

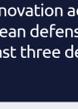
# Code over steel

Why human augmentation is the key to Europe's defense readiness.

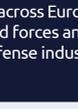
Make it real.

## Europe's defense is at a complex crossroads

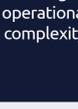
Three constraints are hindering Europe's rapid deterrence



**Underinvestment in innovation** across European defense over the past three decades



**A shrinking talent pool** across European armed forces and the defense industry



**Rising operational complexity**

## In the interconnected, multi-domain future operating environment, software-defined technology will augment human capability

- **Human augmentation** is the primary mechanism for achieving future military outcomes.
- **Human-machine teaming (HMT)** helps to facilitate this by allowing humans to work seamlessly with AI, autonomous systems, and unmanned platforms.
- To scale both HMT and human augmentation across missions, units, and domains, defense organizations need a new architectural and technological backbone: **software defined defense (SDD)**.

### SDD drives six strategic outcomes that will shape the future of European defense

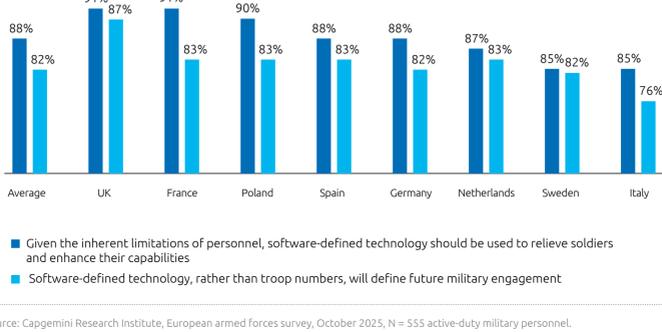
	<b>Operational speed and agility</b>		<b>Industrial strength and resilience</b>		<b>Interoperability across domains</b>
	<b>Decision dominance and information advantage</b>		<b>Cognitive superiority</b>		<b>Rapid innovation and adaptability</b>

## European armed forces share a belief that human augmentation and human-machine teaming must scale now

### Smarter augmentation will define future military readiness

88% of military personnel believe software-defined technology must augment soldier capabilities

% of active-duty soldiers across countries who agree with the statements below

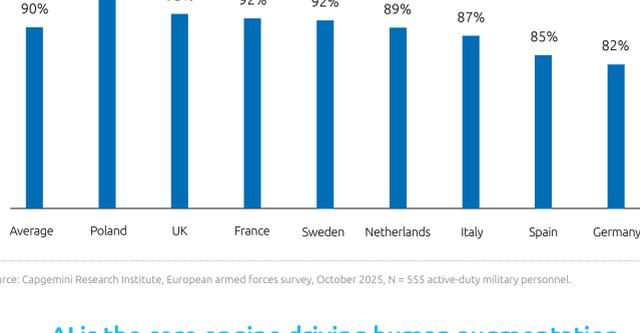


Source: Cappgemini Research Institute, European armed forces survey, October 2025, N = 555 active-duty military personnel.

## Human-machine teaming will be the driving force for deterrence

90% of military personnel believe human-machine teaming will drive battlefield advantage

% of active-duty soldiers across countries who agree with the statement: Human-machine teaming will drive battlefield advantage over the next 10 years



Source: Cappgemini Research Institute, European armed forces survey, October 2025, N = 555 active-duty military personnel.

## AI is the core engine driving human augmentation

90% of military personnel believe AI will be the force multiplier across all military domains

% of active-duty soldiers across countries who agree with the statement: AI will be the force multiplier across all military domains



Source: Cappgemini Research Institute, European armed forces survey, October 2025, N = 555 active-duty military personnel.

## Building on each other's strengths will unlock interoperability and shared learning across Europe's armed forces

Although our research shows that European armed forces share a belief in human augmentation, they do not share the same level of maturity in adopting the relevant technologies.

### Certain armed forces lead the way in augmenting humans within specific technological domains

- France is actively involved in the development of AI
- The UK has significant activity in unmanned and autonomous systems
- Germany is actively modernizing how it trains and upskills its soldiers

### Countries can benefit from the best practices of other European armed forces

## The dual transformation of the defense industry is critical to accelerate human augmentation

First, industry must transform what it delivers and produces. This includes shifting from a platform-centric approach to investing in new and upgraded augmentation-enabled products and business models.

At the same time, the industry needs to transform how it produces those solutions by "self-augmenting." That means using digital and AI tools to augment engineering, development and DevSecOps (development, security, operations), manufacturing, cyber, compliance, and collaboration.

## Despite the clear benefits of AI and data analytics in defense production, implementation remains limited

65% of defense industry executives believe AI and data are critical to augment production ramp-up, but only 14% say their organization uses these technologies extensively

% of defense industry executives who believe the technology is critical to augment production ramp-up and the extent to which they are used for 50% or more of processes today



Source: Cappgemini Research Institute, Defense industry survey, October 2025, N = 178 defense manufacturing and startup executives.

## While current gains from augmentation technologies are limited, future expectations are high

Forecasted productivity gains from critical technologies to augment production ramp-up are set to rise by 2028

Average time savings in defense manufacturing from the technology (2025 vs. 2028)



Source: Cappgemini Research Institute, Defense industry survey, October 2025, N = 178 defense manufacturing and startup executives.

## Defense executives agree that ramping up European production is critical, but it won't happen overnight

85% of defense industry executives agree that European defense autonomy and resilience are critical

% of defense industry executives who agree with the statements



**59%** of executives believe it will take 2-3 years to ramp up production to the level needed to meet the surge in demand coming from Europe

Source: Cappgemini Research Institute, European defense industry survey, October 2025, N = 195 defense manufacturing executives, defense startup executives, and defense investors.

## Four ways Europe's armed forces and defense industry can accelerate human augmentation for future-ready defense

- 1** Build a unified digital backbone to enable human augmentation across the defense value chain
- 2** Strengthen cross-national knowledge transfer and build a collaborative development ecosystem
- 3** Establish an integrated, user-centric development approach between armed forces and industry
- 4** Strengthen absorptive capacity through continuous learning

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