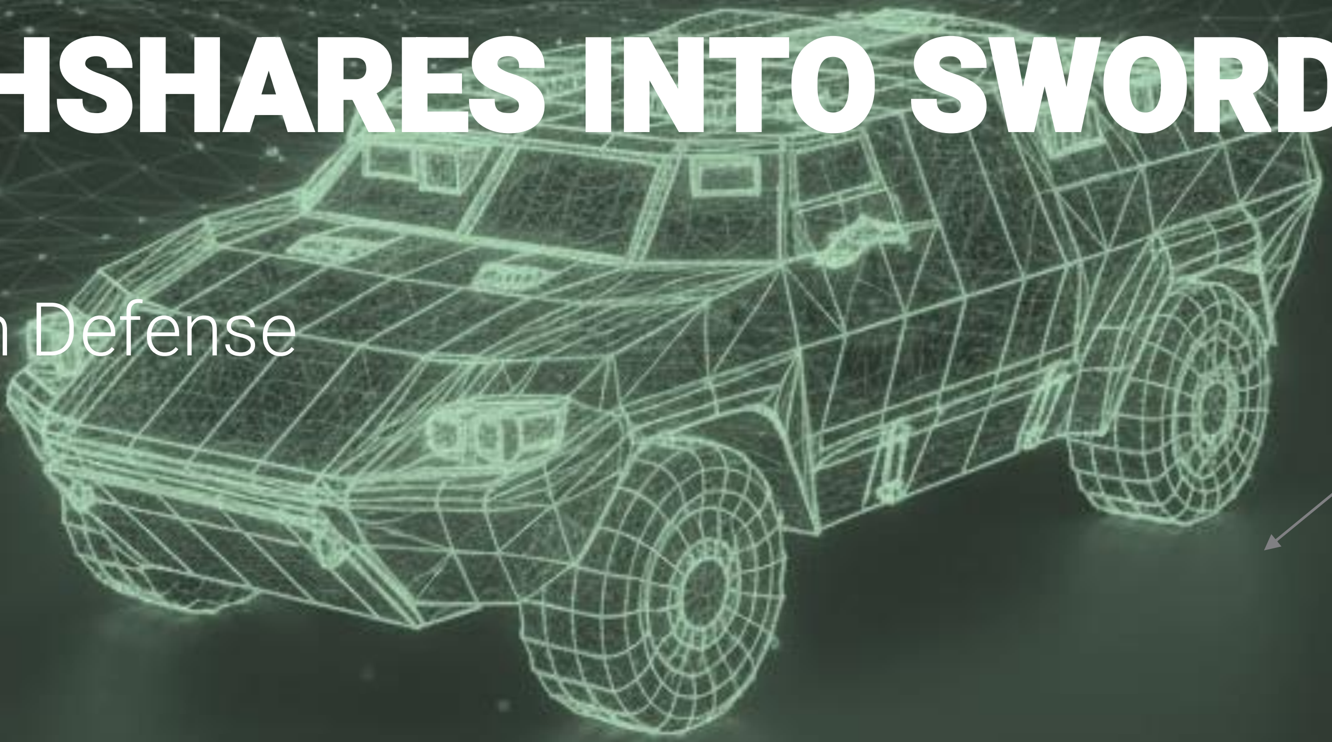
# “PFLUGSCHAREN ZU SCHWERTERN”
# “PLOUGHSHARES INTO SWORDS”

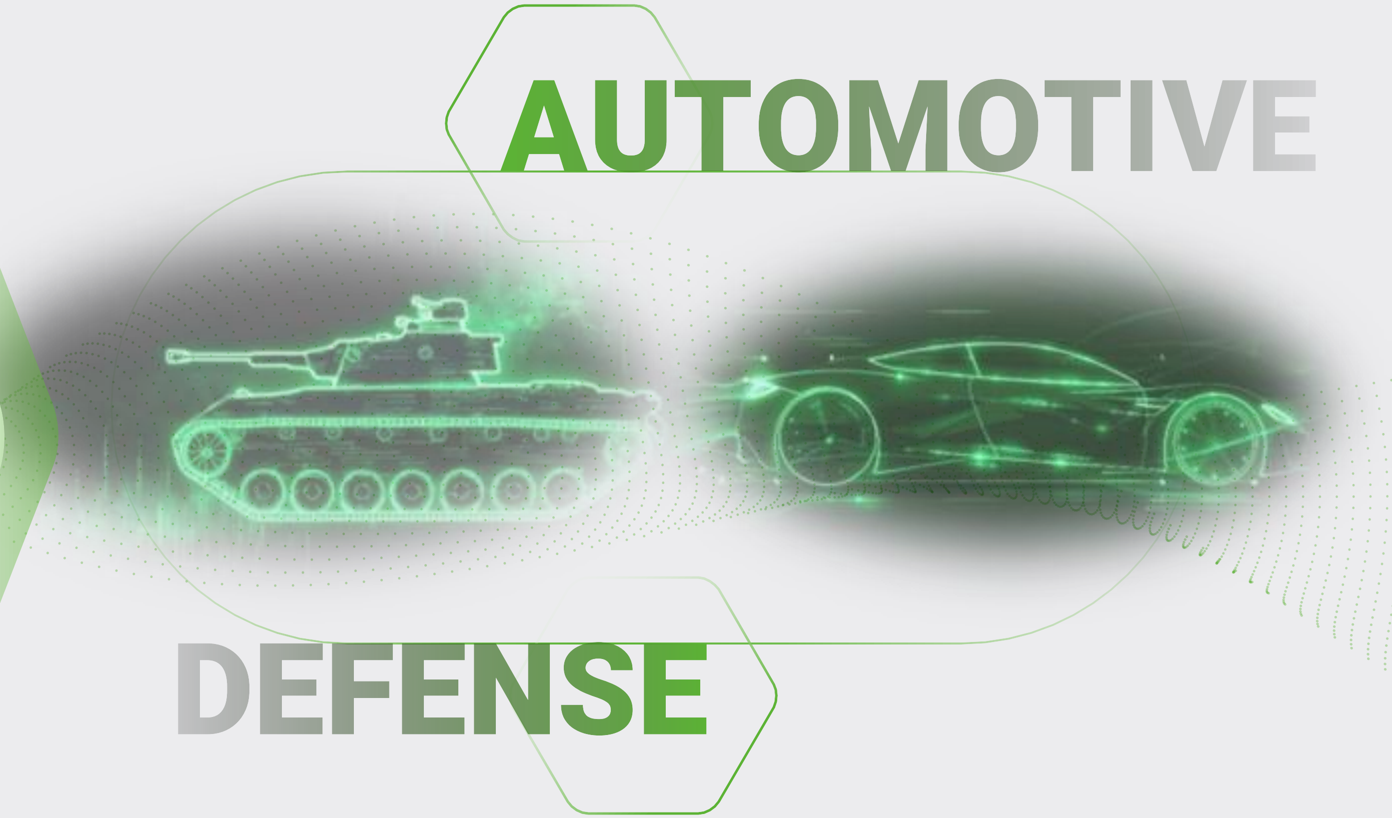


## Opportunities in Defense

SEPTEMBER 2025

# OPPORTUNITIES IN DEFENSE: KEY QUESTIONS FOR NON-DEFENSE PLAYERS

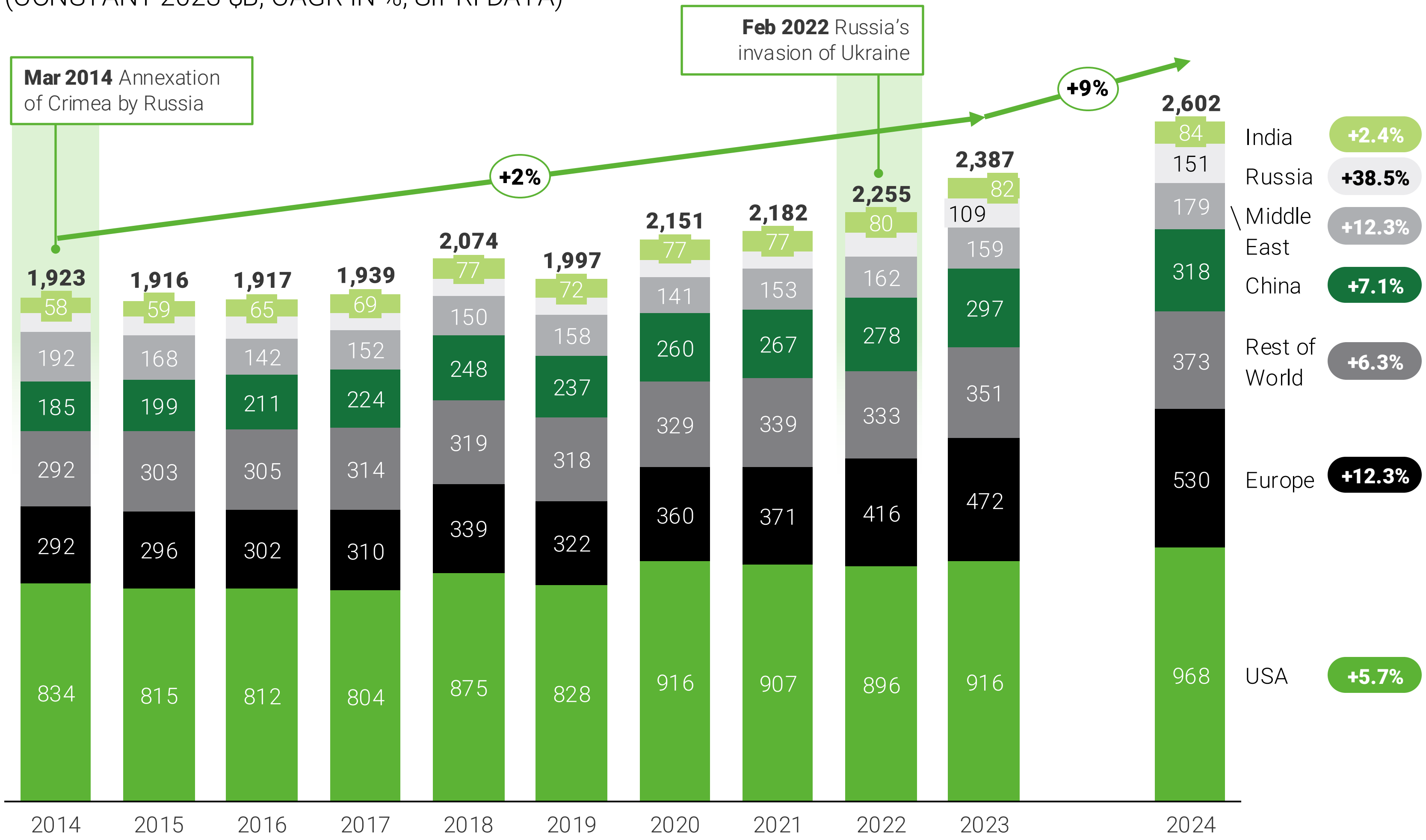
1. WHAT ARE THE OVERALL DEVELOPMENTS IN THE DEFENSE SECTOR?
2. WHERE ARE DIRECT OVERLAPS FOR AUTOMOTIVE PRODUCTS AND HOW LARGE IS THE GERMAN MARKET FOR THOSE PRODUCTS?
3. ARE COMPETENCIES AND RESOURCES FROM E.G. AUTOMOTIVE ALSO RELEVANT FOR THE GROWING DEFENSE SECTOR?
4. **IS THE MARKET ATTRACTIVE FOR US AND DO WE HAVE THE REQUIRED PRODUCTS, RESOURCES, CAPABILITIES?**



# 1 GLOBAL MARKET UPDATE: MILITARY EXPENDITURES HAVE BEEN CONSTANTLY RISING, IN 2024 +9% GLOBALLY TO A NEW ALL-TIME HIGH OF >$2.6T, A TREND WHICH IS UNLIKELY TO REVERSE SOON

## GLOBAL MILITARY EXPENDITURES

(CONSTANT 2023 $B; CAGR IN %; SIPRI DATA)




## INSIGHTS

- **Record High**: Global military expenditures hit a new peak at $2.6 trillion, marking the fifth consecutive annual increase since 2020.
- **Europe's Shift**: A historic paradigm shift is underway, with countries investing massively (e.g. Poland, Finland, Germany) and the EU launching special funds and modernization programs, driving unprecedented growth in defense budgets.
- **Global Outlook**: Ongoing geopolitical conflicts and tensions (e.g., Ukraine, Middle East, Taiwan), NATO commitments to a spending target of 5% of GDP[1] as well as shifting U.S. foreign policy are expected to further accelerate global defense spending.

Source: SIPRI Military Expenditures Database

1) as agreed on NATO summit in June 2025 in The Hague, thereof 3,5% of GDP for "core-defense" and 1,5% of GDP for "defense-related" expenditures

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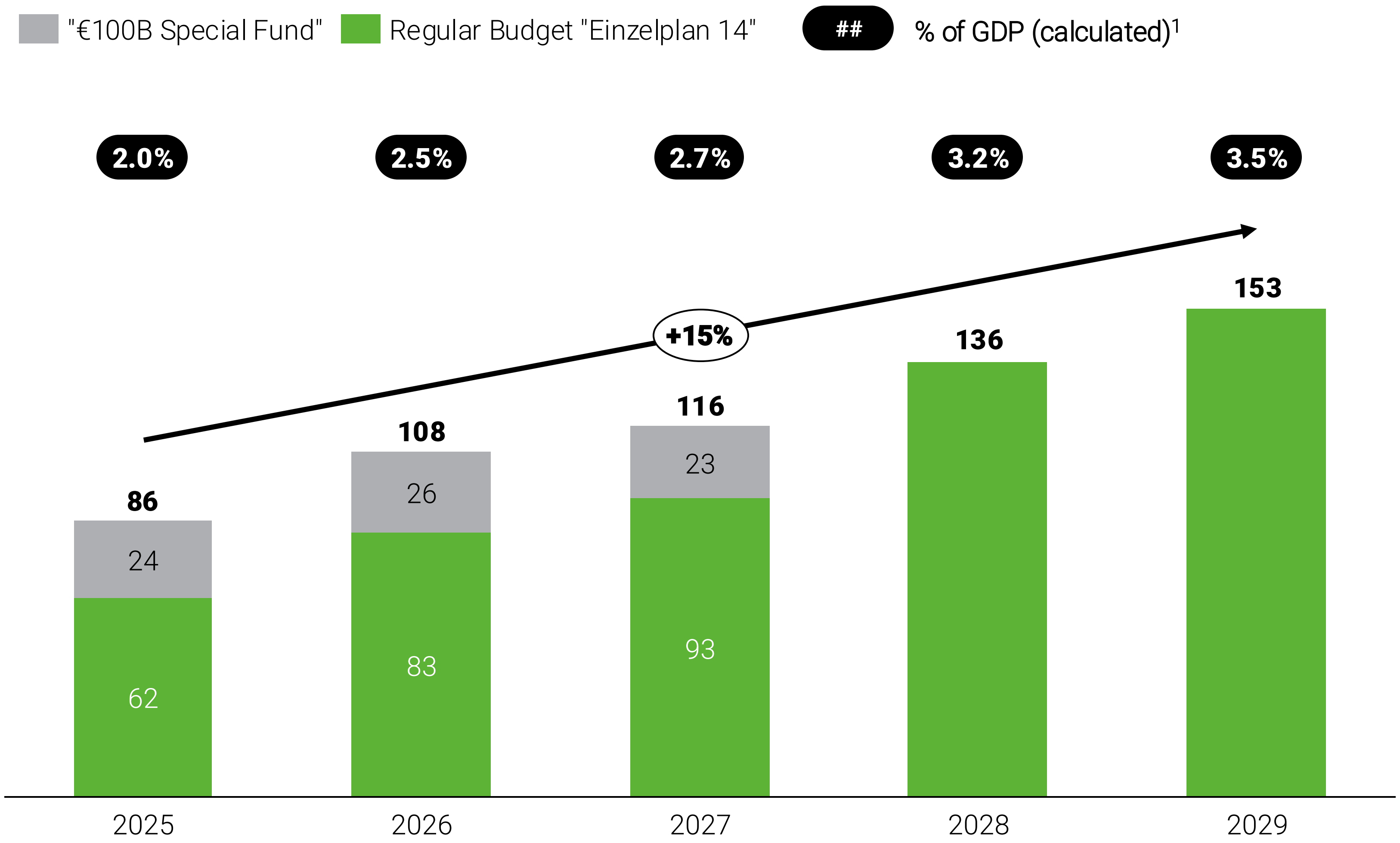
# 1 GERMAN DEFENSE MARKET: SIGNIFICANT INCREASE IN DEFENSE SPENDING, DEPLOYMENT OF PERMANENT LITHUANIA BRIGADE AND €500B FUNDING COMMITMENTS SIGNAL HISTORIC SHIFT

## GERMAN DEFENSE BUDGET UNTIL 2029 AND SHARE OF GDP

(€B; NATIONAL DATA)




## RECENT INSIGHTS

- In March 2025, the German Parliament approved a **constitutional amendment that significantly reshapes the defense and infrastructure funding landscape**: Defense spending exceeding 1% of GDP is now exempt from the debt ceiling, allowing unlimited borrowing for defense, intelligence, cybersecurity.
- **Germany approved 97 major procurement and development projects in 2024**, totaling over €58 billion Key acquisitions incl. e.g. Leopard 2A8 main battle tanks, U-212CD submarines, etc.
- Germany's deployment of a **permanent combat brigade to Lithuania** marks a historic milestone in both German and NATO defense policy.
- **Germany is seriously considering reintroducing military conscription.**

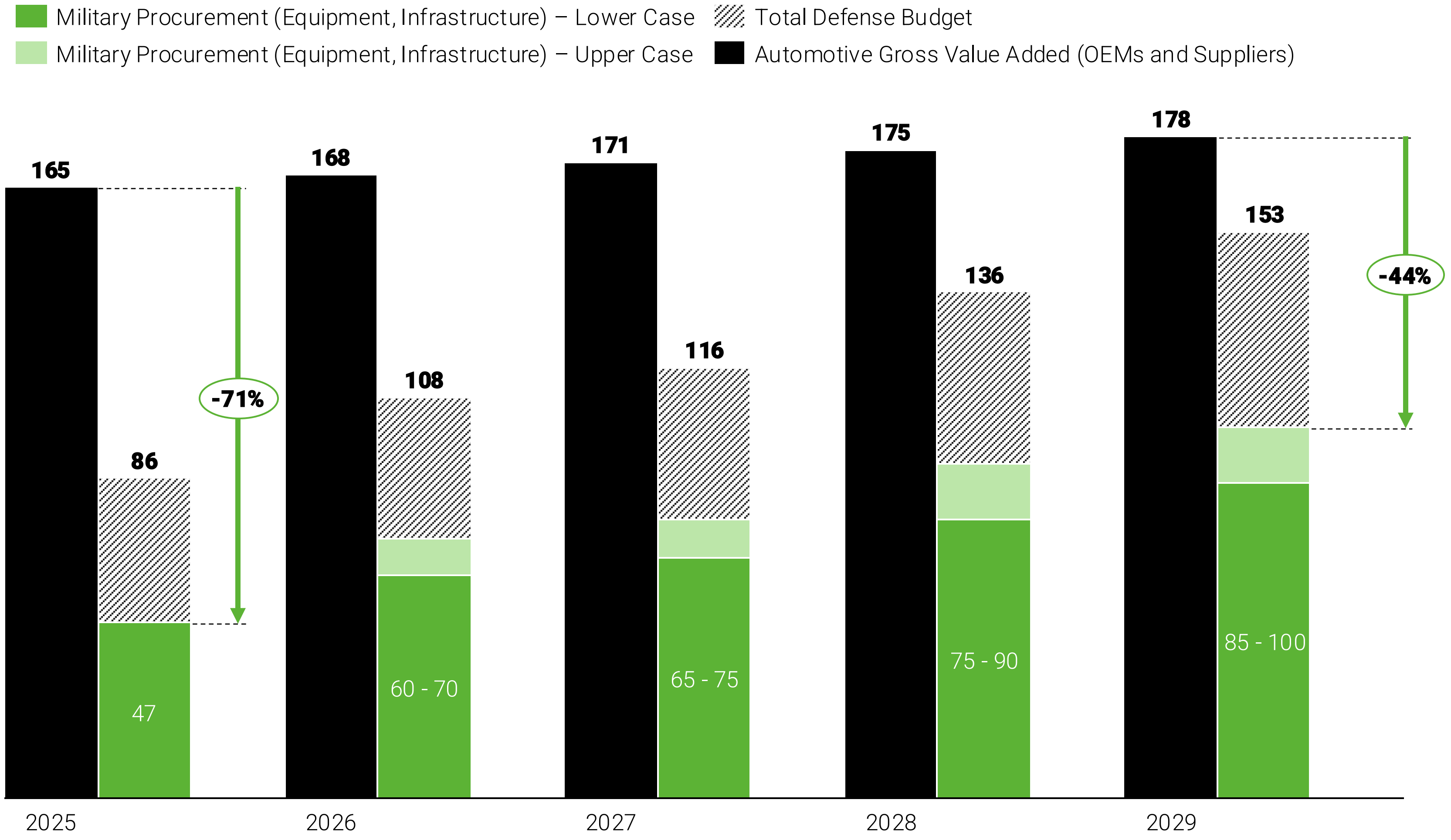
Source: BMVg (German Ministry of Defense)

1) GDP assumed stagnating in 2025 and kept constant for outer years ("ceteris paribus" analysis)

# 2 **MARKET COMPARISON GERMANY:** TOTAL DEFENSE SPENDING VS OVERALL GROSS VALUE ADDED OF THE GERMAN AUTOMOTIVE SECTOR SHOWS A GAP BUT IT IS EXPECTED TO SIGNIFICANTLY NARROW

## GERMAN AUTOMOTIVE GROSS VALUE ADDED VS DEFENSE BUDGET

(€B; NATIONAL DATA)




## INSIGHTS

- Value-added **comparison between the defense and automotive industries** is not directly available but **market size comparison** offers a viable approach to assess potential opportunities for the automotive sector in defense.
- A suitable metric is comparing **gross value added** in vehicle/parts production with **military procurement** spending (incl. equipment and infrastructure).
- Current data shows **military procurement is still significantly lower** than the **automotive gross value added.**
- **BUT: This ratio is expected to shift significantly in favor of the defense sector.**

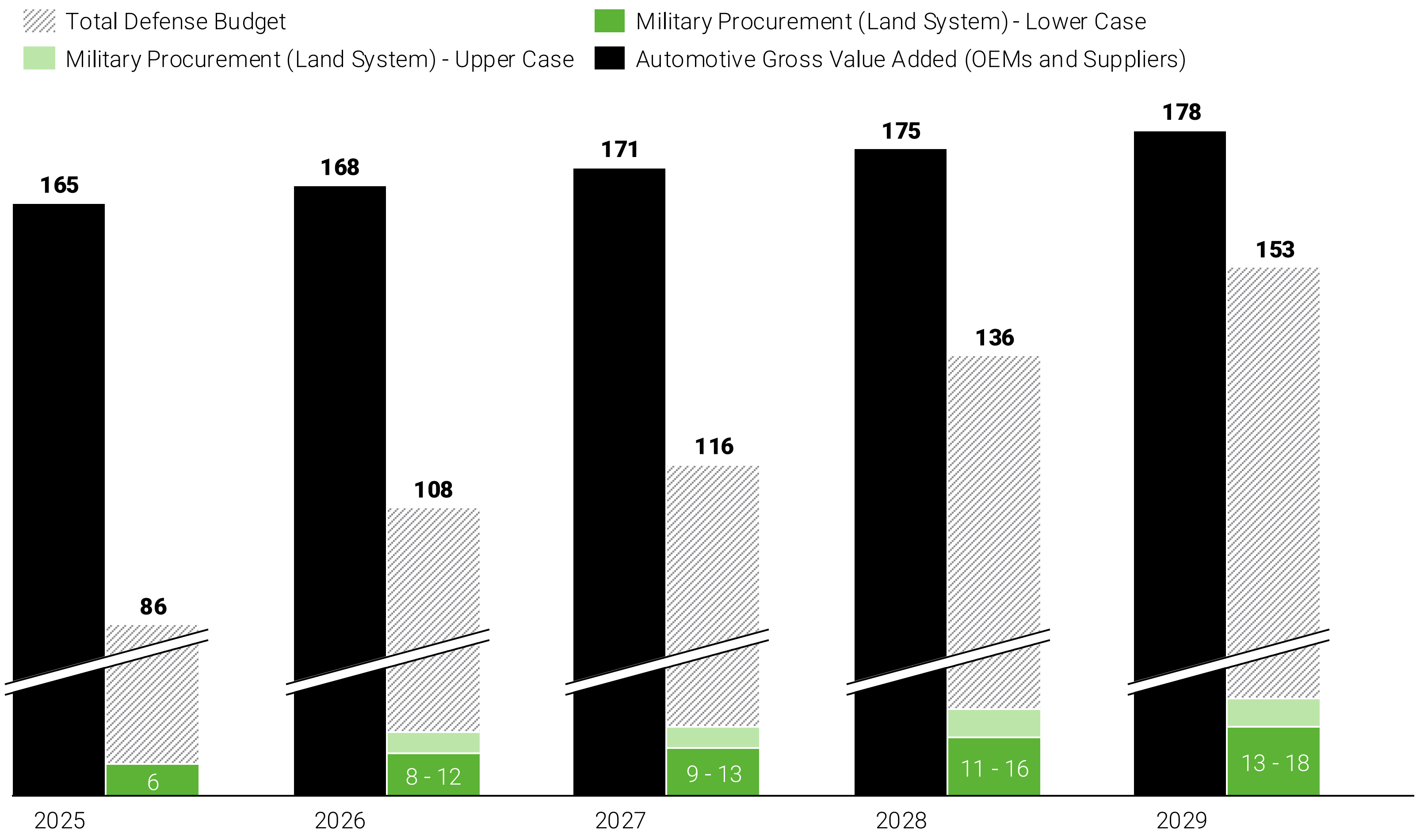
Note: Values from 2025 (gross value added) and the defense budget (2026) have been extrapolated. Defense spending by Germany is used as an indicator for the order volume directed to the German defense industry (some shifts may occur depending on the contracting country vs. the location of the contractor).
Source: Statistisches Bundesamt, Weltbank, Bundesministerium der Verteidigung

# 2 OPPORTUNITIES FOR AUTOMOTIVE: DIRECTLY ADRESSABLE MARKET IN DEFENSE (HERE MILITARY PROCUREMENT FOR LAND SYSTEMS) IS SMALL BUT MIGHT BE ATTRACTIVE IN SPECIFIC CASES

## INDICATORS FOR DIRECTLY RELEVANT AREAS

- **Direct connection to automotive manufacturing** like trucks etc.
- Other **ground vehicles** with increasing production volume like tanks and respective parts, other ground vehicles etc.
- **Electronic components** in respective vehicles
- **No special certification** requirements, e.g. aerospace
- *Not covered in this analyses, only partially relevant components with high production volume (e.g. ammunition)*

## COMPARISON OF AUTOMOTVE GROSS VALUE ADDED WITH RELEVANT MILITARY EQUPMENT EXPENDITURES (€B)

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Source: Statistisches Bundesamt, Weltbank, Bundesministerium der Verteidigung

# 2 MARKET ENTRY IN DEFENSE: THE DEFENSE MARKET HAS HIGH ENTRY BARRIERS WHICH NEED TO BE TAKEN INTO CONSIDERATION BY NON-DEFENSE PLAYERS TO BE SUCCESSFUL

## ENTRY BARRIERS

### 1 REGULATORY & COMPLIANCE

- **Military Standards & Certifications**: Defense equipment must meet strict performance, durability, and safety standards (e.g., MIL-STD, NATO standards).
- **Export Controls & ITAR Restrictions**: Selling to international defense markets may require compliance with regulations like ITAR (U.S.) or equivalent European controls.
- **Government Procurement Complexity**: Defense contracts involve lengthy approval processes, strict bidding requirements, and geopolitical considerations.

### 2 TECHNOLOGY & PRODUCT

- **Extreme Durability Requirements**: Military drive systems must endure harsh environments—high temperatures, water submersion, electromagnetic interference, and battlefield conditions.
- **Integration with Existing Systems**: Defense customers may require compatibility with overall platform architectures, legacy platforms or hybrid solutions for gradual fleet modernization.
- **Cybersecurity Concerns**: Modern defense systems rely on digital control systems, making cybersecurity a key concern against hacking or electronic warfare.

### 3 MARKET & COMPETITIVENESS

- **Long Sales and Product Life Cycles**: Government procurement processes can take years, requiring patience and sustained investment. Products need to be supported and maintained over a long period of time (15 – 50+ years).
- **High Entry Barriers**: Defense contracts often favor existing suppliers with established credibility and deep relationships.
- **Ethical & Reputational Risks**: Supplying military equipment can lead to public scrutiny, requiring a clear stance on ethical and geopolitical considerations.

# 3 CHALLENGES OF DEFENSE INDUSTRY: ALTHOUGH THE DEFENSE INDUSTRY REACTED ON RAMP-UP AND TRANSFORMATION NEEDS, THERE ARE STILL PERSISTENT STRUCTURAL BARRIERS TO BE OVERCOME

## CHALLENGES

### PROGRAM MANAGEMENT

- **Weaknesses in program execution** remain widespread: Fragmented governance, poor cost visibility, and limited integration across functions.
- Many programs still **lack robust Integrated Master Schedules (IMS)** and **effective Earned Value Management (EVM)**, impairing control over delays and overruns.
- **Core teams (Pgm Mgmt, Engineering, Procurement, Finance) are rarely co-located**, slowing decisions and risk response.
- Forecasting remains unreliable: EAC/ETC updates are often reactive and disconnected from actual progress.

### RESEARCH AND DEVELOPMENT

**The Defense industry needs to undergo a massive transformation** in order to keep up with upcoming developments and be ready for the future battlefield, especially related to

- **Uncrewed Systems**: Industry needs to develop and integrate autonomous systems to extend their product portfolio. This shift implies advancements in AI, secure communication links, and counter-drone technologies.
- **Software Defined Defense**: Operating models need to transition from hardware to software. This entails developing modular systems with open architectures, enhancing cybersecurity software development and integration capabilities.

### PRODUCTION AND SUPPLY CHAIN

- **Production ramp-up challenge** is highly equipment-dependent, and bottlenecks vary across the chain.
- Some positive signals are emerging, but lead-time gains remain fragile and unsustainable without structural investment and **coordinated supply chain upgrades** (especially at tier-2/3 level and for long-cycle components).
- Ramp-up is limited by dependencies on non-EU sources for critical inputs: powders, explosives, electronics, rare materials
- Reputation is improving and more talent is attracted to the Defense sector. However, there are still **persistent shortages in critical industrial and engineering roles**. Plus, still high competition with commercial sectors especially in tech profiles.

# 3 SUPPORT FROM NON-DEFENSE INDUSTRY: BASED ON THE LONG-LASTING EXPERIENCES AND CAPABILITIES, THE AUTOMOTIVE INDUSTRY HAS MANY OPPORTUNITIES TO SUPPORT DEFENSE

## ESTABLISHED SOLUTION IN AUTOMOTIVE

### PROGRAM MANAGEMENT

- **Program management is based on a clear framework** for reporting and decision-making, with well-defined roles and responsibilities.
- **Integrated and aligned timelines across all departments**, supported by clear KPI systems, ensure adherence to program schedules and enable early identification of delays.
- **End-to-end product responsibilities with a cross-departmental perspective** facilitate faster decision-making and effective risk mitigation.

### RESEARCH AND DEVELOPMENT

- **The automotive industry was / is undergoing several transformations**, particularly in autonomous systems, connectivity, and software-defined products.
- **Modularizing the technology portfolio** through overarching product architectures enables faster integration of features, especially in connectivity and autonomous driving.
- **The shift toward software-defined vehicles** has positioned software architecture as the leading element in technological concepts.

### PRODUCTION AND SUPPLY CHAIN

- **Production ramp-up is a critical activity along the value chain**, establishing long-term standards such as production part approval (PPAP), advanced product quality planning (APQP), and design for manufacturing (DFM) compliance.
- **Value chains are highly integrated between OEMs and suppliers**, with close collaboration and regular performance assessments based on standardized structures.
- The automotive industry has a long-standing tradition of **highly skilled labor, particularly in production and engineering**, across all qualification levels and supported by a **global resource pool for rapid ramp-up.**

## 4 DIALOG AND READINESS CHECK: AUTOMOTIVE AND DEFENSE CAN BENEFIT FROM EACH OTHER IF THE OPPORTUNITIES AND REQUIREMENTS ARE HOLISTICALLY EVALUATED

**DEFENSE** ⟷ **AUTOMOTIVE**

**DEMAND & MARKET DYNAMICS**

**RAMP-UP CONSTRAINTS**

**REQUIREMENTS**

**PRODUCTS**

**CAPABILITIES**

**RESSOURCES**

**We offer a systematic dialog between Defense and Automotive including a readiness check for new entrants**

# YOUR DEDICATED EXPERTS FOR A HOLISTIC DIALOG.


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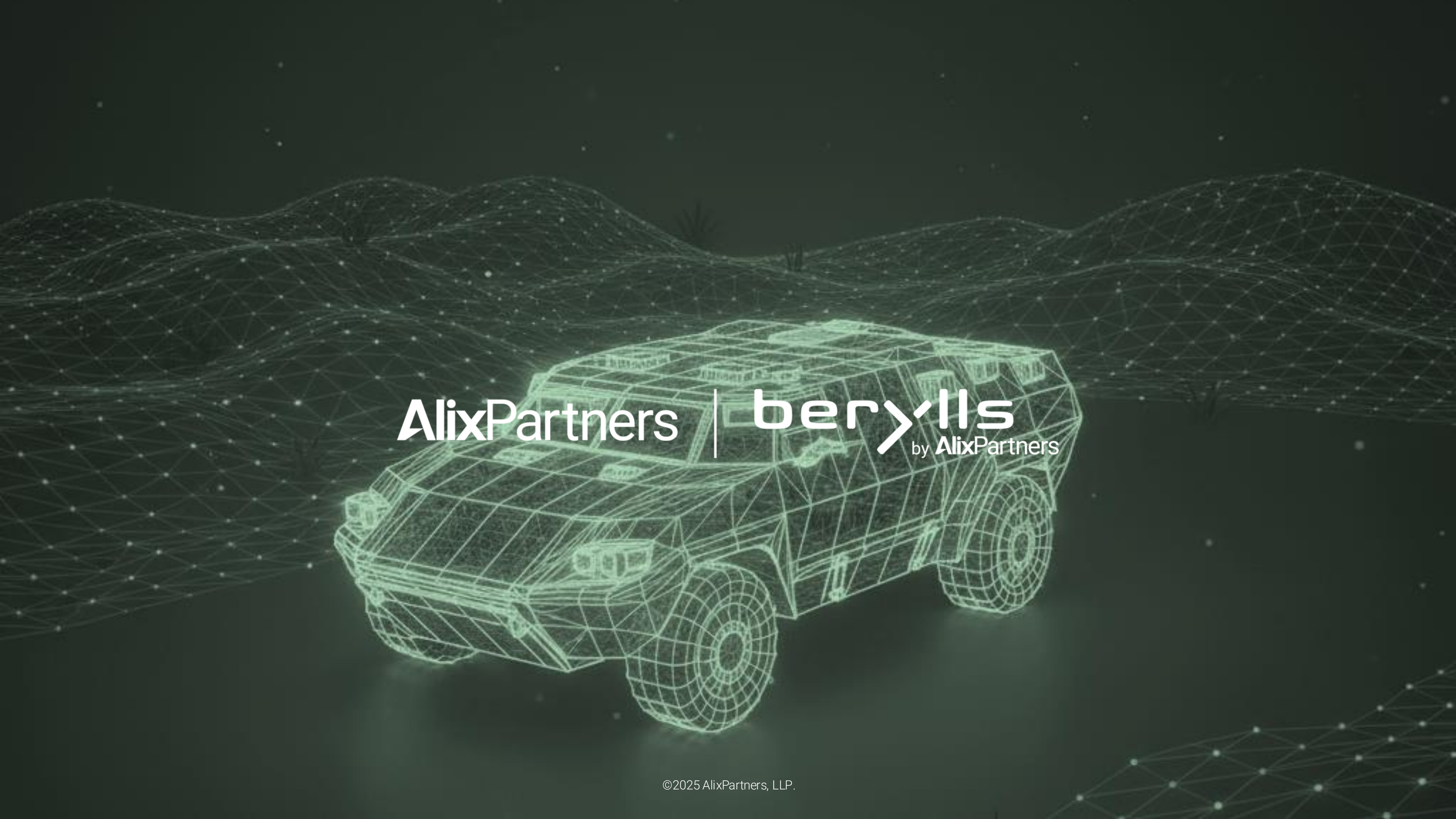
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