



Semiconductors: Key to Security and Defense Capabilities

Semiconductors are the backbone of modern economies and serve as the essential technological foundation for the security and defense industries. From sensor technology and AI-driven data processing to encrypted communication as well as navigation and command systems, nearly all security-relevant technologies depend on specialized microchips. Geopolitical shifts and unstable supply chains have exposed Europe's vulnerability in this sector. To ensure technological sovereignty and resilient defense capabilities, it is imperative to strengthen the European microelectronics ecosystem and the crisis-proof availability of trustworthy chips.

Strategic Pillars of a Sovereign Defense Industry

Effective defense capabilities must be built on a foundation of trusted semiconductors and certified supply chains. This essentially requires:

- **Technological Sovereignty:** Comprehensive technological sovereignty across key security and defense sectors requires the systematic development and scaling of critical capacities across all segments of the European ecosystem - from critical raw materials and chip design to manufacturing, advanced packaging and system integration. While growth is required in all areas, strategic priority must be given to those capabilities that are currently entirely missing or underrepresented in Europe.
- **Transparency and Certification:** Establishing seamlessly traceable, trustable and reliable supply chains aiming at the highest European share possible and implementing specific security certifications for hardware and integrated software incl. AI models to eliminate the risk of manipulation.
- **Specialized Innovation:** Address the critical gap in R&D innovation for microelectronics in security / defense contexts. Systematic policy changes must enable dual-use research funding and institutional realignment to unlock this underrepresented field.
- **Programme Alignment:** Strengthening the integration of existing initiatives and programs like ReArm Europe, EDF, PESCO and the ECA 2.0, to accelerate sovereign capability development through aligned procurement, R&D, and funding.
- **Structured Dialogue:** Strengthen ties between semiconductor industry, defense, and politics – e.g. at the national level via the German National Security Council and at EU level via the European Defence Agency – through structured and regular dialogue linking research, industry and security stakeholders at relevant levels.

Conclusion and Necessary Framework Conditions

The existing gaps in the European semiconductor ecosystem are a central security-policy challenge; without addressing them, a credible and robust defense posture is inconceivable. Defense-related technological sovereignty requires optimized framework conditions in addition to the five points addressed above: a targeted talent offensive and the hardening of a shock-proof infrastructure (energy, communication, logistics, etc.).

Against this backdrop, the strategic importance of semiconductors must be firmly anchored in an updated National Security Strategy of Germany. Furthermore, stronger integration of defense and economic policies with existing and forthcoming certification schemes is required to provide trustworthy electronic components for Germany's and Europe's defense needs in an unstable world.