted the focus from «expeditionary» equipment to platforms capable of surviving and thriving in high-intensity combat conditions.

4.1. Lynx Infantry Fighting Vehicle: The benchmark for modularity and survivability

Rheinmetall has unveiled a whole family of Lynx tracked platforms that embody the modern philosophy of warfare, not just a new infantry fighting vehicle. This development is based on three key principles: maximum protection, modularity and full integration into network-centric command and control systems.

The Lynx was originally designed with superior firepower and the extreme conditions of modern combat in mind. Its reinforced frontal armour and V-shaped hull provide a crew of three and up to nine troops with protection from mines and explosive devices. However, its main advantage lies in its ability to integrate StrikeShield active protection systems, which have already proven their effectiveness in combat. This directly embodies the Ukrainian concept of «dynamic survivability», where passive armour is complemented by active threat interception systems.

Rheinmetall engineers have prioritised versatility. The Lynx platform is available in two main versions: the KF31 and the heavier KF41. The real innovation, however, lies in its modular architecture, which allows the vehicle to be quickly adapted to different roles. The same base can serve as an infantry

fighting vehicle (IFV), a command-and-control vehicle, a reconnaissance platform, a recovery vehicle or an air defence system carrier. «This flexibility significantly reduces the logistical burden and enables commanders to reorganise unit compositions quickly to suit changing tasks», notes the German Ministry of Defence.



Source: <https://defence-industry.eu/rheinmetall-offers-greece-the-lynx-kf41-and-deep-industrial-cooperation/>

The Lynx is equipped with advanced digital architecture, turning it into a fully-fledged tactical network node. It can receive real-time data from drones, artillery units and other combatants, giving the crew unparalleled situational awareness. The Lynx crew can see the entire battlefield, not just what is within their line of sight, and deploy weapons with maximum effectiveness.

The successful delivery of the Lynx to Hungary, coupled with growing interest from other NATO countries, confirms that the German company has created a product ideally suited to today's challenges. The Lynx sets a new standard for armoured vehicles, where survivability depends not only on the thickness of the armour, but also on the ability to be part of a unified combat system.

4.2. The Panther KF51 Main Battle Tank: Revolution or Evolution?

The unveiling of the Panther KF51 at Eurosatory 2022 was one of the most significant events in the world of armaments¹⁵. German company Rheinmetall openly challenged the Franco-German MGCS (Main Ground Combat System) programme by presenting a fully functional prototype of a next-generation tank, rather than just a concept, ready for testing.

The Panther's standout feature is the revolutionary 130 mm smoothbore Future Gun System (FGS), which was developed by Rheinmetall engineers. According to the company, the new artillery system

has a 50% greater effective range and significantly increased penetration power compared to the standard 120 mm gun found on modern tanks. Military experts view this as a direct response to the significant strengthening of the protection of promising Russian combat vehicles, such as the T-14 Armata, in recent years.

The Panther finally realised the concept of a reduced crew. Thanks to the automation of loading processes, the vehicle can now be operated effectively by a crew of three instead of four. «This solution reduces the workload of tank crews and allows for a reduction in the size and weight of the vehicle, thereby increasing its tactical mobility», said a Rheinmetall representative at the exhibition. This is far from a unique solution. A similar modernisation was first carried out in the USSR in 1966 with the T-64, which became the world's first production tank to feature an automatic loading system and a crew of three.

Like the Lynx infantry fighting vehicle, the Panther was originally designed as a fully-fledged combat platform. The tank is equipped with the «StrikeShield» active protection system and modern electronic warfare systems, and it can act as an information hub in the tactical link. A distinctive feature of the vehicle is its open electronic architecture, which allows for the straightforward integration of future upgrades as technology advances.

Although no serial contracts for the Panther have yet been signed, its significance for European tank production cannot be overstated. The Panther serves as a technology demonstrator that effectively sets a new benchmark for future main battle tanks. The unveiling of the finished prototype is putting significant pressure on the slow-moving Franco-German MGCS project, forcing the partners to accelerate their work on their own promising platform.

4.3. The ammunition crisis: Mobilising industry

If the modern Lynx and Panther combat vehicles are the fangs of European defence, then ammunition is their lifeblood. The war in Ukraine has clearly demonstrated the catastrophic unpreparedness of the Western defence industry for a protracted war of attrition. As the largest ammunition manufacturer in Europe, Rheinmetall found itself at the epicentre of this crisis and became a key element in its resolution.

Prior to 2022, Rheinmetall's production capacity was around 60,000 to 70,000 155 mm shells per year — a figure that was completely inadequate for the Ukrainian front, where monthly consumption was

estimated to be in the hundreds of thousands. Recognising the scale of the crisis, the company launched an unprecedented programme to increase production.



Source: <https://www.bangkokpost.com/world/2532351/eu-agrees-2-billion-euro-ammunition-plan-for-ukraine>

It has carried out the most extensive modernisation of its production facilities in decades. According to Rheinmetall's plans, shell production will increase to 400,000–500,000 units per year by the end of 2024 and to 700,000–800,000 by 2026. To this end, the company is investing hundreds of millions of euros in new production lines in Germany and restoring disused facilities, such as the historic plant in Unterlüß.

Alongside increasing the production of traditional shells, Rheinmetall is actively developing precision-guided ammunition. Particular attention is being paid to the VULCANO guided shell, which has a range of up to 80–100 kilometres and a circular probability of deviation of less than 10 metres when fired from 155 mm howitzers.



Source:

https://raenjournal.ru/sites/default/files/008.%20V.A.%20Petrakov,%20A.S.%20Zaitsev,%20M.Yu_.%20Karlovsy.pdf

Ukraine's experience has demonstrated the importance of high-precision ammunition for the future. Systems such as VULCANO enable effective counter-battery warfare and precision targeting, saving resources and time.

A significant proportion of the ammunition produced is sent directly to Ukraine as military aid from Germany and other NATO countries. Meanwhile, the rest of the production is used to replenish the depleted warehouses of NATO countries, many of which have transferred significant portions of their stocks to Kyiv over the past four years.

This dual demand is unprecedented and sustained, ensuring Rheinmetall's production capacity for many years to come. As experts have noted, the company is not only solving current operational tasks, but also participating in the strategic restoration of the defence capabilities of the entire North Atlantic Alliance.

5. Industrial measurement: Supply chains and national know-how

Just as the creation of the LRMV programme revitalised the Italian SME ecosystem, Rheinmetall's expansion is having a transformative impact on the German and European defence industrial bases. The company is not only a beneficiary of public investment, but also a conduit for it, restructuring logistics and production chains to suit its own needs.

5.1. Investments in capacity: transitioning from a «peace» to a «war economy»

Rheinmetall management's statements about the transition to a «war economy» are not just rhetoric; they directly reflect the profound processes taking place at the company's factories. The scale of the investment programme is unprecedented in peacetime Germany and indicates a fundamental shift in approach to the defence industry.

The company is implementing a major programme to increase its production capacity. Key projects include the construction of a new €300 million gunpowder factory in Nitra, Slovakia; the full-scale reconstruction and expansion of facilities in Unterlüssen; and the creation of a joint venture with Ukraine's Ukroboronprom for the repair and production of armoured vehicles. Each of these projects has been specifically designed to eliminate «bottleneck» in production chains that were identified during the conflict in Ukraine.

«We are creating a production ecosystem capable of withstanding the stresses of a protracted conflict», said Rheinmetall's CFO. He added that the investments are aimed at creating a «strategic reserve of strength» in critical components.

Recognising the risks of dependence on subcontractors amid global instability, Rheinmetall is pursuing a policy of deep vertical integration. A striking example of this is the significant investment in its own explosives production. This gives the company considerable independence from a small number of external suppliers and enables it to control the quality of critical components.

The expansion of production facilities will create more than 3,000 new jobs, ranging from engineering and technology roles to highly skilled machine operators. While this will have a positive economic effect on entire regions of Germany, it will also intensify competition for highly skilled personnel in the German labour market.

Demand for specialists in metalworking, chemical technology and robotics is increasing. The company must actively invest in training and professional development programmes.

Experts note that Rheinmetall's transformation reflects a broader trend: Germany's return to a model of global defence industry development capable of ensuring not only the security of its own territory, but also that of the entire European continent.

5.2. Supply chain management: from globalisation to «friendly sharing»

Global defence contractor Rheinmetall is conducting a strategic review of its logistics chains, recognizing that the pre-war model based on global optimisation and just-in-time principles has proven vulnerable in the face of modern challenges. Essentially, this involves extensive planning by a manufacturer to predict future production needs and maintain the minimum amount of components and materials in stock necessary to meet them. When stock falls below a certain level, demand for replenishment is triggered, leading to frequent small deliveries. The Ukrainian conflict has highlighted the need to create a more resilient supply system.

One of the key areas of transformation has been the active search for alternative suppliers of critical components. In an effort to reduce its dependence on individual regions, the company is diversifying its purchases of microelectronics, special alloys and chemical raw materials. Particular attention is being paid to the «friendly sharing» strategy — the transfer of production chains to allied countries such as those in Eastern Europe and North America. The company's management is creating redundancy in critical supply chains to prevent any single failure from paralysing production.

Contrary to its previous practice of minimising warehouse stock, Rheinmetall is now actively building up reserves of key components and raw materials. Buffer stocks are being created in new warehouses in Germany and Austria that can ensure uninterrupted production for several months, even in the event of sudden supply disruptions.

The model of localising production at the customer's site, which was successfully tested in the LRMV joint venture with Italy's Leonardo and in a Hungarian plant, is becoming the new standard for Rheinmetall. This approach reduces political risks and transportation costs while allowing for the flexible adaptation of products to the specific requirements of local armies.



Source: <https://dailynewshungary.com/ru/photos-rheinmetall-plant-inaugurated-in-zalaegerszeg-hungary/>

Experts note that these changes reflect a general trend in the defence industry — a shift from global efficiency to strategic sustainability, where the reliability of supply is becoming more important than cost.

6. Geopolitical implications: National hub, European hub

Rheinmetall's activities extend well beyond commercial success. The company has become an active geopolitical player and a means of implementing German and European foreign policy.

6.1. Rheinmetall as an instrument of Berlin's 'soft power'

Direct deliveries of modern weapons and the establishment of joint ventures with countries such as Hungary, and potentially Ukraine, present Germany with new opportunities to strengthen its position on the international stage. This strategy enables Berlin to address several significant foreign policy issues simultaneously.

Through its subsidiaries, Rheinmetall offers Central and Eastern European countries a modern alternative to outdated Soviet equipment and American defence systems. The supply of Lynx infantry fighting vehicles to Hungary, for example, and negotiations on the creation of a joint venture for the repair of armoured vehicles in Ukraine, demonstrate the growing role of the German defence industry in the region.

Equally importantly, this strategy enables partner countries to become aligned with German technological standards and logistics systems. The transition to German weapons creates long-term dependence on maintenance, modernisation and personnel training, ensuring sustained German influence for decades to come.

By actively participating in the rearmament of NATO's eastern flank, Germany can demonstrate its solidarity and effectiveness within the alliance. By taking on a significant share of the burden of ensuring security in the region, Berlin is strengthening its role as a key player in European security policy.

6.2. Balancing between Washington and Paris

Rheinmetall's strategic development mirrors Berlin's intricate diplomatic manoeuvring on the global stage, where Germany must balance its transatlantic obligations with its European aspirations.

In its relations with Washington, Rheinmetall occupies a dual position. On the one hand, the German company is a reliable partner and subcontractor for American defence programmes, supplying components for air defence systems and ammunition. However, the company's growing power and technological ambitions could lead to competition with American corporations in the future. The success of programmes such as the Lynx combat vehicle and the Panther KF51 tank enables Rheinmetall to challenge the traditional dominance of US manufacturers in Middle Eastern and Southeast Asian markets.

Relations with France demonstrate even more complex dynamics. While Rheinmetall has clearly succeeded in ramping up production of land systems, France's focus remains on the aerospace sector and strategic weapons systems.

The German approach, which focuses on rapid industrial mobilisation and meeting current market needs, calls into question the wisdom of slow Franco-German megaprojects, such as the MGCS programme to create the main battle tank of the future.



Source: <https://en.topwar.ru/267289-evropa-nachala-razrabotku-tanki-novogo-pokolenija-marte.html>

According to experts, with the ready-made Panther KF51 solution, Germany may demand a leading role in joint projects, creating additional tension in this key EU alliance.

Rheinmetall's position is indicative of a broader trend: Berlin's growing confidence in defending its economic and strategic interests, even when this complicates relations with key allies.

7. Ethical dilemmas and social responsibility: The price of becoming «Europe's armoury»

Rheinmetall's rapid transformation into one of the continent's leading defence contractors has been accompanied by heated public debate about the long-term legitimacy and sustainability of this model. As with the Sardinian hub, environmental damage, social inequality and moral responsibility are hindering the company's expansion.

7.1. Environmental footprint and territorial conflicts

Against the backdrop of the defence industry's unprecedented expansion, Germany is grappling with a serious environmental dilemma. The rapid increase in production, particularly of ammunition, poses significant environmental risks and is causing growing local opposition, calling into question the compatibility of remilitarisation and green transformation goals.

The expansion of the Rheinmetall plant in Unterlüssen and the construction of a new €300 million powder plant in Nitra have sparked numerous lawsuits from environmental organisations. Activists highlight the potential for groundwater contamination by nitrates and perchlorates, as well as the release of hazardous substances into the atmosphere, which could have a negative impact on the health of local residents.

The German government is in a state of cognitive dissonance: while it has set ambitious targets for transitioning to green energy, it is also actively financing one of the most carbon-intensive and polluting industries. Defence production requires significant energy consumption and involves the use of hazardous chemicals.

Although representatives of the defence industry acknowledge the existing problems, they emphasise the need for balance. Rheinmetall's management has stated that the company is investing in modern purification systems and striving to minimise its environmental footprint. However, they also believe that, given the current geopolitical challenges, ensuring defence capability must remain a priority.

Experts note that resolving this contradiction will be one of the key challenges for the German government in the coming years, as the country seeks to lead the 'green' transition while also building up its military capabilities.

7.2 Social costs and public debate

The German government and Rheinmetall's management are actively promoting the idea of creating new jobs against the backdrop of large-scale defence production expansion. However, this position is meeting with growing resistance from trade unions and left-wing politicians, who question the quality of these jobs and the social consequences of militarising the economy.

Germany's largest trade union, IG Metall, which represents workers in the metal and defence industries, highlights the issue of job quality. A significant proportion of the new positions involve heavy, monotonous work on ammunition production lines, which stands in stark contrast to the company's high-tech image.



Source: <https://www.igmetall.de/ueber-uns/dafuer-stehen-wir>

Against this backdrop, demands for higher wages and better working conditions amid the company's record profits — Rheinmetall's net income in 2023 was €535 million — are becoming a source of social tension. Trade unions insist that workers should receive a fair share of the growth in military production.

There is a growing debate in German society about the opportunity cost of defence spending. Left-wing politicians argue that every billion euros allocated to Rheinmetall via a special Bundeswehr fund is essentially diverted from healthcare, education, and social infrastructure. According to German experts, the legitimacy of such spending hinges on maintaining a sustained public of external threats within society.

This debate reflects a deeper divide in German society as it tries to strike a balance between strengthening defence capabilities and maintaining social standards in times of economic uncertainty.

7.3. Export control and responsibility

Germany has one of the world's strictest arms export laws: the Arms Control Act (Kriegswaffenkontrollgesetz). However, Rheinmetall's activities constantly push the boundaries of this legal system, creating complex dilemmas at the intersection of politics, business, and ethics.

Every decision to transfer arms to conflict regions — including deliveries to Ukraine, controversial contracts with Saudi Arabia and exports to other politically unstable countries — becomes the subject of heated debate in the Bundestag. Rheinmetall regularly finds itself at the centre of these political storms.

Incidents have already occurred where Rheinmetall military equipment has ended up in the hands of undesirable third parties. In 2023, for instance, a scandal erupted concerning the re-export of German spare parts for armoured vehicles to countries subject to international embargoes.

Such cases are forcing Berlin to tighten end-user control mechanisms, placing an additional administrative burden on the company. Rheinmetall must invest heavily in creating complex systems to track its products from production to their final destination.

As the company continues to grow and expand its international activities, experts note that pressure on the German arms export control system will only increase. This will require constant improvement of the legislative framework.

8. Conclusions: Rheinmetall as the architect and symbol of the new Germany

Just as the creation of the LRMV joint venture marks a new phase for Italy, Rheinmetall's rise to prominence is symbolic of Germany's own profound transformation. It is not just a corporate success story; it is a tale of how a European giant is redefining its role in a changed world.

Rheinmetall has become the embodiment of what Chancellor Olaf Scholz has called a 'turning point'. Whereas Germany previously influenced world politics primarily through trade and diplomacy, it now increasingly does so through arms supplies and defence technology.

The crisis surrounding the supply of ammunition to Ukraine has highlighted the risks and vulnerabilities of dependence on global supply chains. The multi-billion-dollar investment in expanding Rheinmetall's capacity represents a strategic investment in Germany's and Europe's ability

to engage in prolonged conflict without being at the mercy of other countries. The creation of a complete ammunition and armoured vehicle production cycle on the continent has evolved from an economic issue into a matter of national security. Rheinmetall's future depends not only on its ability to manufacture weaponry, but also on Germany's ability to successfully manage the associated risks.

Looking ahead, Rheinmetall is likely to retain its central role in the European security system. However, its long-term success will depend on Germany and the EU developing a new, holistic security philosophy where military power, technological sovereignty, social justice and environmental responsibility reinforce each other rather than contradicting each other.

THE AMERICAN ARSENAL: INVESTMENT IN WEAPONS AS THE ARCHITECTURE OF GLOBAL SECURITY AND A SYSTEMIC CHOICE OF SOCIETY

An Era of Strategic Reassessment: The US and the New Logic of Defence Investment

Like Europe, the United States is undergoing an era of remilitarisation. However, while the European project, embodied by the Leonardo-Rheinmetall joint venture and the German Rheinmetall group, is driven by a desire for strategic autonomy, the American defence ecosystem is asserting its role as the undisputed arsenal of democracy. The war in Ukraine has become a stress test for this ecosystem, confirming the relevance of its products and acting as a powerful catalyst for demand. This article examines how the «Big Four» defence contractors (Lockheed Martin, Raytheon (RTX), Northrop Grumman and General Dynamics) are adapting to a new reality where the outcome of battles is determined by drones and artillery, and where space and cyberspace have become fully-fledged domains of warfare.

The study examines not only corporate portfolios and financial indicators, but also the architecture of American military power embodied by the four largest American defence corporations. These companies are not merely Pentagon contractors; they are system integrators whose products and standards define NATO's operational doctrines, influence global supply chains and raise complex ethical questions concerning the balance between security and social welfare.

1. The American defence ecosystem: the contours of remilitarisation and the technological race

The United States remains the world's largest military power. According to the Stockholm International Peace Research Institute (SIPRI), the US accounted for over a third of global military spending in 2023–24¹⁶. This is a significant geopolitical phenomenon in itself, but even more notable is the qualitative transformation in the nature of these expenditures. The resumption of competition between major powers such as China and Russia has shifted the focus from counterinsurgency operations to large-scale, high-intensity combat operations.

A quiet revolution is taking place in the nature of warfare itself. The Ukrainian theatre of war has become a global laboratory, demonstrating the pivotal role of loitering munitions, counter-battery warfare, layered air defence systems, electronic warfare, and networked command and control systems. In this new reality, the importance of individual platforms is diminishing; a fighter jet, for example, is valuable not in itself, but as a node in a network that provides and receives data and targeting information from satellites, ground-based radars and unmanned aerial vehicles.

In this context, the 'Big Four' of the American defence industry — Lockheed Martin, RTX (Raytheon), Northrop Grumman and General Dynamics — play a pivotal role. They are not merely manufacturers; they are also creators of complex ecosystems in which standards, software, and integration capabilities are as important as the flight and technical characteristics of individual weapons systems. Their strategies and product roadmaps will effectively determine the technologies with which the West will wage war in the coming decades.

2. Profiles of the «Big Four»: industrial logic, portfolios and strategic priorities

2.1 Lockheed Martin: From Air Dominance to Domain Integration

Lockheed Martin has long since outgrown its role as an aircraft manufacturer. Today, it is a diversified technology conglomerate whose products and systems cover all domains of modern warfare, from the depths of the sea to outer space. The corporation's business segments are built around four key competencies, each of which plays a vital role in global security architecture.

The aviation segment is still dominated by the F-35 Lightning II programme, the largest tactical aviation project in Western history. The F-35 is not just an aircraft; it is also a powerful political tool that integrates partner countries deeply into the orbit of American technological standards and logistics chains¹⁷. Meanwhile, the company supports the life cycle of legendary aircraft such as the F-16, the C-130J strategic transport aircraft and the stealthy F-22 Raptor fighter jet, ensuring the continuity and versatility of air fleets.



Source: <https://www.airdatanews.com/spain-drops-f35-weighs-eurofighter-and-the-fcas-program/>

The guided missiles and fire control systems (MFCS) segment is a direct response to the challenges posed by hybrid warfare. PAC-3 MSE missile defence systems form the backbone of layered air and missile defence, while HIMARS rocket systems — which have demonstrated their effectiveness in Ukraine — have become synonymous with precision long-range artillery¹⁸. JASSM cruise missiles and the promising LRASM anti-ship missile provide the US Armed Forces with the capability to engage targets in situations where guaranteed air superiority cannot be achieved.

Through its Rotary and Mission Systems (RMS) division, the company is a leading integrator of combat systems for the US Navy, including the renowned Aegis system, which is the brain and nervous system of shipborne air and missile defence¹⁹. Thanks to its subsidiary Sikorsky, the company remains the leader in the military helicopter market, producing the versatile UH-60 Black Hawk and the heavy transport helicopter CH-53K King Stallion.

Its space division completes the picture of global dominance. From the SBIRS/OPIR early warning satellites that track missile launches to the latest high-precision GPS III devices, the company ensures the operation of the Pentagon's critical space infrastructure.

A key strategic trend for Lockheed Martin is transitioning from supplying individual platforms to creating so-called «kill webs». In this model, data from satellites, aircraft, ships, ground forces and drones is merged to provide a single, real-time picture of the battlefield. This enables the most effective weapon in the available arsenal to be automatically identified and deployed, regardless of its location, thereby dramatically increasing the speed and efficiency of operations.

2.2. RTX (Raytheon): The Allies «Shield» and the Engine of Aviation

The 2020 merger of Raytheon and United Technologies created RTX Corporation, one of the most powerful players in the global defence market. This giant uniquely combines expertise in missile defence, aircraft engines, and reconnaissance systems, making it a key partner for the Pentagon and NATO countries. The company's structure clearly reflects this threefold nature.

The Raytheon Missiles & Defence division is widely regarded as the backbone of NATO's missile defence system²⁰. Despite their ageing architecture, the renowned Patriot systems remain crucial in protecting airspace from ballistic threats. The more flexible NASAMS systems, which integrate AMRAAM missiles, have proven their effectiveness in Ukraine, where they are being used to defend cities against cruise missiles and kamikaze drones. In maritime operations, SM-3 and SM-6 missiles give the US Navy the ability to intercept ballistic targets and engage in air combat over extremely long distances. The promising LTAMDS radar, which is being developed to modernise the Patriot system, is designed to significantly enhance its ability to detect new types of targets.



Source: https://vpk.name/en/754443_lithuania-has-promised-to-transfer-to-ukraine-in-the-near-future-the-nasams-air-defense-system-and-anti-drone-weapons.html

The Pratt & Whitney F135 engine is the heart and Achilles heel of the entire F-35 fighter fleet²¹. Its reliability and maintenance costs are the subject of ongoing debate in Congress and the US Department of Defense. Modernising the engine under the AETP/ECU programmes is critical to unlocking the full potential of the new F-35 Block 4 aircraft. Problems are not confined to the military

sphere, however; the civilian GTF (PW1000G) engine family also faces reliability issues, creating financial and reputational risks for the corporation.

The Raytheon Intelligence & Space segment operates in a less visible but equally important area. It specialises in electronic warfare (EW) and advanced radar systems, including those with active phased arrays based on gallium arsenide and gallium nitride, as well as integrated intelligence, surveillance, and reconnaissance (ISR) systems, and cybersecurity. These technologies play a crucial role in countering modern air defence systems and ensuring superiority in the information sphere.

The war in Ukraine has led to a surge in demand for Raytheon's products, particularly its air defence systems and guided missiles. This has forced the company to urgently increase its production capacity, which was previously optimised for «peacetime» demand levels.. This once again demonstrates the fragility of global defence supply chains.

2.3. Northrop Grumman: strategic triad, space and drones

While companies such as Lockheed Martin and RTX are often associated with tactical and operational weapons, Northrop Grumman firmly occupies the strategic niche. The company focuses on creating large-scale systems that determine the global balance of power and ensure US security for decades to come.

Northrop Grumman is the prime contractor for two key elements of the historic modernisation of the American nuclear triad. One is the B-21 Raider programme: a next-generation stealth bomber designed to replace the ageing B-1 Lancer and B-2 Spirit²². The other is the LGM-35A Sentinel programme, which involves the development of a new intercontinental ballistic missile to replace the Minuteman III, which has been in service since the 1970s. These programmes are enormous in terms of cost and technical complexity, and their implementation is under close scrutiny by Congress, as the American nation's nuclear shield directly depends on them.



Source: <https://markscogan.com/index.php/2025/01/30/b-21-raider-future-of-stealth-bombers-or-costly-air-force-mistake/>

The company is a leading integrator of critical space systems. It is the primary supplier of satellites for the Next-Gen OPIR early warning missile attack system, which can respond to enemy ballistic missile launches in a matter of minutes. Northrop Grumman is also playing a key role in developing the Pentagon's new, more sustainable space architecture, including deploying low-orbit satellites to track hypersonic targets as part of the Space Development Agency's (SDA) initiatives.

While the era of expensive, long-range, high-altitude UAVs, such as the RQ-4 Global Hawk and the MQ-4C Triton, is giving way to cheaper, mass-produced platforms, Northrop Grumman retains its core competencies. The focus has shifted towards developing advanced autonomy algorithms, integrating intelligence, surveillance and reconnaissance (ISR) data, and controlling drone swarms, all of which are considered to be the future of the battlefield.

A key trend for Northrop Grumman is the active use of the «digital thread» concept — end-to-end digital design and modelling at all stages of the product lifecycle. This approach is being used in the B-21 programme to significantly speed up development cycles, enable virtual testing of systems and reduce technical and financial risks when creating such complex projects.

2.4. General Dynamics: Armoured vehicles, submarines and information technology

While some corporations dominate the skies, General Dynamics represents the «heavy» and digital elements of American power. Its diverse business encompasses physical platforms, such as nuclear submarines and tanks, as well as the invisible information infrastructure that is becoming the nervous system of the modern army.

The Marine Systems segment is the cornerstone of US strategic deterrence²³. General Dynamics' shipyards, including Electric Boat, are prime contractors for the Columbia-class submarine programme — the US Navy's top priority. The success of this programme, estimated to be worth hundreds of billions of dollars, will determine the future of the maritime component of the nuclear triad for decades to come. Meanwhile, the company is continuing to build and modernise Virginia-class multi-purpose nuclear submarines, which remain the backbone of the submarine fleet.

The conflict in Ukraine has brought heavy armoured vehicles back into the spotlight, and General Dynamics is playing a leading role here too²⁴. The latest upgraded versions (SEPV3/v4) of the M1 Abrams main battle tanks and Stryker armoured personnel carriers are being tested in conditions where kamikaze drones and high-precision artillery are extensively used. Combat experience is directly influencing their modernisation programmes. The company also manufactures self-propelled howitzers and is involved in the Pentagon's efforts to increase production of 155 mm artillery shells, which are facing supply chain challenges.



Source: <https://qalampir.uz/uz/news/avstraliya-ukrainaga-abrams-tanklarini-yetkazib-berdi-121730>

The corporation is one of the Pentagon's largest IT contractors through its subsidiary, GDIT (General Dynamics Information Technology). This division provides the military department with cybersecurity, cloud services, software development and digital transformation. This 'invisible' part of the business plays a crucial role in creating network capabilities for the army by unifying all branches of the military within a single information field.

3. Geopolitical context: NATO, Ukraine and the Indo-Pacific vector — new demand architecture

The establishment of the Italian-German joint venture LRMV forms part of a wider European trend to strengthen the defence industrial base. Similarly, the strategy of the American defence industry's «Big Four» is inextricably linked to global shifts in security architecture. Their product portfolios and investment plans directly address three key challenges.

3.1. NATO and Europe: Remilitarisation and dual dependence

The Russia-Ukraine conflict was a turning point for European security, forcing the continent to urgently review its defence priorities. EU and NATO countries have not only returned en masse to the target of spending 2% of GDP on defence, but many of them, including Germany and Poland, have already exceeded this threshold. This has led to an unprecedented surge in demand for modern weapons, from which dominant American defence corporations have profited significantly.

Demand has focused on several key categories of weaponry. In the field of air and missile defence (A2/AD), RTX's Patriot systems and Lockheed Martin's PAC-3 missiles have become the de facto standard for protecting European capitals and critical infrastructure. Meanwhile, RTX's more flexible and modular NASAMS systems are in high demand.

In the aviation sector, Lockheed Martin's fifth-generation F-35 fighter programme acts as a powerful strategic integrator. The acquisition of these aircraft by Germany, the Czech Republic and Finland will not only strengthen their air forces, but also «tie» these countries to American technologies, logistics chains and training systems for decades to come.

Combat operations in Ukraine have also demonstrated the alarming rate at which ammunition is consumed. Western countries stocks were depleted and industry was unable to meet the increased demand quickly. This has led to multi-billion dollar investments in expanding production lines, with major players such as General Dynamics (artillery shells) and RTX (guided missiles) taking the lead.

However, there is a downside to this boom. Aware of its vulnerability, Europe is simultaneously striving for greater strategic autonomy. EU initiatives such as the European Defence Fund (EDF) and the ASAP programme aim to create independent production capacities.

Thus, for American corporations, Europe represents a dual reality. On the one hand, it is a huge market hungry for modern technologies. On the other hand, it is a potential future competitor. In

response, the Pentagon and the American military-industrial complex have adopted strategies of deep localisation. In order to maintain the political acceptability of their presence, they are actively establishing joint ventures and opening technical service centres on the continent, as well as engaging in limited technology transfer as part of major deals. They are trying to combine commercial gain with long-term strategic interests.

3.2. Ukraine: A combat laboratory and stress test for supply chains

The Ukrainian theatre of war has become an unprecedentedly open testing ground for the Pentagon and the American defence industry. Real-time events on the front line provide invaluable data that directly influences the future of the US Army, prompting revisions to established doctrines and development programme priorities.

One of the key lessons is the revival of artillery as a decisive factor on the battlefield. Lockheed Martin's HIMARS systems and their precision-guided munitions have proven highly effective in targeting logistics and rear areas. This initial success has justified the multi-billion dollar investment in long-range precision weapons programmes, establishing them as a top priority for ground forces. However, within a few months, the Russian army had learned to intercept HIMARS missiles, suggesting that they are not the ultimate weapon.



Source: <https://news.lockheedmartin.com/2017-07-26-Lockheed-Martin-Delivers-First-HIMARS-Vehicle-Produced-100-Percent-in-Camden-Arkansas>

The conflict in Ukraine marked the beginning of the widespread use of drones and loitering munitions. This has shifted the focus from expensive, traditional platforms to cheaper, disposable ones. While

American companies are not leading producers of kamikaze drones themselves, they play a strategic role in creating high-tech countermeasures. These include electronic warfare systems (Raytheon), promising laser installations (Lockheed Martin) and integrated air defence systems to combat drones.

The high number of losses of armoured vehicles on both sides has highlighted the need for active protection systems (APS) that can intercept incoming shells and missiles. American companies that previously paid little attention to this area, such as General Dynamics, are now working to integrate APS into their combat vehicles.

However, the main and perhaps most unexpected consequence for the «Big Four», as well as for Rheinmetall, was problems with supply chains. It transpired that production capacities for basic ammunition, such as 155 mm shells, rocket engines, and electronic components, were not prepared for the demands of a prolonged war of attrition. This painful lesson forced the Pentagon and corporations to urgently review their logistics models and invest billions of dollars in creating a strategic «reserve of strength» and diversifying production.

3.3. Indo-Pacific region: Containing China as a systemic project

Although the war in Ukraine poses immediate tactical challenges, it is the Indo-Pacific region (IPR) that will determine the future strategic direction of the US defence industry. For the 'Big Four', containing China is not just a political slogan, but a master plan to ensure that their production capacities are utilised and their scientific and technical reserves are secured for decades to come.

Major investments are concentrated in several critical areas. In terms of anti-ship capabilities, the Pentagon considers Lockheed Martin's LRASM cruise missiles and RTX's SM-6 universal missiles to be vital in establishing control over vast maritime areas and containing the growth of China's navy.



Source: <https://www.upi.com/Defense-News/2016/09/30/US-Navy-sets-intercept-record-with-SM-6-missile/8191475252614/>

Meanwhile, leading companies are stepping up their efforts in stealth technology. The B-21 Raider strategic bomber (Northrop Grumman) and the F-35 fighter jet have been designed from the outset to overcome one of the world's most sophisticated air and missile defence systems: that of the PRC. These programmes' funding is determined by their low visibility and ability to operate in conditions of communication and GPS jamming.

Another feature of ITR is the shift in focus to new areas of confrontation. Satellite constellations for communications, navigation, and reconnaissance, developed by Northrop Grumman and Lockheed Martin respectively, are becoming increasingly important from a strategic standpoint. Cybersecurity is equally important, with corporate subsidiaries such as GDIT and Raytheon specialists working to protect their own networks and develop tools to infiltrate enemy systems.

The AUKUS programme (Australia, the United Kingdom and the United States) is a clear embodiment of this long-term strategy. While American companies are not planning to build submarines for Australia directly, giants such as General Dynamics are becoming key suppliers of critical technologies, weapon systems and components. This strengthens the alliance and guarantees American corporations a stable workload and influence in the region for many years to come.

4. Industrial architecture and supply chains: Weaknesses of the new era

Just as the creation of the LRMV revitalised the supply chains of Italian and German SMEs, the American defence industry has had to reconsider its business model. Years of optimising for just-in-time delivery and low production rates have made it vulnerable.

4.1. Critical «bottleneck»

A confidential analysis conducted by the Pentagon and the Government Accountability Office (GAO) has revealed a number of alarming systemic weaknesses in the US defence industrial base²⁵. These vulnerabilities, which had long remained hidden, now threaten the country's ability to engage in prolonged, large-scale conflicts and fulfil multi-billion-dollar government contracts on time.

One of the key problems is the radio-electronic component base. Powerful radar modules based on the advanced material gallium nitride (GaN) are produced in a limited number of factories, some of which are located outside the United States. Disruption to supplies from just one of these factories could halt the production of critical air defence and electronic warfare systems, including Patriot installations and electronic warfare systems.

The situation with rocket fuel and explosives is equally critical. The country's capacity to produce special types of solid rocket fuel and explosives is limited, not to mention environmentally vulnerable. The explosion at an explosives factory in Tennessee in 2020 clearly demonstrated how fragile this supply chain is, and how a single incident can lead to shortages for programmes worth billions of dollars.

The most pressing issue preventing the implementation of flagship programmes, such as the construction of Columbia-class nuclear submarines and the new B-21 bomber, is a severe shortage of skilled personnel. The industry is facing a severe shortage of skilled welders, shipbuilders, composite engineers, and microelectronics specialists. This problem is exacerbated by an aging workforce; the average age at General Dynamics shipyards, for instance, is approaching 55, with an insufficient pipeline of new workers to replace them.



Source: <https://www.bairdmaritime.com/security/naval/naval-ships/trump-wants-more-drones-and-missiles-fewer-ships-in-893b-budget-request>

The audit also revealed critical dependence on a small number of subcontractors. Many complex yet vital components, such as special bearings, high-precision optical systems and powerful lasers, are supplied by only one or two companies nationwide. This monopolisation creates enormous risks for uninterrupted production, as the failure of even one such enterprise could halt the assembly lines of leading corporations.

These challenges require urgent, coordinated action from the government and businesses to strengthen national security.

4.2. The response of industry and the state: joint investment and «friendly sharing».

Awareness of systemic risks has prompted Washington and defence corporation leaders to engage in unprecedented cooperation. In response to the challenges of the times, a set of measures has been introduced to strengthen the country's industrial and technological base.

Long-term contracts involving advance payments have become a key tool. Rather than placing spot orders for individual batches of weapons, the Pentagon is increasingly entering into long-term agreements that provide companies with substantial advance payments to invest in capacity expansion. This model has enabled RTX to start building new production lines for Javelin anti-tank systems and Patriot anti-aircraft missiles, creating the necessary «buffer stock».

Meanwhile, the Biden administration has made active use of the Defence Production Act (DPA), allocating billions of dollars to developing industries critical to the military–industrial complex. These funds are being directed towards creating national production capacities for microelectronics, next-generation batteries, and processing rare earth elements, the dependence on foreign supplies of which has long been considered a strategic threat.

To diversify risks, the «friend-shoring» strategy is being employed. This involves transferring part of production chains to reliable allied countries. Certain components for F-35 fighter jets, for example, are now manufactured in Japan and Australia. This reduces logistical vulnerability and strengthens the technological base of key US partners in the Asia-Pacific region.

Advanced technologies are also advancing. Digital engineering, including the creation of «digital twins» and the use of open architectures — as demonstrated by the B-21 Raider bomber programme — can dramatically reduce testing time and simplify the integration of components from hundreds of different suppliers. This approach enables faster changes and flexible responses to new challenges, keeping us one step ahead of potential adversaries.

5. Ethical dilemmas and regulation

As with Italian and German arms manufacturers, the expansion of American defence production is accompanied by complex ethical and regulatory debates. The legitimacy of multi-billion-dollar investments in weapons in a democratic society is constantly being questioned.

5.1. Export control and the human rights dilemma

The United States arguably has the world's most a highly sophisticated arms export control system, governed by regulations such as ITAR²⁶. In practice, however, the system is constantly at the centre of political storms, forcing American corporations to choose between profit, strategic interests, and public condemnation.

One of the most pressing issues is the supply of arms to regions affected by conflict. Major sales to Saudi Arabia and the United Arab Emirates, whose weapons were used in the Yemeni civil war, have drawn criticism from Congress and human rights organisations. Companies such as Raytheon, which manufactures aerial bombs that, according to international monitors, were used in incidents resulting

in civilian casualties, are caught in the middle. They must balance fulfilling lucrative government contracts with growing reputational costs.

Monitoring end users is no less challenging. Ensuring that transferred technologies and weapons are not used to violate human rights or fall into the hands of undesirable third parties remains a constant headache for the State Department and the companies themselves. Reports by the US Government Accountability Office regularly surface, revealing scandals involving the leakage of American technology to China or the Middle East, thus undermining confidence in the control system.

A striking example of the close intertwining of business, politics and security is the decision on F-35 fighter jets. Congress blocked the sale of these jets to Turkey, a key NATO ally, after Ankara purchased Russian S-400 anti-aircraft missile systems. This caused direct financial damage to the manufacturer, Lockheed Martin, and complicated the alliance's military planning. It clearly demonstrates that the logic of geopolitical deterrence often outweighs commercial interests and allied commitments.



Source: https://tr.linkedin.com/posts/defenceturk_t%C3%BCrkiyenin-suriyeye-s-400-hava-savunma-activity-7320365456085663744-B5X6

5.2. ESG and the social responsibility of arms corporations

The American defence-industrial complex is currently facing a challenge that cannot be solved by technology or budget alone. Investors are putting increasing pressure on corporations to be transparent about environmental, social and corporate governance (ESG) issues. This trend is forcing industry giants to reconsider their business strategies.

Arms manufacturing has traditionally been an energy-intensive and polluting process. Nowadays, companies are required to publicly report on greenhouse gas emissions, water consumption, and hazardous waste disposal. Companies such as Lockheed Martin and Raytheon Technologies have

already announced plans to switch to renewable energy sources and reduce their carbon footprint, recognising that environmental responsibility is becoming a competitive factor.

Particular attention is being paid to the social aspect of ESG. Working conditions are under scrutiny, as is the fundamental question of the social value of businesses based on the production of weapons of destruction. In response, company executives are increasingly making public statements about «defending democracy» and «containing aggression», in an attempt to provide a moral justification for their activities in the face of changing public demand.

The enormous sums that defence companies spend on lobbying Congress — hundreds of millions of dollars annually — are also subject to intense public scrutiny. This practice fuels ongoing public discourse about the «military–industrial complex» running out of control. Investors and activists are demanding greater transparency in the relationships between corporations and the government, providing an additional incentive for companies to demonstrate their social responsibility.

For defence corporations, adapting to ESG standards is becoming not just a matter of reputation, but a strategic necessity in the competitive struggle for capital and talent.

6. Key programmes: F-35, Patriot, B-21 and Columbia — the foundation of American military power.

Just as the OBTV and AICS programmes are redefining the future of the Italian army, these flagship projects of the «Big Four» will shape the operational profile of the US armed forces and their allies for decades to come. The Ukrainian conflict has had a direct impact on each of them.

6.1. F-35 Lightning II: the political-industrial axis of Atlantic solidarity

Lockheed Martin's F-35 programme has long since transcended the realm of aircraft manufacturing. It is a highly complex ecosystem that unites dozens of countries within a single production, logistics and operational network.



Source: <https://thedefensepost.com/2022/03/14/germany-buy-f-35/>

While the F-35s themselves have not yet been transferred to Ukraine, the war has radically altered perceptions of them. The vulnerability of Ukrainian aviation to Russia's powerful air defence system means that stealth is now seen as a key advantage of these aircraft for future deliveries. Ukraine views the F-35 as a long-term deterrent with the capability to neutralise air threats and strike deep into enemy defences. There are intense debates in Washington and the capitals of its allies about the timing and conditions of such a transfer. These discussions are hampered by issues of training and infrastructure, as well as fears of escalation. These discussions keep the programme in the spotlight and emphasise its strategic importance.

The war has highlighted the need to upgrade the F-35 to the Block 4 standard, which includes new processors and radars, as well as the ability to integrate a wider range of weapons. However, Block 4 is hampered by the limitations of the F135 (Pratt & Whitney) engine, which has triggered a costly and politicised upgrade programme (AETP). Meanwhile, Ukraine's significant losses of aircraft (albeit outdated models) have accelerated work on «low-altitude unmanned systems» (Loyal Wingman), which will operate alongside the F-35 — an area in which Lockheed Martin is actively developing its technologies.

6.2. Air defence/missile defence systems: Patriot, NASAMS and «Shield of Ukraine»

While the F-35 is a sword, the air defence systems from RTX and Lockheed Martin are a shield that Ukraine is actively using in the conflict.

The decision to transfer Patriot systems to Ukraine has been one of the most significant forms of support. While not 100% effective, these systems have proven their worth against Russian cruise missiles, Kinzhal ballistic missiles and air-to-surface missiles. The war has transformed the Patriot system from a Cold War symbol into a modern defence tool, prompting European countries facing similar threats to place orders. RTX has had to increase production sharply from 12 to 20 units per year and has invested hundreds of millions in expanding capacity.

While the Patriot system is used to defend strategic targets, the NASAMS system, which has also been transferred to Ukraine, is used to protect cities and troops from aircraft, cruise missiles and drones. Their modularity and use of AMRAAM missiles make them ideal for integration into heterogeneous air defence systems.



Source: <https://www.dvidshub.net/news/497981/187th-fighter-wing-f-35a-hot-integrated-combat-turn>

The Ukrainian experience has clearly demonstrated to the West the need for multi-layered, integrated air defence systems, which will generate long-term orders for American corporations in this field.

6.3. The B-21 Raider and the LGM-35A Sentinel: A strategic response in an era of great power competition

While the world's attention is focused on Ukraine, Northrop Grumman is quietly but steadily laying the foundations for American strategic deterrence over the next 50 years.

The B-21 Raider, a stealth bomber unveiled in 2022, was designed specifically for future peer-state conflicts. Its ability to carry nuclear and conventional weapons, operate autonomously, and potentially penetrate the most advanced air defence systems makes it a deterrent to both Russia and, above all, China. The conflict in Ukraine has emphasised the importance of long-range aviation and deep strikes, further highlighting the relevance of the B-21.

The modernisation of the ground component of the nuclear triad is currently the Pentagon's most expensive project. The LGM-35A Sentinel is intended to replace the outdated Minuteman III missile. This programme encompasses a new missile as well as the redesign of silos, control systems, and infrastructure.



Source: <https://flash.rw/2023/02/22/uburusiya-bwivanye-mu-masezerano-ya-nikereyeri-na-amerika/>

These programmes demonstrate that, while supporting Ukraine in tactical combat, the United States is simultaneously preparing for a strategic confrontation in which Northrop Grumman's technologies will play a decisive role.

6.4. Columbia class and General Dynamics armoured vehicles: From the depths of the sea to the trenches of Ukraine.

The Columbia-class (SSBN) programme is an absolute priority for General Dynamics. Columbia-class submarines will form the basis of future maritime strategic deterrence. Their construction consumes enormous resources and is a monumental, multi-decade undertaking. The conflict in Ukraine has indirectly confirmed the value of such a powerful and stable deterrent, which remains on combat duty regardless of events on land.

Ukraine has become a harsh testing ground for General Dynamics' armoured vehicles. The transfer of M1 Abrams tanks and Stryker armoured vehicles has provided invaluable data on their survivability in an environment dominated by UAVs and artillery. The high number of losses has demonstrated the critical importance of active protection systems (APS), which were not previously installed on a large scale on American equipment. General Dynamics is now urgently integrating Israeli and American APS developments into its vehicles. Additionally, the war has sparked a surge in the modernisation and repair of damaged equipment, generating a new, sustainable revenue stream for the company.



Source: <https://mitchelclayton.com/projects/2EYeB>

7. Conclusions: The US as a global arsenal — between strategic necessity and ethical choice

Just as the creation of the LRMV and the Sardinian drone hub is redefining Italy's role in European security, the activities of the 'Big Four' are strengthening the US's position as the systemic core of Western defence. However, this role has profound and contradictory implications.

The products of Lockheed Martin, RTX, Northrop Grumman and General Dynamics form an interconnected ecosystem that supplies weapons and creates interoperability standards for NATO and its allies in the Asia-Pacific region. The F-35, Patriot, B-21 and Columbia submarines are not

standalone products, but rather elements of a unified strategic network that integrates partners closely into the American sphere of influence.

War has become a powerful catalyst for demand within the American military–industrial complex, putting production chains under stress and providing a free testing ground for real combat conditions. This has demonstrated the effectiveness of certain systems, such as HIMARS and air defence, while also highlighting the vulnerability of others, such as the lack of APS and slow ammunition production rates. The corporations response — large-scale investment in capacity expansion and digitalisation — is shaping a new industrial landscape that will determine the West's capabilities for years to come.

However, every contract signed with the «Big Four» represents an investment in security at the expense of healthcare, education, and green energy. The legitimacy of this massive weapons production machine in American society is maintained only as long as the perception of an external threat persists. A loss of this consensus, deepening social inequality, or environmental disasters associated with production could undermine public support for defence budgets.

The supply of weapons to Ukraine has exposed a key ethical problem. On the one hand, they are presented as a means of protecting sovereignty and democracy. However, they also carry the risk of escalation, and in the long term they may contribute to the militarisation of other regions by fuelling the black market sale of weapons. Reliable export control mechanisms and transparent decision-making processes regarding arms transfers are becoming a matter of strategic responsibility, not just a bureaucratic procedure.

Looking ahead, the Big Four will remain the cornerstone of American power. However, their sustainability will depend not only on their ability to produce advanced weapons, but also on how successfully the US and its allies can manage the complex consequences of that power, ranging from social costs at home to geopolitical risks abroad.

THE ARCHITECTURE OF PROFIT: HOW LOBBYING AND MILITARY AID TO UKRAINE CREATED A GOLD RUSH FOR THE US AND EU MILITARY-INDUSTRIAL COMPLEX

A vicious circle: taxpayers, the state and defence contractors

The geopolitical crisis surrounding Ukraine has revealed a fundamental paradox in the modern international security system. While there is a declared desire for peace and stability, an unprecedentedly effective system has developed for transforming budget funds into private profits for defence-industrial corporations (DICs). Every dollar and euro allocated for military aid goes through a chain that has been honed over many years: taxpayer budget → government procurement under intergovernmental agreements → contracts with private companies → their revenue and profits. This finely tuned mechanism ensures the steady growth of the military-industrial complex, regardless of the political situation.

A key element ensuring the smooth flow of funds is a powerful lobbying system that is deeply integrated into state institutions. The war in Ukraine has become not only a humanitarian disaster, but also a unique stress test for this system, demonstrating its exceptional effectiveness²⁷. In the first two years of the conflict, the volume of state contracts with leading defence companies grew exponentially, and their market capitalisation reached historic highs.

Leading US and European defence companies — Lockheed Martin, RTX, Northrop Grumman, General Dynamics, Rheinmetall and Leonardo-Rheinmetall Military Vehicles — are building long-term relationships with governments to ensure that state aid to Ukraine is directly converted into their financial results. Particular attention is paid to institutional lobbying mechanisms, channels of influence on decision-making, and specific financial results demonstrating the effectiveness of this system.

1. Anatomy of lobbying influence: «Revolving door» and financial pressure

Lobbying for the interests of the defence industry has long ceased to be a set of informal practices. It is a highly institutionalised process based on the deep integration of business and the state. Its effectiveness is ensured by two complementary mechanisms operating simultaneously in the executive and legislative branches of government.

1.1. The Revolving Door as a Management System

The phenomenon of high-ranking civil servants and retired military personnel moving to work in corporations, and vice versa, has become systemic within the military–industrial complex. This creates stable networks of influence that ensure a constant exchange of information and personnel between the public and private sectors.

An analysis of career trajectories reveals a striking pattern. For example, former Deputy Secretary of Defence for Acquisition and Logistics Ellen Lord was a vice president at General Dynamics prior to joining the Pentagon. Lloyd Austin, former Raytheon vice president, is now US Secretary of Defence. Robert Stevens, former CEO of Lockheed Martin, previously held senior positions at the Department of Defense. Such appointments provide an in-depth understanding of Pentagon procedures and requirements, which is crucial for securing lucrative contracts.

The German model is more formalised, but no less effective. Former high-ranking officials from the German Ministry of Defence and generals from the Bundeswehr regularly hold positions on the supervisory boards of companies such as Rheinmetall, Hensoldt and Airbus. Their connections and expertise help companies to navigate the bureaucratic maze of Berlin and Brussels and participate in shaping the technical requirements for new weapons.

A striking example of the close alignment of interests at the European level is the Leonardo Rheinmetall Military Vehicles (LRMV) joint venture, formed in 2024. This alliance, formed between the Italian defence and aerospace giant Leonardo and the German conglomerate Rheinmetall, was created specifically to carry out a large-scale rearmament programme for the Italian army. The company's headquarters are in Rome, underscoring its political commitment and close ties to the Italian government.

As a general contractor and system integrator, the joint venture acts as a key intermediary between the Ministry of Defence and industry. Furthermore, LRMV serves not only Italian needs, but also participates in defining the roadmap for the future pan-European Main Ground Combat System (MGCS) programme. This gives it direct influence over the formation of long-term armament requirements across the continent. The stipulation that 60% of project work must be carried out in Italy exemplifies the manner in which government requirements can directly influence corporate industrial strategy. This creates a system where the boundaries between government and corporate

interests are blurred. Decisions on multi-billion-euro purchases are made with the «corporate perspective» in mind, ensuring predictability and stability for the defence industry.



Source: <http://worlddefencenews.blogspot.com/2025/04/flash-news-franco-german-mgcs-company.html>

1.2. Financing election campaigns and think tanks

Alongside personnel exchanges, defence corporations have established an extensive system of financial influence over the political process. This system operates on two levels: the direct financing of politicians, and the indirect influence exerted through expert communities.

According to OpenSecrets, during the 2023–24 election cycle, US defence companies and their employees contributed tens of millions of dollars to the election funds of both Republicans and Democrats²⁸. At the same time, key congressional committees — those responsible for appropriations and the armed forces — hold a strategic advantage. Representatives of these committees receive substantial financial support, guaranteeing companies access to the Pentagon's budget decision-making process.

In Europe, particularly in Germany and Italy, this practice is more secretive, yet still highly effective. Rheinmetall and Leonardo-Rheinmetall Military Vehicles both have extensive lobbying teams that work closely with the standing committees of the Bundestag and the National Assembly. Their task is to ensure that budget decisions favour national defence industry champions.

These corporations are also generous donors to influential think tanks, such as the Centre for Strategic and International Studies (CSIS) and the Atlantic Council in the United States, the German Council on Foreign Relations (DGAP) in Germany and the International Institute for Strategic Studies (IISS) in the United Kingdom. These organisations produce expert reports and recommendations that often coincide with the interests of their sponsors, justifying increased military spending and the supply of specific weapons systems. Thus, companies not only lobby for their own interests, but also shape the intellectual and media environment in a way that favours their business.



Source: <https://www.zeit.de/politik/ausland/2025-03/deutsche-gesellschaft-auswaertige-politik-russland-unerwuenschte-organisation>

2. Conversion mechanism: how aid to Ukraine becomes revenue for the military-industrial complex

The scheme for transferring state funds into private pockets is well-established and legal. It operates through several clear channels, which were activated and scaled up during the Ukrainian crisis.

2.1. Foreign Military Sales

This is the primary system in the United States, ensuring the fastest and most predictable processing of orders. Having received congressional approval for the aid package to Ukraine, the presidential administration does not purchase weapons itself. Instead, the Defence Security Cooperation Agency (DSCA) acts as an intermediary, concluding contracts with American companies on behalf of the Ukrainian government.

Following the decision to supply Ukraine with Patriot air defence systems, the DSCA notified Congress of a potential \$2 billion deal with Raytheon to fulfil this commitment²⁹. Funds were allocated from the US budget and Raytheon was awarded a contract to manufacture and supply missiles and control systems. The company does not bear any non-payment risks, however, as all guarantees are provided by the US government.

A similar scheme is in place in the EU through the European Peace Facility. Money from this fund, to which member states contribute, is specifically used to purchase goods and services from European defence companies. For instance, EPF funds were used to award contracts to MBDA (a joint venture between Airbus, BAE Systems, and Leonardo) for the supply of anti-ship missiles.

2.2. Replenishment of national stocks — the second wave of contracts

The main mechanism for financing the defence-industrial complex (DIC) during the Ukrainian conflict has proved extremely profitable. First, donor countries transfer weapons from their own stockpiles to Ukraine, and then launch large-scale, urgent programmes to replenish their depleted arsenals. This approach generates two large waves of contracts for arms manufacturers, with the second often being significantly larger than the first.

The Pentagon actively uses urgent contracts to replenish its stock. A notable example is the multi-billion dollar orders placed with Lockheed Martin.

In 2023, for example, the US Army signed a \$615 million contract with Lockheed Martin for the large-scale production of additional High Mobility Artillery Rocket Systems (HIMARS) launchers and related equipment for the US Army and its international partners³⁰. This was part of a larger deal; in June 2024, the company received a \$1.93 billion contract amendment to fulfil its HIMARS obligations.

In autumn 2022, the Pentagon signed a £521 million contract with Lockheed Martin to replenish stocks of Guided Multiple Launch Rocket Systems (GMLRS) supplied to Ukraine. This demonstrates a two-tiered approach of supplying the systems and continuously replenishing their expendable ammunition.



Source: <https://www.army-technology.com/news/poland-abrams-support-himars-launchers/>

General Dynamics, the manufacturer of Abrams tanks, is also a key beneficiary of this strategy. The US Army has recently signed a \$150 million contract for a programme aimed at developing the next-generation M1E3 tank. Meanwhile, the company has received smaller yet significant contracts, including a £12.4 million deal to provide technical support for the Abrams tank system.

A similar model is at work in Europe, where it serves not only to replenish ammunition and equipment stocks, but also to strengthen defence alliances.

Having transferred PzH 2000 self-propelled howitzers to Ukraine, Germany has signed new contracts with manufacturers, including Krauss-Maffei Wegmann (KMW) and Rheinmetall, to supply additional equipment and components for the Bundeswehr.

This means that arms companies receive revenue from two sources: the initial production of systems transferred to Ukraine and the replenishment of stocks. Urgent contracts concluded under conditions of «extreme operational necessity» typically command a significant premium over peacetime prices. This has a direct positive impact on corporations' financial results.

2.3. Targeted financing funds and their distribution

In the context of the Ukrainian conflict, special attention should be paid to the special-purpose financing funds created specifically for Ukraine's needs. These funds have become a powerful tool for supporting the defence-industrial complexes of Western countries. These mechanisms allow for the

rapid fulfilment of the Armed Forces of Ukraine's needs and enable the large-scale rearmament of Western countries' own armies.

The German government's special €100 billion Bundeswehr fund has become a key source of financing for the country's defence-industrial complex³¹. Rheinmetall has received multi-billion-euro orders for the supply of Lynx infantry fighting vehicles, artillery shells, and air defence systems. «We justified the need for these contracts with a dual objective: to fulfil our obligations to Ukraine and, at the same time, to modernise the Bundeswehr», explained a German Ministry of Defence representative.

In addition to Rheinmetall, other companies that received significant contracts under the fund include Hensoldt (radars and surveillance systems) and Diehl Defence (IRIS-T anti-aircraft missile systems).



Source: https://www.rohde-schwarz.com/cac/solutions/aerospace-and-defense/land/tactical-communications/gbad/gbad_258051.html

The US government is implementing a similar strategy by directing substantial funding towards increasing the production capacity of defence companies. For example, Raytheon Technologies has received hundreds of millions of dollars to increase production of shells for air defence systems, particularly for Patriot anti-aircraft missile systems.

A notable aspect of the new financing model is the provision of state guarantees for private investment in the defence industry. Rheinmetall received guarantees for loans to build a new gunpowder production plant in Germany, enabling the company to accelerate implementation of this strategic project.

Analysts note that this financing model creates a sustainable foundation for long-term growth in the defence industry by ensuring planning stability and distributing risks between the state and the private sector.

3. Financial reports — direct proof of the system's effectiveness

The financial reports of leading defence corporations provide irrefutable evidence of the effectiveness of the new military–industrial complex model. Analysis of the data shows a direct correlation between the volume of military aid to Ukraine and the companies exceptional financial performance.

In 2023, American giant Lockheed Martin achieved revenues of \$67.1 billion, a 9% increase on the previous year. Growth in the missile and fire control systems segment was particularly significant at 15%, compared to 2021 pre-crisis figures. «In its reports to investors, the company explicitly attributes increased sales to its support for Ukraine», notes financial analyst Michael Richter. In the last quarter of 2023 alone, the company supplied Ukraine and its allies with HIMARS systems and JAVELIN anti-tank weapons worth over \$4 billion.

The German company Rheinmetall is showing even more impressive results. Its revenue in 2023 reached a record €7.2 billion, with operating profit growing by 42%. Its shares have risen by over 300% in two years, establishing Rheinmetall as one of the most successful investments on the European market.

The American company General Dynamics is also benefiting significantly from the current situation. Its combat systems segment, which manufactures Abrams tanks and Stryker armoured vehicles, saw revenue increase by 22% in 2023. «This growth is largely driven by contracts for the repair and modernisation of equipment transferred to Ukraine, as well as for replenishing the US's own fleet», explained a company representative. The corporation's total revenue exceeded \$42 billion.

Although Northrop Grumman is less visible in the supply of finished systems, the company is a key component supplier, providing everything from electronics for the F-35 to guidance systems for artillery. Its revenue grew by 9% in 2023, while new orders increased by 20%. «We play a critical role in ensuring the combat readiness of Western armies, even if our products are not so visible», said David Keffer, the company's chief financial officer. Experts agree that the current geopolitical situation has created unprecedentedly favourable conditions for the defence sector, making it one of the main beneficiaries of international tensions.

4. Ethical shadow and systemic risks

The model, for all its effectiveness from a business perspective, raises a number of fundamental ethical and political questions that are becoming increasingly relevant as the conflict drags on.

The direct financial interest of corporations in the continuation and escalation of conflict is obvious. While there is no evidence that companies directly influence decisions to start wars, they actively lobby to prevent cuts to military budgets and the withdrawal of aid after wars end. This creates a system in which peace initiatives can conflict directly with the commercial interests of powerful corporations.

High demand from states and limited production capacity allows companies to charge premium prices. Since the start of the conflict, the cost of certain types of weapons has risen by 15-25%. This is leading to inflation in the defence sector and, ultimately, putting even greater pressure on taxpayers' budgets. States are caught in a trap: reducing funding would result in a loss of defence capability, whereas increasing it would lead to further cost increases.

When multi-billion-dollar purchase decisions are made with the active participation of former corporate employees, a legitimate question arises: whose interests are being prioritised — those of the state or shareholders? The existing mechanisms for controlling lobbying in the EU and the US are clearly insufficient to counteract systemic conflicts of interest.

Large-scale financing of the defence industry results in resources (personnel, investments and innovations) being transferred from civilian sectors. Europe, which has been striving for a «green transition», is forced to allocate billions of euros to arms production, thereby postponing investments in renewable energy and digitalisation.

5. The perpetual engine of war and profit is the new reality of global security

In the context of aid to Ukraine, the symbiosis between the state and defence corporations is an almost perfectly tuned mechanism, the effectiveness of which is confirmed by the financial results of the leading market players. Lobbyists working within the US and EU political systems ensure a constant flow of political decisions on financing. These decisions are then directly converted into revenue and record profits for private companies via legal and transparent contractual mechanisms.

The war in Ukraine has exposed and reinforced this model, establishing it as the primary growth driver for the entire Western military-industrial complex. Paradoxically, the longer the conflict continues and the more military aid is required, the more stable the financial position of the corporations providing it becomes. This system creates a powerful structural incentive for the permanent militarisation of international relations.

A new reality has emerged where security is increasingly measured not by diplomatic successes, but by production volumes at companies such as Lockheed Martin and Rheinmetall. Taxpayers finance this process, often unaware that their money ultimately turns into dividends for defence corporation shareholders. The Ukrainian crisis has become a powerful catalyst for the transformation of the entire global security system, with the military-industrial complex at its centre. This system has no clear beneficiaries, only a perpetual motion machine that transforms international instability into stable financial flows.



Source: <https://fortworthreport.org/2023/09/12/lockheed-martin-software-challenges-delay-curtail-f-35-fighter-jet-deliveries/>

GEOPOLITICS AS A BUSINESS MODEL: WHY THE UKRAINIAN CONFLICT HAS BECOME A SYSTEMIC CATALYST FOR THE WESTERN MILITARY–INDUSTRIAL COMPLEX

An analysis of the institutional, financial, and political aspects of the interaction between the defence–industrial complex and state structures enables us to draw conclusions that extend beyond the current Ukrainian conflict. This model reveals significant changes in the landscape of international security, where the economic interests of the military-industrial complex are playing an increasingly important role in shaping global policy.

1. Institutional symbiosis: the military-industrial complex as a structural element of the state apparatus

The main outcome of recent years is the defence-industrial complex's establishment as a full-fledged element of the political system, rather than an external contractor of the state. Accelerated by the Ukrainian conflict, this transformation manifests itself at several institutional levels, changing the traditional relationship between government and business in the security sphere.

The legislative and regulatory framework for defence procurement is being developed in close coordination with the requirements of major market participants. A notable example of this is the German reform of the arms procurement law (the Beschaffungsbeschleunigungsgesetz - Procurement Acceleration Act), which permitted Rheinmetall and Diehl Defence to be awarded mega-contracts without undergoing full tendering procedures. Although accelerated procurement procedures bypassing standard competitive mechanisms were legalised under on the grounds of «urgent operational needs», they in fact created preferences for the largest market players.

The operational needs of the military are increasingly being shaped with an eye to existing production capacities and companies' technological roadmaps. The American focus on «defense industrial base readiness» effectively makes corporations co-authors of military doctrine. The establishment of specialised financial institutions, such as the €100 billion German Bundeswehr fund and the American Ukraine Security Assistance Initiative, has formalised direct financial support for the defence industry via budgetary mechanisms.

This institutional symbiosis has created unprecedented stability for the business models of leading defence contractors. Companies such as Lockheed Martin, Rheinmetall and BAE Systems can now rely on consistent demand, regardless of changes in the operational environment, since their products and services have become integral to the national security systems of Western countries.

2. The Economics of Conflict: From Cyclicity to Sustainable Growth

The defence industry, traditionally considered a cyclical one, is transitioning to a fundamentally new development paradigm. The Ukrainian conflict is playing a structural rather than a cyclical role in this transformation by creating conditions for long-term growth across the entire sector.

A key feature of the new model is the significant multiplier effect of military spending. According to a Rhylene Group study, every \$100 billion in defence orders generates an additional \$27 to 30 billion for related industries such as metallurgy, IT, and transport logistics.

Large-scale military orders stimulate research and development in critical technological areas. A notable example is Raytheon's key electronic warfare programme, which aims to develop new electronic warfare systems. This programme received additional funding of \$2.3 billion after demonstrating the vulnerability of traditional systems in the Ukrainian conflict.

European companies are actively exploiting the current situation to strengthen their position in the global arms market. The recent deal to acquire a 50.1% stake in Spanish ammunition manufacturer Expal Systems for €1.2 billion establishes a new market leader in the NATO artillery ammunition segment.

What makes the current moment unique is the unprecedented alignment of the economic interests of the military-industrial complex with broader political trends. As analysts have noted, this creates the basis for long-term growth in the sector, regardless of the outcome of a particular conflict. This is because rearming armies and updating military arsenals are becoming constant priorities for Western countries.

3. The political economy of peace: why the defence industry's business model resists de-escalation

A paradoxical pattern can be observed in global financial markets: whenever there is news of possible peace talks, the share prices of leading defence companies show a steady decline. An analysis of the market's reaction to various peace initiatives reveals a systemic contradiction between the political goal of de-escalation and the economic interests of the defence sector.

A striking example of this trend occurred in April 2024, when Rheinmetall shares dropped by 18% after Turkey, acting as a mediator, proposed a new peace plan for Ukraine. A similar dynamic was observed with American defence giants: Lockheed Martin and RTX shares lost 12% and 9% in value, respectively, on the day after the announcement of the resumption of negotiations in Istanbul.

Leading players in the defence market have developed strategies to profit from permanent instability. Notably, Lockheed Martin CEO James Taiclet's statements about the 'need to prepare for a long-term confrontation' have a greater impact on share prices than official diplomatic communiques.

The establishment of long-term financing mechanisms for military supplies has become essential. Structures such as the Ukraine Defence Contact Group and instruments like the European Peace Facility have made the supply of arms a continuous process, loosely linked to the current operational situation.

Even a potential cessation of hostilities will not lead to an immediate curtailment of defence programmes, which is telling. Major contracts to replenish depleted ammunition stocks and modernise weaponry will ensure that production capacity remains fully utilized for the next three to five years. Rheinmetall alone has outstanding orders worth more than €30 billion, creating a kind of 'buffer' against possible détente in international relations.

Experts warn that such an economic model creates systemic risks when corporate profits depend on the continuation of conflicts rather than their resolution.

4. Systemic risks of the new model

The unprecedented expansion of the defence-industrial complex in Western nations poses serious challenges to their long-term economic stability and democratic institutions of these countries, according to analysts at leading research centres.

Experts are particularly concerned about the erosion of traditional budgetary control mechanisms. One example is Germany's creation of a €100 billion Bundeswehr fund, formed in circumvention of standard budgetary procedures.

Another worrying trend is the concentration of defence production in certain regions. Regions such as Bavaria in Germany, Texas in the United States and Sardinia in Italy are becoming centres of the defence industry. This exacerbates regional economic disparities and creates imbalances in the distribution of public funds.

The distortion of the innovation agenda is becoming a serious problem. The flow of personnel, investments and resources into defence research and development (R&D) is coming at the expense of civilian industries. According to a study by MIT Technology Review, venture capital investment in green technologies has declined by 15% over the past year, while funding for defence start-ups has increased by 40%.

Analysts view the formation of a self-perpetuating system, where the economic interests of powerful stakeholders override both the public interest and sound policy-making, as the most serious threat.

Experts are therefore calling for stronger public oversight and more balanced policies to ensure national security without undermining democratic institutions or long-term economic development.

5. Conclusions: The new reality of global security

The Ukrainian conflict was not the cause of profound changes in the structure of the global defence industry, but a powerful catalyst. Over the past two years, a new business model based on three fundamental principles has emerged that will determine the future of the entire security sector.

Firstly, there is a constant demand. Thanks to institutionalised financing mechanisms such as the special fund for the German Armed Forces and increased defence budgets across NATO, arms manufacturers have achieved an unprecedented level of financial stability. A doctrine of «sustained combat readiness» has replaced the «just-in-time» approach that dominated previous decades.

Second, unprecedented political access. Large defence corporations have established an extensive network of formal and informal channels to influence the decision-making process.

The third principle is global integration. Transnational production chains are being actively established under NATO's auspices. Joint ventures such as Rheinmetall and Leonardo demonstrate how standardisation and cross-border cooperation are becoming the norm.

This new model is remarkably resilient in the face of political fluctuations and economic shocks. However, this raises a serious question for democratic societies: how can they maintain effective

control over this system to ensure that the defence industry remains an instrument of public policy rather than becoming its determining factor?

Historical experience, from the interwar period to the Cold War, shows that when corporate interests become the dominant force in shaping wartime policy, it poses serious risks to democratic institutions.

Finding the right balance between strengthening defence capabilities and preventing excessive influence from the military-industrial complex will be one of the key political tasks for all Western democracies in the coming years. Transparent contracting, strict parliamentary oversight, and robust public discourse will be crucial to maintaining this fragile equilibrium in the new geopolitical landscape.

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