

# Innovation and efficiency: Increasing Europe's defense capabilities

European countries are increasing defense spending in response to regional geopolitical shifts. Critical considerations could help them address constraints, long-term resilience, and collaboration.

*This article is a collaborative effort by David Chinn, Nadine Griebmann, Hugues Lavandier, Rafael Ocejo, Tobias Otto, and Katherina Wagner, representing views from McKinsey's Aerospace & Defense Practice.*



As global geopolitical tensions reemerge after many decades, the security environment in Europe is changing. European countries are once again rebuilding their defense capabilities to ensure their security after three decades of reduced defense spending. While long-term peace and the well-being of their citizens are countries' primary objectives, security has reemerged as a prerequisite. This needs to be addressed with efficiency and effectiveness so that Europe can deploy significant investments into other priorities—such as education, innovation, healthcare, and infrastructure.<sup>1</sup>

Many NATO countries have made commitments to increase their defense spending.<sup>2</sup> European countries have also committed significant support to Ukraine by sending equipment and consumables, or supporting Ukraine in continuing its public services. For example, at the start of February 2024, the European Union (EU) agreed a further €50 billion package of support to Ukraine.<sup>3</sup> While most countries in 2023 have not yet met the stated 2 percent goal for defense spending set by NATO members,<sup>4</sup> McKinsey analysis suggests that over half the European NATO countries will hit that goal in 2025. In addition, NATO is expanding, with Finland joining in April 2023 and Sweden in the process of doing so.<sup>5</sup>

New initiatives continue to progress to increase cooperation on developing military capabilities in Europe, such as the Future Combat Air System and the Main Ground Combat System, while more than 15 European countries have joined forces

as part of the European Sky Shield Initiative to develop a multilayer air and missile defense system.<sup>6</sup> And, in May 2023, joint procurement of ammunition for Ukraine marked a first for member states collectively acquiring defense supplies.<sup>7</sup>

In this article, we look at the impact that the period of reduced defense spending by European NATO countries has had on countries' capabilities, and how increased defense spending plans could affect the European defense supply base. We identify various factors these countries can consider to ensure that their new spending commitments contribute effectively and efficiently to strengthening Europe's defense and security—while guaranteeing the safety of the lives and livelihoods of their citizens.

## The 'peace dividend' era has ended—what's next?

Europe's defense spending since 1992 was lower than previous periods in the past—a cumulative difference of about \$8.6 trillion (Exhibit 1). Our analysis also shows that, over the past three decades, European NATO countries have spent \$1.6 trillion less than they would have had they met the 2 percent of GDP target stipulated by the Alliance. Ten European NATO members (Estonia, Finland, Greece, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and the United Kingdom) were expected to meet or exceed the 2 percent target in 2023, based on official NATO estimates as of July 2023.<sup>8</sup>

---

<sup>1</sup> "Accelerating Europe: Competitiveness for a new era," McKinsey Global Institute, January 16, 2024.

<sup>2</sup> Camille Grand, "Defence spending: Sustaining the effort in the long run," NATO Review, July 3, 2023. For specific examples, see "Bundestag approves the special fund for the Bundeswehr," Deutscher Bundestag, June 3, 2022; *National strategic review 2022*, General Secretariat of Defense and National Security, Government of France, 2022; *Autumn statement*, HM Treasury, November 2022.

<sup>3</sup> "EU leaders agree on €50 billion of reliable financial support for Ukraine until 2027," European Commission, February 2, 2024.

<sup>4</sup> *Defense expenditure of NATO countries (2014–2023)*, NATO Public Diplomacy Division, July 7, 2023.

<sup>5</sup> "An update: Sweden's journey to NATO membership," Allied Command Transformation, January 17, 2023; "Finland joins NATO as 31st ally," North Atlantic Treaty Organization, April 4, 2023.

<sup>6</sup> "Europe's future air combat system: On the way to the first flight," Airbus, December 16, 2022; "KMW and Nexter join forces on main ground combat system," KNDS, June 18, 2020; "European Sky Shield Initiative gains two more participants," North Atlantic Treaty Organization, February 15, 2023.

<sup>7</sup> "EU joint procurement of ammunition and missiles for Ukraine: Council agrees on €1 billion support under European Peace Facility," Council of European Union, May 5, 2023.

<sup>8</sup> *Defense expenditure of NATO countries (2014–2023)*, NATO Public Diplomacy Division, July 7, 2023.

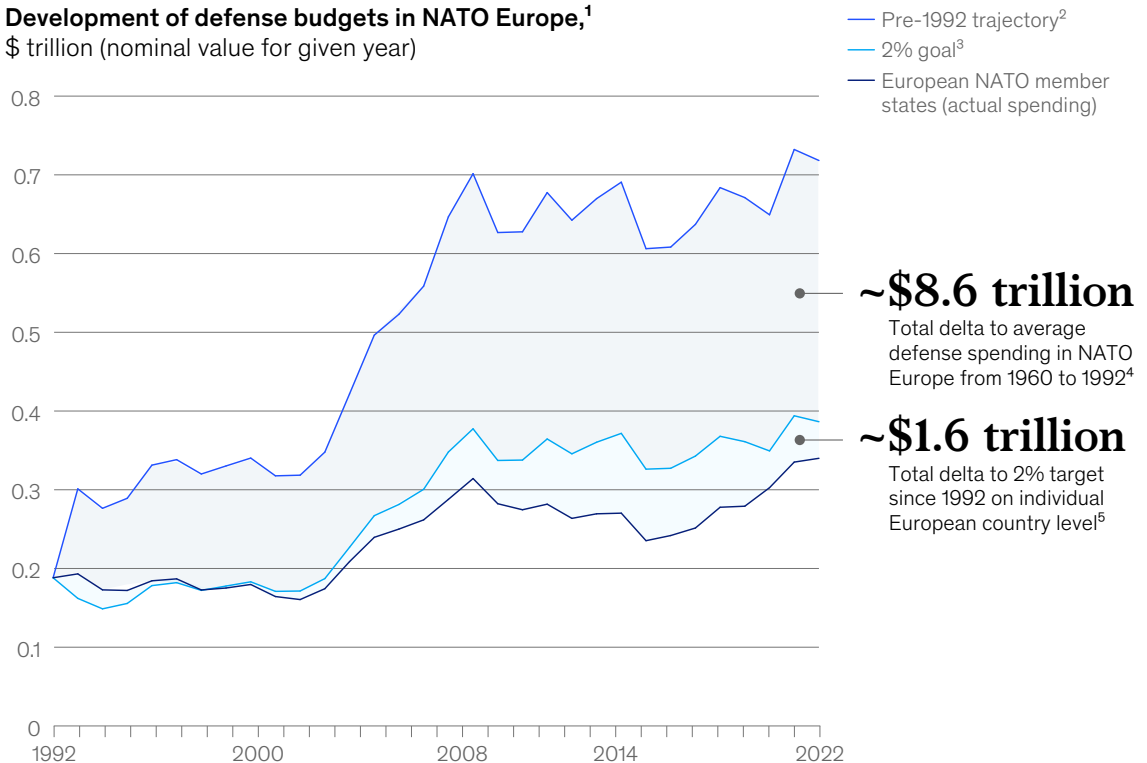
This reduction in spending has come to be known as the “peace dividend.” While the exact magnitude of the effects of the peace dividend has been a subject of public and academic debate, reduced military spending has seen European governments invest more in domestic economic development and health and education priorities.<sup>9</sup> Governments will continue to have to make trade-offs around economic and

security priorities—for example, recent years have revealed new fragilities in European economies and continued investment in a “European agenda for competitiveness” will be required to address them.<sup>10</sup> At the same time, investment in European defense and security capabilities will be necessary as the sector is challenged by new security scenarios.

Exhibit 1

## European NATO member states have spent up to approximately \$8.6 trillion less on defense since 1992.

**Development of defense budgets in NATO Europe,<sup>1</sup>**  
\$ trillion (nominal value for given year)



<sup>1</sup>Values for 2022 NATO estimates; the number of European NATO member states also increased over time and therefore many more countries contribute to the combined budget in 2021 than did in 1992 (examples are Bulgaria, Croatia, Czech Republic, Estonia, Latvia, Lithuania, Poland, Romania, or the Slovak Republic).

<sup>2</sup>Calculated using average of Cold War (1960 to 1992, due to data availability) spend share of ~3.7%.

<sup>3</sup>2% Goal line shown also before 2014—the year of the NATO Wales agreement—for illustrating past spending levels; some countries are meeting the 2% goal but, collectively, it is not met.

<sup>4</sup>As share of GDP.

<sup>5</sup>~\$1.2 Trillion for NATO Europe as a whole due to some countries exceeding the 2% target.

Source: NATO statistics; World Bank

<sup>9</sup> Wuyi Omitoogun and Elisabeth Sköns, “Military expenditure data: A 40-year overview,” 2006 Yearbook, Stockholm International Peace Research Institute, 2006.

<sup>10</sup> “Accelerating Europe: Competitiveness for a new era,” McKinsey Global Institute, January 16, 2024.

The previous period of a lower level of spending has had various impacts on European military capabilities, as our analysis shows:

1. Since 1992, inventories of in-service military equipment have been reduced, in some categories falling by more than half, while modern platforms are substantially more capable and typically more costly than their 1992 equivalents.<sup>11</sup> A direct comparison is hard, but the size of military force that can potentially be fielded or used as a factor of deterrence remains important, even with modern equipment.<sup>12</sup>
2. The availability of major military platforms is lower than the specified target levels, meaning that the number of actual forces that can be fielded is lower than the headline inventory level suggests.<sup>13</sup>
3. In-service systems have a large share of equipment belonging to a generation first introduced about 30, or even more, years ago. For example, in the case of land systems, around 50 percent of total systems in Europe started entering service before 1990; for land-based air systems, this figure is up to 80 percent. In the naval domain, around 40 percent of mine warfare and amphibious vessels, and approximately 50 percent of submarines, stem from equipment generations brought into service before 1990. In the air domain, this accounts for about 35 percent of air systems.<sup>14</sup>
4. A fragmented procurement environment adds complexity to the underlying spending challenge. Further, acquisition decisions are made by individual nations sourcing from a mix of domestic, regional, and global suppliers, with additional specifications to meet local requirements. This increases the risk of inefficiencies and has led to increased diversity in weapons systems across Europe, which may pose challenges to interoperability, joint operations, training, and maintenance (Exhibit 2).

---

<sup>11</sup> "Invasion of Ukraine: Implications for European defense spending," McKinsey, December 19, 2022.

<sup>12</sup> "Joint communication to the European Parliament, the European Council, the Council, the European Economic and Social Committee, and the committee of the regions on the defense investment gaps analysis and the way forward," European Commission, May 18, 2023.

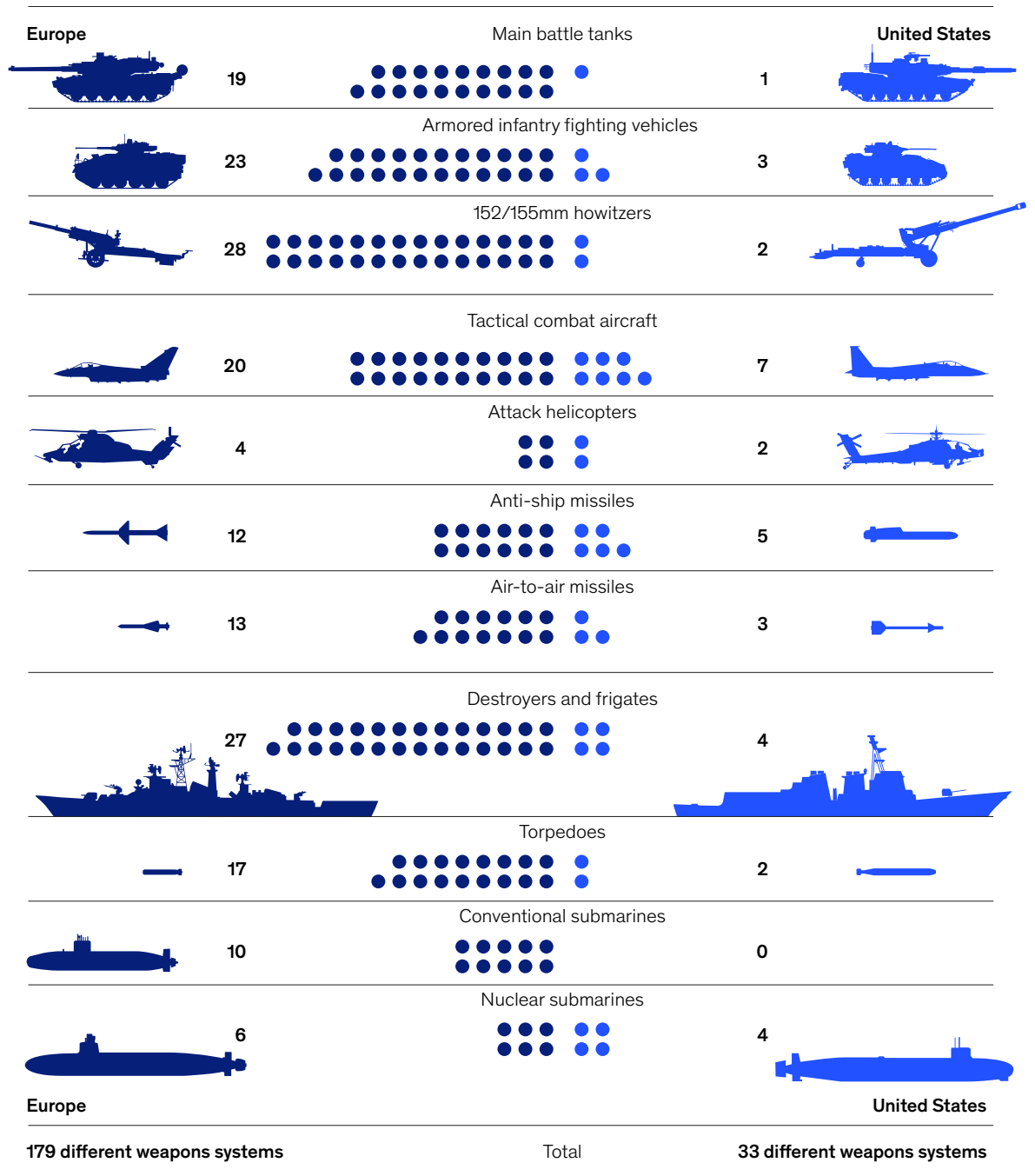
<sup>13</sup> "Invasion of Ukraine," December 19, 2022.

<sup>14</sup> McKinsey analysis, leveraging data from Cirium Fleets Analyzer and *The Military Balance 2023* published by The International Institute for Strategic Studies, among others.

Exhibit 2

## Europe has a fragmented landscape of in-service weapons systems.

Different weapons systems in service, 2023,<sup>1</sup> number



<sup>1</sup>Weapon system categories and grouping partially differ from *The Military Balance 2023* for simplification and comparability with prior versions of the analysis. Source: McKinsey analysis based on data taken from *The Military Balance 2023* published by The International Institute for Strategic Studies (reproduced with permission)

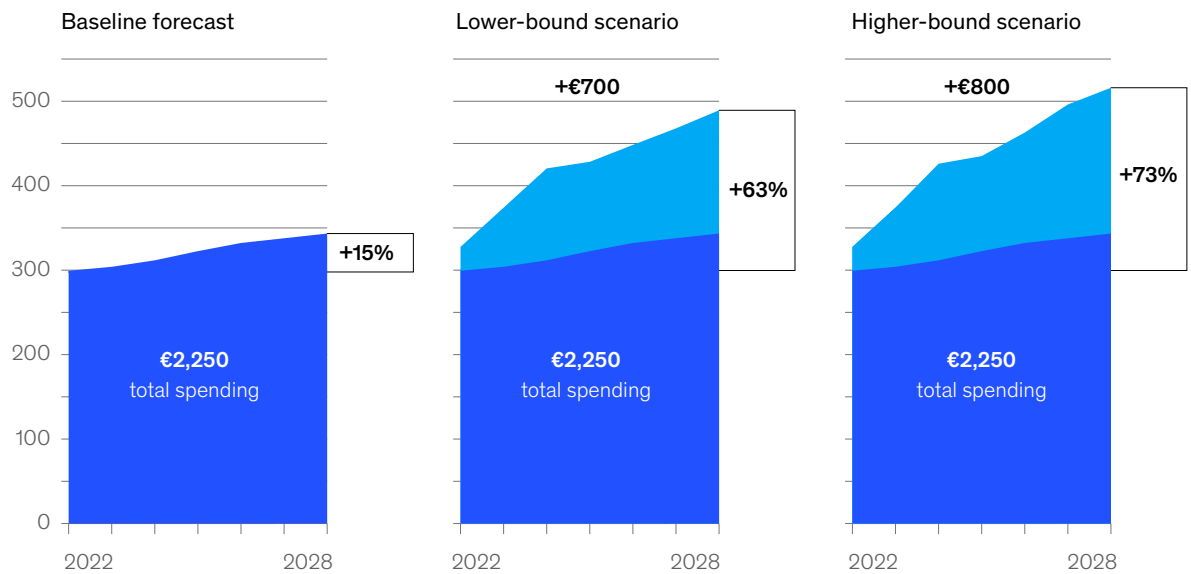
The fragmented approach has resulted in two to three times as many European suppliers competing at the platform level—aircraft, tanks, and ships—compared to the United States.<sup>15</sup> On average in 2021, before the recent turn in defense posture, Europe’s leading defense companies had 30 percent of the revenues of the average US defense company and operating margins were lower by around two to three percentage points.<sup>16</sup> We have found similar analysis on other sectors across the European corporate landscape.<sup>17</sup> Investment into future technologies, measured as a percentage of defense spending allocated to defense R&D, was declining through 2016 before it peaked at slightly above 4 percent in 2021.

At subsystem and component levels, significant fragmentation also shows, for example in areas such as electro-optics, electronic warfare, and aerostructures. With less cooperation and collaborative procurement, there are small program sizes implied, duplication of R&D efforts, and limited economies of scale, which in turn contribute to the comparatively high cost of the European defense industrial ecosystem and might limit also the defense industry’s international competitiveness.<sup>18</sup>

Exhibit 3

**European nations have announced spend increases that could add between €700 billion and €800 billion over seven years.**

**Spending of European NATO countries or member states, 2022–28,<sup>1</sup> € billion**



<sup>1</sup>Our scenarios and modeling cover all European NATO nations, including Turkey. They also include Austria, Sweden, and Switzerland. Source: Government plans and announcements; NATO; McKinsey analysis

<sup>15</sup> McKinsey analysis.

<sup>16</sup> Ibid.

<sup>17</sup> “Accelerating Europe: Competitiveness for a new era,” January 16, 2024.

<sup>18</sup> “European Defence Fund: Questions and answers,” European Commission, June 7, 2017; “The future of European defence,” McKinsey, May 13, 2013.

## Defense spending is to increase

Following the invasion of Ukraine, European NATO member states announced plans to spend significantly more on defense in the coming years.<sup>19</sup> If actual spending stays in line with the latest announcements made by European governments, our analysis estimates that cumulative defense spending could increase by €700 billion to €800 billion between 2022 and 2028; total European spending could reach as much as €500 billion per year in 2028 (Exhibit 3).

While this is a marked increase over previous spending levels, it may not balance out the backlog of three decades of lower volumes of investment. In allocating this additional budget, European NATO partners might have to balance short-term goals—for example, increasing readiness and restoring depleted equipment and supply inventory levels—with longer-term goals, such as investing in future defense capabilities and improving the resilience of supply chains and their industrial base.

Planned investment in future capabilities will likely include a substantial investment in developing disruptive technologies, to be carried out at pace, as well as their integration with the existing inventory.

Procurement procedures and production capabilities that have been used over the past 20 years may not be equipped to meet these rapidly paced priorities.

## Implications for the European defense industry

The invasion of Ukraine may well contribute to defining the future of warfare and how to prepare for it. A conflict of this nature with the scale of consumption of ammunition and advanced weapons has strained global supply capacity. Further, it has reinforced the need to utilize older technologies, such as artillery, and brought to the fore the importance of newer technologies, for example, unmanned aerial vehicles (drones) of all sizes and types<sup>20</sup>; the importance of the cyber<sup>21</sup> and space domains<sup>22</sup>; the power of high-velocity intelligence fusion and dissemination<sup>23</sup>; and the role of electronic warfare and associated countermeasures.<sup>24</sup> Air and missile defense in general remains a critical way to protect military capabilities, civilian populations, and infrastructure.<sup>25</sup>

---

<sup>19</sup> For example, France has announced in its LPM 2024–2030 to spend €118 billion more than in the previous LPM 2019 (“The LPM 2024–2030 definitively adopted by parliament,” Ministry of Armed Forces, July 14, 2023); Sweden has significantly increased defense spending from 2024 to 2026 and believes it will meet the NATO target of two percent of GDP in 2024 (“Military budget initiatives for 2024,” Government offices of Sweden, September 22, 2023); Estonia, after four years of fulfilling the NATO 2-percent goal, decided in 2023 to guarantee a level of at least 3 percent of GDP for the coming four years (“Defense budget,” Ministry of Defense, Republic of Estonia, 2024).

<sup>20</sup> “Strategic compass of the European Union,” Council of the European Union, March 21, 2022.

<sup>21</sup> “EU policy on cyber defense,” European Commission, November 11, 2022.

<sup>22</sup> “EU space strategy for security and defense,” European Parliament, November 2023;

<sup>23</sup> “Enhancing EU military capabilities beyond 2040,” European Defence Agency, September 2023.

<sup>24</sup> Josep Borrell, “Lessons from the war in Ukraine for the future of EU defence,” European Union External Action, May 29, 2023.

<sup>25</sup> “Air defense remains a top priority at meeting on Ukraine defense,” US Department of Defense, September 19, 2023.

In addition, the pace and breadth of technology innovation—military and commercial—has increased since the invasion of Ukraine, leading to the development of dual-use technology that can be used for both defense and civilian purposes, as well as leading to the repurposing of civilian technologies for the military.<sup>26</sup>

Following decades where the European defense industrial base evolved to maintain limited levels of production, we now see examples of companies considering to rapidly expand capacity. Given the share of equipment that has been in service for many decades (including before 1990), defense customers are reportedly looking at industry to increase total capacity, which would enable them to grow stockpiles and allow for the replacement of rapidly ageing equipment.<sup>27</sup>

Beyond this, there is an emerging recognition of the historical strength of the engineering and manufacturing supply chains (both defense and nondefense) across Europe that can be brought to bear, including for imported off-the-shelf equipment. However, Europe will need to find the right balance between rapidly importing off-the-shelf equipment that could be required in the short term to satisfy immediate security needs, and building out domestic capabilities to strengthen the local workforce and ensure the sustainability of its security on the long run.

With this in mind, some governments have been starting to ask for tighter requirements for international companies to directly invest in the domestic industrial base, as well as seeking to apportion a greater share of new spending locally. However, Europe still faces the challenge of how to achieve the required industrial scale to enable lower costs, higher production rates, and resilient industrial organizations.<sup>28</sup>

## **Critical considerations shaping Europe's future defense industrial capabilities**

Considering the scale of the European defense transformation currently underway and the existing constraints, both European governments and the European defense industry alike will need to find ways to address the following questions:

### **Collaboration among players**

- How can defense capacity and capabilities be increased while making the European supply base more resilient, effective, and efficient?
- Which mechanisms for collaboration between countries can most effectively support a ramp-up in capacity in the industry and incentivize collaborative agreements that foster supply chain resilience in all partnering countries?

**Europe still faces the challenge of how to achieve the required industrial scale to enable lower costs, higher production rates, and resilient industrial organizations.**

---

<sup>26</sup> Seth J. Frantzman, "How Israel's military is prioritizing dual-use start-ups to accelerate defense tech," *Breaking Defense*, 2023; Duggan Flanakin, "Making dual-use tech an economic priority," *Global Trade*, December 6, 2023; "President von der Leyen makes call for powering up European defence," *European Commission*, December 1, 2023.

<sup>27</sup> Sebastian Clapp, *Reinforcing the European defence industry*, European Parliament, June 2023.

<sup>28</sup> For critical considerations for Europe overall, see "Accelerating Europe: Competitiveness for a new era," *McKinsey Global Institute*, January 14, 2024.



- Can M&A and alternative collaboration and financing models help achieve scale and resilience in European defense industry supply chains?

### **Skills and capabilities**

- How can the development of leading-edge, military cloud capabilities and infrastructure be enabled, while ensuring interoperability at the European and NATO level?
- How can talent be attracted immediately to the industry or retrained in response to increased demand, and how can they be retained in the long term? How, too, can talent with the skills needed to design, manufacture, and operate future capabilities be nurtured?

- How can long-term investment in defense innovation be enabled?

### **Business model of defense industrials**

- How can new operating models be developed that will be globally competitive on both capability and cost?
- How can low-volume, highly functionalized industrial setups be transformed into high capacity, integrated ones?

Recent geopolitical shifts have led European countries to reassess their defense spending. By focusing on strengthening capabilities at pace, investing wisely, and adopting new technologies to complement existing ones, Europe can enhance the stability of its future defense and security, while ensuring that peace for its citizens remains the most essential prerequisite.

**David Chinn** is senior partner in McKinsey's Tel Aviv office; **Nadine Griebmann** is a client activation senior manager in the Berlin office, where **Katherina Wagner** is an associate partner; **Hugues Lavandier** is a senior partner in the Paris office; **Rafael Ocejo** is a partner in the Madrid office; and **Tobias Otto** is a capabilities and insights expert in the Munich office.

Copyright © 2024 McKinsey & Company. All rights reserved.