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The EU's Defense Ambitions: Understanding the Emergence of a European Defense Technological and Industrial Complex

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Contents

Summary

Is the European Union (EU) about to rise as a defense technological actor on the world stage? According to conventional wisdom, attempts at greater European integration in security and defense were not likely to amount to much, given that such policy fields have long been considered the reserved domain of the EU member states or the North Atlantic Treaty Organization (NATO). This working paper goes beyond this traditional state-centered approach by looking at past and recent institutional efforts to consolidate European security and cooperation on defense industry and technology. Such efforts have continued despite the disruptions caused by the coronavirus pandemic, owing to the bloc's willingness to become a stronger security and defense actor on the global stage.

The timing of this shift was facilitated by a set of circumstances that triggered a new European defense momentum. Contributing factors include the geopolitical pressures of Brexit, an unreliable transatlantic partner in the United States, concerns within European defense industries regarding dwindling national defense budgets and fierce global technological competition in high technology areas, and the European Commission's growing supranational role in security and defense. This impetus was also facilitated by the privileged relationship between various EU institutions, European defense industrial actors, transnational interest and lobby groups, and organized expert bodies. In this respect, the defense industry and high-level expert and interest groups have occupied a central position in shaping EU policy processes, funding priorities, and security and defense research programs.

Such a rapprochement between EU institutional structures and the European defense industry has allowed for the emergence of a so-called European defense technological and industrial complex (EDTIC). This European defense industrial ecosystem encompasses a wider variety of transnational actors beyond the political, military, and industrial groups typically present in national military-industrial complexes. It presents a dense, multilevel network of EU institutions and agencies; security and industrial stakeholders; national public authorities; and interest and expert groups, all of which both compete and cooperate to shape and set policy agendas. However, this rapprochement is also characterized by the absence of strong democratic control mechanisms and little political and public accountability concerning the surge in and direction of the European defense technological and industrial integration process.

These transformations have the potential to make the union a more capable and strategically autonomous global defense technological actor. At the same time, they challenge existing EU democratic governance structures and processes. The EU's security and defense policies remain tough areas for parliamentary scrutiny and democratic oversight. The EU's policymaking institutional machinery has been finely tuned to mediate power, keep things as technical and bureaucratic as possible, and to create package deals for certain defense industrial interests and member states' political agendas.

Yet, for real European integration in the field of security and defense, more political and democratic trust is needed across the continent.

This working paper asks several guiding questions about these issues:

- Why and how did this EU-level and industrial activism in European security and defense research and innovation come about, and what historical, institutional, and strategic dynamics made it possible?

- Who is setting the agenda in these processes, and what are the governance and democratic oversight implications for an emerging EDTIC?

- What research and capability development projects have been prioritized under successive European security and defense research programs? What do they reflect in terms of defense industrial interests' representation and the emergence of an EDTIC?

- Given an increased EU role in security and defense industrial and technological matters, in which direction is the EU headed as a strategically autonomous and global defense actor?

An Alignment of Planets

The past decade has seen a renewed momentum in European security and defense. The December 2013 European Defence Summit ushered in a new era of increased European defense cooperation. Against the backdrop of rising geopolitical turbulence and growing challenges facing Europe on many fronts, the 2016 publication of the European Union's (EU) Global Strategy and a flurry of post-2016 initiatives indicate that the EU's security and defense policy field is undergoing a sea change.

Examples of the EU's expanded ambitions in security and defense policy include the establishment of Permanent Structured Cooperation (PESCO) in 2017, the initiation of the European Defence Fund (EDF) in 2019, and the creation of the Directorate-General for Defence Industry and Space (DG DEFIS) in 2021, to name a few.[1] All of these initiatives will have undeniable consequences for the EU's institutional identity and its political transformation from a purely civilian international actor to a potential military and technological power on the international stage.

Behind these various policy and institutional developments is an EU-led defense technological and industrial policy intended to shore up the European Defense Technological and Industrial Base (EDTIB). The above developments illustrate a metaphorical alignment of planets that created a favorable environment for defense industrial and technological policymaking. Geopolitical pressure on Europe, and on larger EU member states in particular, encouraged them to shore up Europe's strategic autonomy in defense. These circumstances gave the European Commission a window of opportunity to take a more proactive role in

security and defense technological and industrial matters. The EU's lack of domestic investment in defense, coupled with a growing sense of defensive regionalism with regard to the United States, also contributed to this policy environment.

In this post-2016 alignment of interests, high-level European political and policy circles realized that advantages in cutting-edge defense and technological areas help define international influence and strategic autonomy.[2] The defense industry traditionally has been at the forefront of technological research and development (R&D), and European leaders have begun to recognize an increasing nexus between civilian and defense innovation.

Primarily, this trend means that the EU's security and defense policy field has seen an increase in funding and a more proactive institutionalization of both security-oriented and defense R&D in Europe, including in critical dual-use technologies. Although this working paper recognizes that the EU's defense and security policies increasingly are linked with civilian science, technology, and innovation policies, it focuses on the emergence of the EU security and defense research and innovation policy areas.

The overall goal is to understand the roots, evolution, and multistakeholder representation that led to the emergence of a supranational European defense research program.

To be sure, transnational and organized interest and expert groups, such as security and defense corporations and consortia, industry and professional associations, and lobby groups for EU capability-building initiatives and security and defense R&D policies, all have had key roles and influence in this turn of events. Expert and advisory groups contain many different representatives of security and defense industry and EU institutional or security bodies; however, civil or citizen-focused actors, including some members of the European Parliament, national legislative bodies, or nongovernmental organizations, have been largely absent from these groups. This fact undoubtedly raises concerns regarding democratic accountability, as well as the public and political oversight of EU-led security and defense research.

This leads to a big democracy question looming for the EU, especially if the bloc goes ahead with groundbreaking security and defense policy transformations at the EU level. It is unthinkable to continue deep integration in this field without a greater role given to the European Parliament and national legislative bodies at the decisionmaking table. Their voices have either been sidelined or absent in recent debates over where European defense integration is headed. The democratic clock is ticking for the EU to engender a legitimate integration of the so-called European Defence Union. It is high time for the EU to answer the hard questions about the substantive democratic scrutiny of recent defense initiatives.

Asking and answering such questions is not meant to discourage the debate over where the EU is headed as a more military-capable defense actor. On the contrary, the questions should help the EU address uneven representation of interests and perspectives and make the

process more accountable to European citizens. To protect its identity as a power that strives for peace and stability both at home and abroad, the EU will need to become more inclusive and transparent in the field of defense.

Even before the 1990s, the European Commission recognized the need to preserve the European defense industry's edge and competitiveness in strategic sectors. It has pushed for closer coordination between defense industrial players and EU security, for dual-use technological innovation, and more recently for defense research initiatives. Multiple EU policy documents and strategies have singled out the need to preserve the competitiveness of the European defense industry, which has had a growing presence in successive EU-level advisory and expert bodies advising on the European Commission's research and innovation policy agenda. Undoubtedly, the ongoing relationships among the European Commission, defense industrial actors, and trans-European expert and interest groups have affected the creation and the priorities of the EU's security and defense research innovation programs.[3] Overall, these connections have led to a proactive shaping of the direction of policy processes for the benefit of certain stakeholders, as well as the increasing prioritization of dual-use research and capability development projects. These projects, first introduced as part of the EU's Framework Programmes, have been centered on various technological areas including space, border security, maritime surveillance, cybersecurity, and new and emerging technologies.[4]

EU Definition of Dual-Use Items

The term "dual-use items" means "items, including software and technology, which can be used for both civil and military purposes, and includes items which can be used for the design, development, production or use of nuclear, chemical or biological weapons or their means of delivery, including all items which can be used for both non-explosive uses and assisting in any way in the manufacture of nuclear weapons or other nuclear explosive devices."[5]

The extensive influence of security and defense industries or the alignment of EU member states' interest in security and defense matters often are portrayed in the expert literature as the only drivers of recent advances on the EU's security and defense policy agenda. However, the growing communitarization of EU security and defense industrial and research programs also bears considering.[6] The European Commission has helped set much of the agenda in this area. Acting both as a multistakeholder venue and a supranational policy entrepreneur, it has played a significant role in Europeanizing security and defense-related research and innovation policymaking—areas that conventionally have been dominated by EU member states and intergovernmental interests.[7]

Governments traditionally have endorsed and subsidized the defense industry and defense R&D for national strategic interests, yet recently, these areas have faced significant funding cuts.

The historical development of closer European security and defense industrial and technological cooperation is a complex affair.[8] It has involved highly networked and transnational EU-state-industrial relations across various EU institutions and agencies, interest groups, and security and defense industrial actors. It also illustrates member states' increasing willingness to give the EU a more significant part to play in security and defense matters. Given the salience of current debates concerning the EU's defense and technological sovereignty, the costs and benefits of European security and defense research and innovation programs need to be set out in full.[9] Moreover, the contributions of various interest groups and EU institutions also need to be further examined. Linked to this discussion is a broader understanding among member states that the EU's Common Security and Defence Policy (CSDP) needs a new level of strategic ambition, with an awareness of the benefits of establishing a European defense industrial and technological research and innovation policy.

The security and defense policy fields have always been fundamental elements of national sovereignty. Governments traditionally have endorsed and subsidized the defense industry and defense R&D for national strategic interests, yet recently, these areas have faced significant funding cuts. Also, the emergence of a common European approach to security and defense technological and industrial matters has not gone as smoothly as expected. At the same time, the European Commission's expanding competencies in these fields remains a sensitive issue to other EU institutions and member states. This sensitivity reflects long-standing national protectionism related to the high politics of security and defense, and ongoing competition with other EU institutions and agencies, such as the EDA, over the EU's security and defense policy agenda.[10]

The above interrelated developments have all contributed to the EU momentum to proceed on defense industrial and market integration. They provide a link between the why, the who, and the how:

- *Why*: The European defense industry is at the crossroads of military technological development, owing to the lack of national-level investment and unprecedented technological advancements in the civilian sector.

- *Who*: The defense industry has had a growing role in setting EU policy agendas and in shaping security and defense R&D initiatives.

- *How*: The European Commission, and to a limited extent the European Parliament, have a rising supranational role in EU security and defense policy.[11]

Accordingly, this working paper examines the origins of recent policy and institutional developments and their implications for the European security and defense integration process. In doing so, it explores the policy dynamics and the stakeholders' arena, which constitute a new age of governance for the EU's security and defense policy fields.

The paper provides a focused look at the emergence of an EDTIC.[12] It operationalizes the concept of the military-industrial complex in a polemical manner to showcase the complex realignment of economic and strategic interests along various private, public, industrial, and technocratic agendas.[13] This alignment is most visible in the increasing rapprochement between the European defense industry, transnational interest groups, organized expert bodies, and EU policy and decisionmaking venues such as the European Commission and the European Parliament.[14] This is the main research focus of the working paper. In this respect, the analysis employs the concept of the EDTIC as part of a critical goal: namely, to describe the complex interlocking among institutional and industrial groups at the EU level.[15]

Significantly, the EDTIC differs from more traditional formulations of military-industrial complexes in two ways. First, it encompasses a wider variety of actors beyond political, military, and industrial groups. It includes EU member states' institutional authorities, supranational institutions, EU agencies, industry and transnational interest groups, and independent experts. This working paper particularly zooms in on the growing relationship between various EU institutions and defense industrial players, giving less attention to the role of the EU member states and military structures. Second, it addresses the unique dynamics within the EU's institutional landscape and decisionmaking. Indeed, the EU defense industrial ecosystem has many complex and sometimes contradictory processes at play in both its cooperative and competitive efforts.

The EDTIC further presents a dense, multilevel, decentralized network of competing and cooperating EU institutions and agencies, national public authorities, and security and industrial stakeholders. Participants in this public and private multistakeholder landscape regularly share technical and scientific knowledge as well as practical industrial and market experience. Industrial players equally compete on the EU and global defense markets and cooperate within multinational procurement programs. European industrial, national, and EU institutional stakeholders have been converging on various expanding European security and defense technological and industrial initiatives, as well as defense research and innovation projects. That said, the recent quest for European strategic autonomy and technological sovereignty, including in terms of the EU's defense identity-in-the-making, is particularly problematic. In particular, the EU lacks transparency, has little substantive public debate, and falls short on political accountability concerning the surge in European defense technological and industrial integration.[16]

European industrial, national, and EU institutional stakeholders have been converging on various expanding European security and defense technological and industrial initiatives, as well as defense research and innovation projects.

Some academic scholarship has focused on the emergence of a European security and defense research program and the role of expertise in shaping policy priorities.[17] This topic has been less covered in specialized policy analysis. Rather, the main areas of scholarly review have been the procedural dimensions of recent EU initiatives in security and defense matters, their efficiency and effectiveness, and their broader implementation potential. This state of affairs is puzzling because current European security and defense integration policies have come out of a deep and often problematic enmeshment between EU security and defense and civilian technological innovation policies. It is not easy to capture such entanglements or unpack their significance. By building on existing research exploring the origins and the development of the European security and defense research and innovation programs, the paper aims to contribute to an emerging body of work dedicated to recent developments in EU security and defense cooperation.

The following sections will look more closely at recent programs, namely the security-related strands under the EU's Framework Programmes for Research and Technological Development, followed by the EU's first Pilot Project in the field of defense research (2015–2018), the Preparatory Action on Defence Research (PADR) (2017–2019), the European Defence Industrial Development Programme (EDIDP) (2019–2020), and the EDF (2021-2027). All these initiatives have been test cases in demonstrating the importance of defense-related research at the EU level. Indeed, what projects and technologies have been prioritized under such defense-specific research and innovation initiatives, and who set the agenda in spearheading them?

EU Framework Programmes

The European Union's Framework Programmes for Research and Technological Development (Framework Programmes, abbreviated FP1 to FP9), are funding programs created by the EU and managed by the European Commission to support and foster research in the European Research Area. Starting in 2014, the funding programs were named Horizon, namely Horizon 2020 (2014–2020) and Horizon Europe (2021–2027).

The working paper is divided into three main sections:

- The first section ("The Why") establishes the European defense technological and industrial agenda as a topic of policy analysis and briefly covers recent policies and initiatives and the ways in which various stakeholders have framed them. It focuses on the critical role played by the European Commission, European defense industrial actors, and organized interest and expert groups. Within the scope of the analysis, less attention is given to the role of member states.

- The second section ("The Who") traces and signifies the influence of such stakeholders and their vested interests through their presence in EU-level expert and interest groups and in their efforts to shape the priorities of European security and defense research and innovation programs. These influential groups often are active in the critical preparatory or early stages of policymaking or the launch of certain programs, acting both as sounding boards and laboratories of thought leadership for co-shaping policy agendas. This section pays special attention to the policy milestones and historical developments of the EU's security research strand under the Framework Programmes, which paved the way for the EU's defense research strand under the EU budget.

- The third section ("The How") draws from and contributes to the growing literature on the softening of intergovernmentalism within the EU security and defense policy domains.[18] It offers insights into supranational, intergovernmental, and industrial dynamics in the EU's policy processes. Based on progress made under the EU's security research program, it explores the launch of the European Commission's EDF and its precursor programs and several selected subordinate projects.

In terms of methodology, the paper uses content and historical analysis to highlight significant moments in the growing supranationalization of security and defense technological and industrial research. The analysis references relevant official documents, key texts, and expert and policy reports to illustrate the ways in which EU institutions and organized interest groups have framed policy choices that led to hybridization between EU civilian research and technology programs and security and defense.

In short, the above sections and the conclusion will reflect on the governance of the emerging EDTIC and the direction of the European security and defense integration process. The analysis will then explore the potential challenges that may arise from issues related to the transparency and political oversight of recent EU-level security and defense R&D initiatives.

The Why: The EU Defense Technological and Industrial Agenda and Why It Matters

The EU's Strategic Autonomy in Security and Defense

In the years since the 2013 European Council proclaimed that "defence matters" to Europe, the EU has experienced a new momentum in defense cooperation.[19] After decades of reduced national defense spending in the post–Cold War era—a decline exacerbated by the 2008 global financial crisis—the EU and its member states have been under pressure to coordinate defense policies, spending, and procurement at the EU level. In this regard, in recent years defense industrial efforts have tended to go beyond the basic objectives of the CSDP.

Since its creation, the CSDP has been tailored mainly for low-intensity crisis management missions and operations abroad. However, strategic autonomy in defense technological and industrial matters has been framed as the European potential to broaden the strategic and mission spectrum and deal with all kinds of emerging threats. How can the EU potentially justify military capability development if the equipment will never be used for the low-level missions that would fall under the purview of CSDP? European defense industries would benefit if the EU were to broaden its strategic and mission spectrum beyond the CSDP.

Unsurprisingly, the current generative moment in European defense integration has been unfolding against the backdrop of rising geostrategic risks, increasing instability in the EU's neighborhood, great power rivalry, a fierce global race in technological innovation, and (recently) the effects of the coronavirus pandemic.[20] Such structural challenges have presented a window of opportunity for a new working ethos between EU institutions, security and industrial players, and member states, one that would strive for more security and defense cooperation in high-politics areas.[21] This is a notable change from the EU perspective, as security and defense matters traditionally have been the exclusive prerogative of national sovereignty and operate under intergovernmental decisionmaking within the EU, rather than the supranational approach taken in other areas (see table 1).

Creating a more coherent and integrated EU security and defense vision is part of a broader effort to mitigate new security and hybrid threats emanating from an ever-more competitive geopolitical context and evolving technological trends. The goal is to find feasible solutions for improving the EU's role as a security provider, both in its member states and in the world.[22] The recent launch of multiple European security and defense policy and institutional initiatives indicates a shift in the relatively slow process of creating a common defense consciousness and a shared security and defense R&D and innovation culture at the EU level and among member states.

Table 1. Approaches to the European Integration Process

Supranationalism	*Intergovernmentalism*
EU member states formally transfer certain rights or parts of their sovereignty to supranational authorities in the EU in specified policy areas, to make supranational binding decisions in their legislative, executive, and budgetary procedures.	EU member states cooperate on the (inter-) governmental level without formally questioning parts of their sovereignty or limiting the execution of their sovereign rights.
For instance, the European Commission is a supranational EU institution.	For instance, the EU's Common Foreign and Security Policy (CFSP) and CSDP operate on an intergovernmental basis. In defense industrial policy, the EDA is a similarly intergovernmental institution.

Various policy documents have pointed out that for the EU to become a more strategically autonomous global defense actor, it will need a stronger European defense industry and market—one that can fill military capability expectations gaps for the CSDP—and increased spending on frontier security and defense research and innovation.[23] To safeguard Europe's independence and to protect its way of life and values—whatever this formulation might entail, in normative identity terms—its strategic autonomy in security and defense technology matters will be of vital importance. Since the early 2000s, the European Commission has been crafting a legitimation narrative for this trend. It has emphasized the advantages of pursuing a more coordinated EU-level security research program, encouraging Europe to take advantage of its technological strengths and the potential opportunities offered by new technological trends (emphasis added):

> Civil, security and defence applications increasingly draw on the same technological base—creating **new synergies between different research sectors**. Using **technology as a "force enabler"** for a secure Europe requires state-of-the-art industries, a strong knowledge infrastructure, appropriate funding and an optimal use of resources. Europe has high quality research institutes and a substantial and diverse industrial base from which to address technology requirements in the security domain. However, structural deficiencies at the institutional and political level hinder Europe in the exploitation of its scientific, technological and industrial strength. **The dividing line between defence and civil research**; the absence of specific frameworks for security research at the EU level; the limited cooperation between Member States and the lack of coordination among national and European efforts—all serve to exacerbate the lack of public research funding and present major obstacles to delivering cost-effective solutions.[24]

The recent launch of multiple European security and defense policy and institutional initiatives indicates a shift in the relatively slow process of creating a common defense consciousness.

Looking back on the past decades, considerable efforts have been made to put forward a pragmatic approach to European security and defense research and innovation.

The above text is as relevant in 2021 as it was when it was published in 2004. Ultimately, by "creating new synergies between different research sectors" and "between defence and civil research," previous and current thinking has supported efforts to enhance civil-military innovation and to deepen cross-border European security and defense technological and industrial integration.[25] Such a mindset would likely inject new life into the European political project, as it emphasizes an alignment of goals. Member states have been asking for political (and financial) investment at the EU level. At the same time, the European Commission has stressed greater efficiency and market regulation for security and defense spending. As mentioned earlier, this alignment of the planets has come at a much-needed time for European security and defense initiatives.

Looking back on the past decades, considerable efforts have been made to put forward a pragmatic approach to European security and defense research and innovation. The goal was to set the stage for a common vision of European strategic autonomy in security and defense, as well as civilian technology research and innovation programs—and, moreover, to link the two policy fields at the EU level. The initial goal for such efforts was to retrofit the CSDP with credible military equipment and to fill in capability shortfalls. As the December 2013 European Council Conclusions stated, "defence matters"—an expression that helped trigger renewed European defense cooperation after years of relative stagnation.[26]

Increased European defense technological and industrial integration also was felt to be a key instrument to achieve greater security and defense policy cooperation within the EU. The wording of the 2013 European Council Conclusions is revealing in this respect (emphasis added):

> The European Council calls on the Member States to deepen defence cooperation by improving the capacity to conduct missions and operations and by **making full use of synergies** in order to improve the development and availability **of the required civilian and military capabilities**, supported by a more integrated, sustainable, innovative and competitive European Defence Technological and Industrial Base (EDTIB). . . . **Civilian and defence research reinforce each other**, including in **key enabling technologies** and on energy efficiency technology. The European Council therefore welcomes the Commission's intention to evaluate how the results under **Horizon 2020 could also benefit defence and security industrial capabilities**.[27]

Civil-Military Synergies and Dual-Use Technological Innovation

Economic justifications often have been advanced to highlight the commercial payoffs of dual-use research and innovation—especially in the case of made-in-Europe drone

technologies—in order to retain the EU's and the defense industry's competitiveness and expertise in "critical defense technologies."[28] In European political and policy circles, more key players have come to believe that market and high-tech solutions, such as key defense and enabling technologies, are silver bullets for solving both contemporary internal and external security problems. The same rationale is associated with preserving Europe's economic competitiveness and technological future. For instance, as early as 2013 the next-generation European Medium Altitude Long Endurance Remotely Piloted Aircraft Systems (RPAS) were singled out as a critical capability and technology area for dual-use R&D funding opportunities, in order to maintain niche expertise and skill sets for the European defense industry (see table 2).[29]

One of the priorities that came out of this line of thinking was to capitalize on a stronger and more competitive defense industry and market, particularly in the context of civil-military synergies and dual-use technological innovation.[30] All were considered as crucial metrics of success and supremacy in today's global power competition. This approach also aimed to exploit the EU's integrated market powers and to extend them to defense. The abovementioned wording on civil-military research synergies from the 2013 European Council Conclusions, for instance, was an unprecedented shift in rhetoric and strategy in the sense that it specifically considered the EU financing machine for defense industrial R&D. It represents a legitimizing narrative to move beyond the funding constraints under the EU Framework Programmes.

> In European political and policy circles, more key players have come to believe that market and high-tech solutions, such as key defense and enabling technologies, are silver bullets for solving both contemporary internal and external security problems.

Table 2. European Defense Industrial Priorities: From Competitiveness to Dual-Use Research

Ensure sustainability and competitiveness of Europe's defense and security industry	Retain defense research & technology (R&T) expertise, especially in critical defense technologies
Support a stronger, more integrated, and innovative defense technological and industrial base	Focus on dual use, civilian and defense research, including in key enabling technologies
Develop the necessary skills identified as essential to the future of the European defense industry	Develop Remotely Piloted Aircraft Systems (RPAS)

Source: European Council, "Conclusions, 19/20 December 2013," December 19, 2013, https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/140214.pdf.

> **The 2016 Global Strategy emphasized that a sustainable, innovative, and competitive European defense industry is essential for Europe's strategic autonomy and for ensuring the credibility of the EU's CSDP.**

Traditionally, the EU has been constrained in using funding from the EU budget and the Framework Programmes to finance military-related activities directly. This is due to the legal requirement that the EU treaties prohibit any "expenditure arising from operations having military or defence implications."[31] Previously, the EU budget could finance only dual-use projects. Yet, the reality is that these constraints have not prohibited major European defense industrial players from benefiting from such funding programs under the Multiannual Financial Frameworks (MFFs), which do not exclude the financing of R&D for dual-use technologies. The result has been an increased focus on dual-use technologies in the Framework Programmes and the increasing hybridization of civilian, security, and defense research.[32]

Following the 2013 European Council Conclusions, the 2017 State of the European Union address of the former European Commission president Jean-Claude Juncker further reinforced the slogan "defence matters" by proposing the creation of a fully-fledged European Defense Union by 2025.[33] In this regard, the presentation of the EU's "Global Strategy for the European Union's Foreign and Security Policy" by former high representative for foreign affairs and security policy Federica Mogherini, as well as the post-2016 defense initiatives, appear as important milestones in the expansion of European defense cooperation. The timing of the Global Strategy is also significant given the departure of the United Kingdom from the EU, considering that the United Kingdom—one of the EU's two major military powers alongside France—held an ambivalent position concerning EU defense integration. Although the British traditionally opposed a supranational EU defense operational structure that would rival NATO, it generally was willing to collaborate on arms programs, as British defense firms supported EU market integration in defense.[34]

The 2016 Global Strategy emphasized that a sustainable, innovative, and competitive European defense industry is essential for Europe's strategic autonomy and for ensuring the credibility of the EU's CSDP. Thus, a top priority for creating the so-called European Defence Union was the maintenance of a competitive EDTIB, to be achieved by improving defense research, technology, and capabilities gaps; streamlining the military expenditure of member states; and focusing on the development of future-oriented, high-end security and defense technologies.

The State of Play Since 2016

From this point of view, both EU member states and different EU institutions and agencies, such as the European Commission, the European Parliament, and the European Defence Agency, came to regard the European defense industry as an indispensable partner in safeguarding European security and defense priorities and autonomy in high-technology areas.

They also viewed the defense industry as essential to consolidating the EU's international standing as a global defense actor and as a leader in technological innovation. This realization carved out a new role for the EU and especially the European Commission to support defense research and to now become the biggest investor in collective defense research and technology in Europe.[35]

Supporting the EU's Global Strategy was a series of initiatives, such as the Implementation Plan on Security and Defence and the European Defence Action Plan: Towards a European Defence Fund, which involved tangible actions and tools to promote cooperation and investment in the joint R&D of defense technologies. In particular, the member state–driven PESCO (which now numbers, at the time of writing, sixty ongoing and joint capability projects) and the European Commission's EDF have been designed to allow the EU and member states to become more strategically autonomous with regard to operational readiness in crisis management and the development of a coherent full-spectrum force package.

Although the analysis of PESCO projects is beyond the scope of this working paper, the EDF and its precursor programs are worth further consideration. Also noteworthy is the fact that EU leaders have framed the European Commission's EDF as a potential game changer for European defense cooperation.[36] The EDF is expected to contribute significantly to Europe's strategic autonomy and to promote cross-border defense collaboration among EU member states and European defense companies to foster innovation and develop state-of-the-art technology and products.[37] The commission does not consider the EDF a defense policy, in and of itself, but rather a research and technological-industrial one. The EDF symbolizes an unprecedented turn toward supranational governance transformation that makes defense funding under the EU budget a reality. In this latest surge of defense supranationalization, most notable is the creation of the new DG DEFIS and the consolidation of the commission as a nontraditional defense actor to manage and implement the EDF.[38]

That said, this turn toward supranationalization cannot be easily reconciled with the fact that the governance EDF is subject to a "double comitology system," through which member states retain influence in the form of a "work programme committee" composed of member-state representatives.[39] The EDF regulation also provides that the EDA and the European External Action Service, the diplomatic service of the European Union, are invited as observers to the meetings of the committee. Yet, the EDF also presents some structural obstacles when it comes to meeting the criterion of inclusiveness in cross-border projects and in the building of consortia. In this respect, due to the fact that the EDF has very short deadlines for the calls for the projects and the complexity of programs, it privileges consolidated defense market players that can tap into previously established networks to build partnerships to the detriment of new players.

The EDF is expected to contribute significantly to Europe's strategic autonomy and to promote cross-border defense collaboration.

Overall, if successfully managed and implemented, the EDF is expected to boost the European Commission's agenda-setting power in the field of defense by supporting more lucrative joint investment schemes in cutting-edge technologies and their research and innovation. According to Article 4 of the EDF regulation, the European Commission enjoys an important margin of flexibility in attributing budget reallocations between research and development activities and in the attribution of awards and the drawing up and steering of the work programs. What actually matters is the fact that the EDF truly represents a fundamental change in the European defense communitarization process. Namely, this financial instrument marks an important shift in the commission's institutional role as an empowered, nontraditional defense actor, accounted for by an increased activism on its part in the defense technological and industrial field, as well as a strong intervention on a sector that was the exclusive preserve of the intergovernmental method and member states.

Yet despite the overall EU strategic direction already enshrined in the 2016 Global Strategy and the many subsequent R&D capability initiatives, EU member states still do not share a common assessment of geopolitical threats and challenges. In other words, Europe does not as yet have a common strategic culture. In this regard, the start in 2020 of the two-year process to develop "an ambitious and actionable Strategic Compass, making best use of the entire EU toolbox" for the EU's security and defense policy further signals a deeper strategic reflection process, adding a new layer to European defense integration.[40] The Strategic Compass, slated to be delivered in the first semester of 2022 under the French EU Council presidency, will highlight the need for a long-overdue (geo)political assessment of common political and strategic objectives, as well as a Europe-wide and shared threat landscape to better link the EU's strategic, operational, and capability needs in a competitive international context with fast-evolving technological developments, such as emerging and disruptive technologies. The compass also marks the EU's first proactive formulation of a common threat analysis, one that can provide political guidance for the future of military planning processes. It will enable the EU to find agreement on regional priorities, such as the East versus the South (meaning, Russia versus North Africa). This prioritization will be good news for the defense industry, which can sell low-intensity security equipment for border and crisis management in the Global South and high-intensity armament for threats emanating in the East.

The pressure to deliver on these developments is high. It is also indicative of an unprecedented policy shift to engineer more defense integration through synergies between European security and defense industrial and technological initiatives, future-oriented security and defense research programs, and state-of-the-art joint military capability developments. With the EDF, it will no longer be taboo to spend EU money on defense capabilities and their R&D. EU institutions and agencies have begun to gear up to fully embrace their new role in defense matters, with the European defense industry taking center stage in the EU's and member states' drive for more strategic autonomy in defense by filling in dual-use and military capability gaps. As the 2013 European Council Conclusions noted (emphasis added):

Europe needs a **more integrated, sustainable, innovative and competitive defence technological and industrial base (EDTIB)** to develop and sustain defence capabilities. This can also enhance its **strategic autonomy** and its ability to act with partners.[41]

The Role of the European Defense Industry

The European defense industry consortia have played a leading role in influencing EU capability development initiatives and in establishing the parameters of EU security and defense R&D policies.[42] This is unsurprising, as states have long viewed the existence of strong and competitive defense technological and industrial bases as strategic and military advantages in both peace and war. For the EU, and especially for the European Commission, the challenge has been to Europeanize defense research and innovation and to regulate the European defense industrial market and technology base.[43] In particular, it would have to address the defense costs of "non-Europe"—that is, the costs of operating at a national rather than a European level.[44] It also would need to consider the problems of duplication and fragmentation of expensive capability innovation and production, as well as mitigate dwindling national investments in defense R&D and R&T. Technically, defense procurement is subject to the common provisions of European procurement law, as provided in the Treaty on the Functioning of the European Union (TFEU) and Directive 2009/81/EC. However, EU member states regularly refer to the exception provided by Article 346 of the TFEU, which permits the states to take necessary measures to protect essential security interests, even to the point of not respecting the Common European Procurement Law. The cost of "non-Europe" in defense is thought to range from 130 billion euros (nearly $148 billion) at the higher end to at least 26 billion euros (over $29 billion) in more conservative calculations.[45] The other challenge is for EU member states to accept the limitations of their respective domestic industrial bases in terms of declining R&D and procurement budgets and to ensure global competitiveness through regional cooperation and cross-border armament cooperation.

Owing to its specialized expertise, resources, and experience in working closely with EU member states and national supply chains, as well as the long history of the European arms programs such as the Eurofighter combat aircraft and the A400M military transport aircraft, the European defense industry saw opportunities in cooperative frameworks. It was well positioned to translate security and defense objectives and interests into technological R&D policy outputs at the EU level. This functional relationship is most visible in the work of the European Commission and major defense industries and weapons manufacturers toward the emergence of European security and defense research programs such as:

- the European Security Research Programme (ESRP) and the funding of dual-use technologies as part of the Seventh Framework Programme (FP7) from 2007 to 2013,

- the security research strand under Horizon 2020's Secure Societies Challenges from 2014 to 2020, and

- the emergence in 2016 of the European Defence Research Programme, a new defense policy "game changer."[46]

Greater EU involvement in defense procurement, as well as support for a stronger EDTIB, appear all the more necessary as geostrategic rivalry evolves and as the economic aftereffects of several crises continue to shape security and defense research and innovation spending in Europe. One key structural problem for the European defense industry is that it is currently underspending on R&D, in relative terms: aerospace and defense companies spend less on R&D as a percentage of revenue than either software or tech companies do. In 2017, Amazon became the world leader in R&D expenditure, ahead of Alphabet (Google's parent company) and Intel.[47] Along with Apple and Microsoft, these companies spend billions of dollars on R&D. Amazon alone spends more on R&D than the entire global aerospace and defense industry. Over time, these developments may erode the defense industry's market position.

The industry's workforce also poses a future challenge, as much of the defense contracting workforce is made up of older workers nearing retirement. This phenomenon, called "segment retreat," is a common pitfall for mature industries in which market leaders choose not to compete with new entrants in noncore segments.[48] The defense industry is in danger of lagging behind in new and emerging technologies and losing future market share. Young talents in information technology and engineering are equally more attracted to the civil sector and the technology platform companies, which ensure higher salaries and a more stimulating working environment.

Overall, EU-level rhetoric has advocated for a European supranational brand of defense and a more hawkish EU posture in international affairs, with the European defense industry playing a key role. European Commission President Ursula von der Leyen has called for a "geopolitical" commission.[49] The High Representative of the Union for Foreign Affairs and Security Policy and Vice-President of the European Commission Josep Borrell has stated that the EU needs to "learn the language of power" and create more strategic autonomy in defense to ensure industrial, technological, digital, and economic independence.[50] The EDF is also part of the von der Leyen commission's priority for a "stronger Europe in the world."[51] But to understand how such rhetoric has become commonplace in Brussels, the broader history and dynamics behind the consolidation of an emerging EDTIC are well worth considering.[52]

> **EU-level rhetoric has advocated for a European supranational brand of defense and a more hawkish EU posture in international affairs, with the European defense industry playing a key role.**

The EDTIC can only be viewed properly through a historical lens. Most of the contacts among industry, member states, institutions, and interest and expert groups have developed and consolidated over the years. How exactly is the exercise of power and agenda-setting diffused among myriad institutional and industrial stakeholders, and who stands to gain? The next section will provide a more focused analysis on the emergence of the EDTIC, tracing key initiatives and developments back to the early 2000s and earlier. It highlights the role played by defense industrial stakeholders in high-level and expert advisory groups, illustrated with case studies of projects under various funding schemes.

The Who: Actors and Processes in the Origins of a European Security and Defense Industrial Strategy

The Early Days of European Security and Defense

This section traces the building blocks of the European security and defense industrial agenda that has been emerging at the EU level. Since at least the 1990s, security and defense industrial issues have been part of the balancing act between the intergovernmentalism favored by member states and the gradual supranationalization of the security and defense policy fields. Yet from 2016 onward, most EU member states have come to support greater supranationalization. Potential reasons for this shift in opinion include the prospect of greater efficiency in terms of more agile governance structures at the EU level, the financial incentives to be part of collaborative defense projects, and the political push of the larger member states and key political figures such as French President Emmanuel Macron and German Chancellor Angela Merkel—most notably in the wake of the 2016 Brexit referendum in the United Kingdom.

What is more, since at least the 1990s, the European defense sector has been subjected to globalization processes, the emergence of transnational defense markets and structures, and the growing complexity of military technology. In other words, advancements in electronics, engineering, and material sciences have made the components of major weapons systems far more sophisticated, causing military platforms to expand into "systems of systems." This growing complexity has not been lost on member states, which have always strived to protect and maintain their national defense technological and industrial bases. These bases have played and continue to play a fundamental role in national strategic autonomy, with

Member states' protectionism of these technological and industrial bases has become more unfeasible, owing to high budgetary burdens and defense R&D costs and exacerbated by inefficiencies, fragmentation, and duplication in arms production across Europe.

elements such as security of supply, the benefits of military and industrial innovation, and domestic jobs creation. Yet over time, member states' protectionism of these technological and industrial bases has become more unfeasible, owing to high budgetary burdens and defense R&D costs and exacerbated by inefficiencies, fragmentation, and duplication in arms production across Europe.

Given such transformations, a broader exploratory analysis is needed to fully capture the complexity of the policy processes and the institutional dynamics in the development of an EU-level security and defense industrial strategy. As indicated in the previous section, the specialized policy literature typically points to the watershed years of 2013 or 2016 as the points where renewed and enhanced European security and defense cooperation became more prominent. Nevertheless, recent academic work indicates that a particular vision of a European security and defense industrial policy has deeper historical roots.[53] The push for European security and defense research and innovation can be traced back to the 1960s, when several initiatives helped crystallize the European vision on technology innovation and defense industrial matters. Such historical origins have been linked to the dual desire to mitigate technology gaps and dependencies with regard to the United States and to harness the benefits of military R&D for civilian purposes.[54]

Significantly, the quest for the creation of a European military-industrial complex and security and defense technological transformation in Europe has a history that predates the EU's CFSP and CSDP. The first attempts to build more European solidarity and awareness around the salience of collaborative armaments and industrial projects can be traced through specific security and defense industrial developments. These developments include specific calls and recommendations issued by various EU institutions, the creation of ad hoc advisory groups, high-level expert panels reuniting public and private interests, and interest groups representing the European security defense industry, as well as various European security and defense industrial and research programs.[55]

A common European foreign, security, and defense policy, emphasizing the need for a shared industrial policy on manufacturing armaments, was first mentioned in 1976 by then Belgian prime minister Leo Tindemans in his report and recommendations to the European Council.[56] The Tindemans report also advocated for the establishment of a European Armament Agency, and it was followed by the commission's recommendation to establish a jointly organized European Military Aircraft Procurement Agency.[57] Even though

the Tindemans recommendations were not implemented at the time, they helped shape a common European vision on potential steps in the European security and defense integration process. The Tindemans recommendations were followed in 1979 by the publication of the Klepsch Report, which called for more European autonomy in defense and a "two-way street" in transatlantic arms trade. It also proposed a common European industrial policy for the development and production of conventional armaments.[58]

A more tangible outcome from the above initiatives was the creation of the Independent European Programme Group in 1976— called "independent" principally to symbolize a desire to reach European technological autonomy from the United States and reduce defense industrial dependencies in the transatlantic alliance. The Independent European Programme Group was envisioned to serve as a forum for developing policy frameworks covering the advancement of efficiency in European armaments R&D with a view to strengthening and rebalancing defense industrial and technological integration between the United States and Europe. Movements such as these indicate that EU institutions have long been interested in forging an independent and European defense industrial and R&D strategy, as well as enhancing cooperation in equipment research, development, and production.

The Formation of the Kangaroo Group

In 1979, a multistakeholder group of members of the European Parliament (MEPs), commission and council representatives, influential business and defense industrial actors, and academics came together to form the Kangaroo Group. The motto of the group is "free movement and security."[59] It styles itself as an association with the goal to "enhance European unity around the pursuit of common projects."[60] Its main goals are the full implementation of the internal market, the stability of the euro, and a common European security and defense policy. It is open to representatives of the European institutions, academia, the media, the defense industry, and the business community who are interested in fostering these goals. The group has remained an influential organization to this day, bringing together MEPs, business and industry actors, and academics who are interested in EU defense industrial and research matters.[61]

The Kangaroo Group was formed by a group of influential MEPs, including Karl Von Wogau, Basil de Ferranti, and Dieter Rogalla, who felt that the European community should first regain its capacity to act and to realize common projects before turning toward major new goals. The name "kangaroo" was chosen when Dieter Rogalla wore a kangaroo badge at an early meeting of the group after returning from Australia.[62] The kangaroo seemed like an appropriate symbol for the group, owing to its ability to take great leaps forward over any boundaries and with an empty pouch—all characteristics that fit the community at the time.

In addition to its political members, the Kangaroo Group currently counts defense industry representatives from the following organizations:

- The Safran Group, an international high-technology group operating in the aviation, defense, and space markets. It has been producing tactical drone systems in France for more than twenty-eight years.

- The MBDA, self-proclaimed as the only European group capable of designing and producing missiles and missile systems to meet the whole range of future needs of armed forces.

- Airbus, "an international pioneer in the aerospace industry" and a prime contractor for Europe's Future Combat Air System, a network of manned and unmanned platforms from fighter and drones to satellites.[63]

Two of the most prominent Kangaroo Group members, both supporters of a European security and defense industrial and research agenda, were former German MEPs Michael Gahler and Wogau. Both Gahler and Wogau were former chairs of the European Parliament's Security and Defence Subcommittee. Wogau also was an influential figure in the Group of Personalities on Security Research, a 2003 European Commission advisory group of senior executives from leading European defense companies.

Post-1990 External Events Impacting the European Security and Defense Agenda

Another useful way of analyzing the development of the EU's security and defense integration policies is to contextualize the impact of three post–Cold War trends: geopolitical pressures, industry shifts, and security challenges.

Geopolitical pressures and institutional consolidation. Following the end of the Cold War, major crises such as the Kosovo War of the later 1990s forced Europe to integrate the security structures of the Western European Union into the EU's institutional structures. This integration led to the creation of what then was called the European Security and Defence Policy, now known as the CSDP. The 2003 Iraq War facilitated the formulation of the EU's first programmatic document in security and defense, the European Security Strategy, which was followed in 2004 by the establishment of the EDA. Since its creation, the EDA's main purposes were to support members states in the improvement of European military capabilities, boost the continent's dormant defense industry and market, expand collaboration among member states on defense issues, and rationalize R&D in defense

technologies.[64] With the consolidation of policy, institutional, and strategic frameworks in the European Security and Defence Policy (now CSDP), the EDA, and the European Security Strategy, the political focus in Europe shifted toward capability development for such frameworks, as well as collaborative defense industrial projects and R&D initiatives. However, even though the European Security Strategy helped the EU articulate its normative and strategic goals and role in the world, and the creation of the EDA responded to member states' needs to address military capability shortfalls through closer cooperation, the EU still lacked proper coordination and harmonization of security and defense industrial and research efforts.[65]

Revolution in military affairs and industry consolidation. The post–Cold War era also saw both the information and communication technologies–based revolution in military affairs in the early 1990s and the impressive array of high-technology weapons that secured the United States' global military domination. This technological and doctrinal shift further reinforced the growing transatlantic technology gap and Europe's dependency on U.S. capabilities and high-tech weaponry.[66] The rising costs of cutting-edge arms programs and the reduction in defense budgets in the United States and Europe after the Cold War forced defense industries to restructure, either through mergers or acquisitions. The U.S. government and firms, being able to exploit economies of scale and the advantages of a large and integrated national market, were comparatively quick to consolidate their defense industrial landscape. Europeans underwent a series of joint ventures and mergers aimed at generating the scale required to competitively develop complex weapons systems, but such efforts were continuously hampered by concerns about autonomy, security of supply, and domestic jobs. The United States was able to further penetrate the rich European defense market not only by exploiting interoperability to promote the direct sale of U.S. products, but also by leveraging interdependence with European allies, while maintaining a dominant position in supply chains. Intellectual property rights also became a key issue in transatlantic defense industrial debates. Through the International Traffic in Arms Regulation, the United States has the ability to restrict technology, data, and knowledge transfers out of the United States with a view to controlling proliferation and to ensuring and consolidating its technological edge.

The internal-external security continuum. In the aftermath of the terrorist attacks on September 11, 2001, the lines between the internal and external dimensions of military, police, and border management practices have become more blurred. This trend is significant in accounting for the first steps taken to spearhead and legitimize a security research agenda at the EU level. The nature of new and emerging transnational threats and risks, from terrorism to organized crime and from protracted crises to cybersecurity, broadened traditional concepts of territorial defense matters to capture the complex, transnational, and interlinked challenges of internal and external security for the EU and its member states.
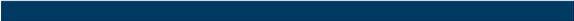
The goal was to achieve higher levels of European coordination, cooperation, and coherence in military R&D.

Technological transformations in the nature of warfare and the above major crises blurring the lines between internal and external security further consolidated the perception in Europe that the EU needed a common security and defense industrial and technological approach and institutional consolidation. The goal was to achieve higher levels of European coordination, cooperation, and coherence in military R&D.

The Emergence of the European Security Research Program

In line with these developments, the closer cooperation between the European defense industry and the European Commission was a key development to bridging the technology gap compared to the United States, as well as to maintain both the EU's long-term market competitiveness and strategic autonomy in key technology areas.[67] In fact, EU institutions such as the European Commission and the European Parliament have been actively involved in advocating for European community–led security and defense R&D programs. The European Commission in particular has been playing a critical role in Europe-led security and defense R&D programs by stimulating security and defense technological research and innovation and in institutionalizing a more collaborative, cross-border approach to security and defense industrial matters.

Four step-change developments (see table 3) attest to the increasingly close cooperation between the defense industry, the European Parliament, and the European Commission. The commission, regarded as a nontraditional defense actor in the European security and defense field, demonstrated sustained policy entrepreneurship in shaping European security research and defense industrial matters:[68]

- the Preparatory Action for Security Research (PASR) (2004–2006), developed in response to the September 11, 2001, attacks and the 2003 European Security Strategy (ESS);

- the European Security Research Programme (ESRP) (2007–2013);

- the Security Research Strand under the Horizon 2020 Programme (2014–2020); and

- the emergence of a European defense industrial research agenda taking shape after the 2013 European Council Conclusions and the EU's 2016 Global Strategy.

This section will cover the first three step-changes in terms of security research dimensions. In particular, it will consider the various expert and interest groups and the prioritization of dual-use and drone-related projects within the research strands. The next section will cover the creation of a European defense research agenda, culminating in the launch of the EDF under the 2021–2027 MFF.

Table 3. Four Step-Changes in the Consolidation of EU Security and Defense Research Programs

European Security Research Strand			European Defense Research Strand
PASR (2004–2006)	ESRP (2007–2013)	The Security Research Strand under the Horizon 2020 Programme (2014-2020)	European Defence Industrial Research Agenda, including:
			Pilot Project on CSDP-related Research (2015–2016)
⇨	⇨		
Sixth Framework Programme	Seventh Framework Programme		Preparatory Action on Defence Research (2017–2019)
		⇨	
			European Defence Industrial Development Programme (2019–2020)
		Horizon 2020	
			European Defence Fund (2021–2027)

The creation of a European security research strand was undoubtedly a novel policy dimension for the EU. Situated at the intersection of science and technology and security policies, it was meant to respond to a number of globalized threats to the EU's internal and external security in the early 2000s, including terrorism, regional conflicts, rising insecurity at the EU's external borders, failing states, organized crime, and the proliferation of weapons of mass destruction. Such challenges rekindled a growing interest in strategic industries, as well as the need for a common EU-level approach to security and defense R&D and R&T.[69] The 1990s saw calls for closer links between the EU's Framework Programmes and security and defense research.[70] However, the commission did not become more proactive in the area of security research and in defining security and technological priorities for the EU until the next decade.

A New Institutional Role for the European Commission in EU Security Policy

Since 2004, the European Commission has played an important role in introducing funding schemes for security research and technologies geared toward dual-use applications. The PASR between 2004 and 2006, a test case under the Sixth Framework Programme (FP6), took the first step of including security research in the EU's Framework Programmes. This precedent was further institutionalized with creation of the ESRP from 2007 to 2013, as

part of the Seventh Framework Programme (FP7). The ESRP then was taken up under the Security Research strand of the Horizon 2020's Secure Societies Challenges from 2014 to 2020.

The above process was not without hurdles. The European Commission has not been wholly supportive of greater defense integration. For instance, in 2010–2015, the European Commission led by then president Josè Barroso firmly rejected then high representative for foreign affairs and security policy and first vice president of the European Commission Catherine Ashton's plan to expand EU funds to support defense research. The commission took this approach for two main reasons.[71] First, the 2009 European financial crisis did not provide any opportunity to increase the budget of the future MFF (2014–2020). The creation of a PADR would have implied reducing funding for civilian research, which the European Commission found unacceptable. Second, the commission did not think it was a priority to introduce a controversial EU mechanism to support defense research. At that time, it was dealing with multiple internal crises, mainly related to financial and migration issues.

EU interinstitutional dynamics also were at play. Indeed, the European Commission was strongly concerned that any possible allocation of EU funds to defense research would empower the intergovernmental EDA at the expense of the European Commission, specifically of the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs. These tensions were the first signs of a structural interinstitutional competition between the European Commission and the EDA in the regulation of defense industrial policy and management of EU funds in this sensitive sector.[72]

Despite such hurdles, EU-led security research initiatives carved out a new institutional role for the European Commission in the governance of the EU's security policy and also set the stage for closer links with defense industrial actors in support of security and defense research. The PASR was the commission's first attempt to directly fund security research, technology, and development activities and to lay the foundation for a comprehensive ESRP under FP7 and continue it under Horizon 2020. Sustained collaboration between the commission and security and defense industries was seen as essential for the successful implementation for such activities.[73] This collaboration was possible through the work of numerous high-level advisory, expert, and interest groups, with various degrees of institutionalization, permanence, and transparency (see table 4).

EU-led security research initiatives carved out a new institutional role for the European Commission in the governance of the EU's security policy.

Of note among these groups were the Group of Personalities on Security Research (2002), the growing influence of the Aerospace and Defence Industries Association of Europe (ASD) transnational interest group, and the commission's European Security Research Advisory Board (ESRAB) (2005). Little public information is available on the group's proceedings. Its rapporteur was Burkard Schmitt, then assistant director of the European Institute for

Security Studies, the EU agency for the analysis of foreign, security, and defense policy issues. (At the time of writing, Schmitt is the ASD's defense and security director.)

The Group of Personalities on Security Research played an important role in developing the cornerstone vision of an EU Security Research Program and in setting the stage for dual-use technology priority areas in Europe. Its primary mission was to propose principles and priorities for the creation of an ESRP in line with the EU's current foreign, security, and defense policy objectives as enshrined in the EU's European Security Strategy (2003).

Influential voices within the group advocated for reforming the European defense sector, which could only be achieved through "the combined use of Community and CFSP instruments"—thus highlighting the need to go beyond traditional state-centric approaches to defense industrial research and innovation policies.[74] According to the logic of the time, EU-level collaborative security and defense industrial and technological projects would eventually become an important (and lucrative) variable in the supranationalization of European security and defense research.

The Group of Personalities on Security Research played an important role in developing the cornerstone vision of an EU Security Research Program and in setting the stage for dual-use technology priority areas in Europe.

Table 4. Nonexhaustive List of Organized Interest Groups Shaping the European Security and Defense Research and Innovation Agenda

Industrial Lobby Structures	High Level Advisory and Expert Groups	Think Tanks and Forums for Reflection, Recommendation, and Research
The AeroSpace and Defence Industries Association of Europe	High Level European Advisory Group on Aerospace (STAR 21)	The Kangaroo Group (European Parliament)
The European Organization for Security	Group of Personalities on Security Research (2003)	European Union Institute for Security Studies
	European Security Research Advisory Board (2005)	Security Defense Agenda
	Horizon 2020 Protection and Security Advisory Group (2014)	Forum Europe's New Defence Agenda (2002)
		European Security Roundtable (2006)
	High-Level Group of Personalities on the Preparatory Action for CSDP-related Research (2014)	The Armament Industry European Research Group (ARES Group) (2016)

Source: Classification based on Alexandra Beckley, "Promotion de l'industrie de la défense et de la sécurité: Acteurs et pratiques" [Defense and security industry promotion: Actors and practices], Groupe de recherche et d'information sur la paix et la sécurité (GRIP), June 22, 2012, https://grip.org/promotion-de-lindustrie-de-la-defense-et-de-la-securite-acteurs-et-pratiques/.

From the Group of Personalities on Security Research to the European Security Research Advisory Board

The European Commission established the Group of Personalities on Security Research in 2003. It was composed of security industry chairmen, chief executives, serving MEPs, heads of major research institutes, high-level European defense ministry officials, heads of various international organizations, and high-level political figures. It was co-chaired by former European commissioner for research and development Philippe Busquin and by former European commissioner for enterprise and information society Erkki Liikanen. The former high representative for the CFSP, Javier Solana, also participated in the work of the group. The Group of Personalities on Security Research also represented a policy venue for the European Commission to manage and entrench close collaboration with security and defense industrial players in order to tap into their niche technological expertise and military insights.[75]

The group's 2004 report "Research for a Secure Europe" was penned by its rapporteur, Schmitt, in close collaboration with the commission. The report proposed key principles and guidelines that helped establish the EU's security research program.[76] It further emphasized the need to maximize investment in security research by capitalizing on dual-use research (for both civil and military) as a potential area to promote the pooling of resources and the cross-fertilization of research results.[77] Working toward these goals, the report stressed that the implementation of the 2004–2006 PASR should prepare the groundwork for a successful security research program under FP7, with the official creation of the ESRP. As the report noted (emphasis added):

> An ESRP should take advantage of the duality of technologies and the growing overlap of security functions to **bridge the gap between civil and defence research**. In support of a comprehensive security approach, it should fund research activities targeted at the development of systems and products that are useful: In particular for the protection of Member State territory, sovereignty, domestic population and critical infrastructure against transnational threats. . . . An ESRP should maximize **the benefits of multi-purpose aspects of technologies**.
>
> In **order to stimulate synergies, it should look at the "crossroads" between civil and defence applications and foster cross-sector transformation and integration of technologies**. Its focus should be on interoperability and connectivity as key elements of trans-border and inter-service cooperation. . . . **Straddling civil and defence research, an ESRP should take advantage of both the duality of technologies** and the growing overlap of defence and nonmilitary security functions **to bridge the gap between the various research sectors**.[78]

Following this report, in 2004 the commission published a communication titled "Security Research: The Next Steps." This publication called for the institutionalization of a coherent security R&D program at the EU level.[79] The group also recommended the creation of another expert group, namely the ESRAB, which the commission established in 2005.[80]

The ESRAB's role was to draw the strategic lines for security research demand and technology supply chain requirements within FP7 (2007–2013) and to provide expert advice on the principles and mechanisms for implementing the ESRP. Much as with the Group of Personalities on Security Research, the ESRAB also was composed of high-level representatives from public authorities, defense industry, research organizations, and EU institutions (see table 5).

The ESRAB delivered its final report in September 2006. This report contained further recommendations for the FP7's ESRP. It delineated technology development areas such as mission area analysis (including border security, protection against terrorism and organized crime, critical infrastructure protection, and restoring security in case of crisis) and cross mission area analysis (including integration, connectivity and interoperability, capabilities and technologies, and demonstration programs).[81]

Table 5. The Defense Industry's Representation in High Level Security Research Advisory Groups

The Group of Personalities on Security Research (2003)	*European Security Research Advisory Board (2005)*
Finmeccanica	Finmeccanica
EADS	EADS
Diehl	Diehl
Thales	Thales
BAE Systems	Sagem Défense Sécurité
INDRA	

Source: Nikolas Karampekios and Iraklis Oikonomou, "The European Arms Industry, the European Commission and the Preparatory Action for Security Research: Business as Usual?," in The Emergence of EU Defense Research Policy: From Innovation to Militarization, ed. Nikolas Karampekios, Iraklis Oikonomou, and Eliyas G. Carayannis (Cham: Springer, 2018), 198.

Preliminary Takeaways

The European Commission's support for defense industry–dominated expert and advisory groups such as the Kangaroo Group, the Group of Personalities on Security Research, and the ESRAB highlight three important aspects of EU-level security and defense collaboration.

1. Close interactions have been normalized among European defense industry representatives, expert and interest groups, and other EU institutional actors.

Although domestic military-industrial complexes and close links between governments and national defense industries are the norm, they were a novel proposition at a supranational EU-level. Over time, the involvement of such public-private stakeholder and organized interest groups and the EU-level realignment of private and public interests helped lead to the emergence of an EDTIC.[82]

> **It is possible to regard the creation of public-private stakeholder and organized interest groups as an ingenious method, spearheaded by the commission, for managing and co-shaping policymaking processes together with the defense industrial sector.**

It is possible to regard the creation of public-private stakeholder and organized interest groups as an ingenious method, spearheaded by the commission, for managing and co-shaping policymaking processes together with the defense industrial sector at preliminary and early stages. This approach would be likely to promote faster legitimization and thus implementation through interest coalitions and shared priorities between key stakeholders. That being said, common interests and shared priorities are not always the norm. There are always winners and losers, and larger member states generally have benefited more than their smaller counterparts from commission involvement in security and defense research matters. In addition, the European defense industry is not monolithic. Defense industries have dual loyalties shaped by national interests; they may be interested in cooperating, but they remain commercial competitors in certain segments of the market.

Investing in assets specific to collaborative projects means that states are liable to become more dependent on their partners and less able to build their defense products alone. Because dependence is rarely symmetrical, under normal conditions states have an incentive to specialize in components for which fewer substitutes exists. In the case of collaborative supranational projects, the incentive is to play the role of systems integrators to act as the pivot point of a project. Hence, the challenge is indeed to surpass industrial and national rivalries in a highly concentrated EU defense market.[83]

2. The commission decided to push for synergies among civilian, security, and defense industrial sectors, as well as for dual-use technologies with civil and military research and applications.

Taken at face value, this decision could be EU *technopolitik* at work.[84] It further reflects the commission's technocratic search for defense industrial allies and the buy-in of high-level interest and expert groups, to help support and legitimize lucrative "financial support to the defence industrial sector through cooperative programmes of a dual-use nature."[85] In particular, the "dual-use" framing of technological innovation provides an important loophole and backdoor in the EU's Framework Programmes for the development of security and dual-use technologies that can be also used for military purposes, in spite of regulations against using these grants specifically for defense projects.[86]

This framing is particularly relevant when it comes to funding dual-use drone projects. According to the European Commission, dual-use items are goods, software, and technology that can be used for both civilian and military applications.[87] Major stakeholders in the European aerospace defense industry have had vested interests in contributing to an EU-led policy agenda toward the development of cutting-edge drone technologies and

have benefited from funds for security research and dual-use technology under the Framework Programmes.[88] They have been allocated to defense industry–led consortia, including Airbus Group; Bae System; Dassault Aviation; Finmeccanica, now Leonardo–Societa per Azioni (Leonardo S.p.A.); Indra; Safran; Sagem; and Thales.

As mentioned earlier, starting as early as the 1990s, the European Commission attempted to take stock of dual-use technologies and increase the competitiveness of the European defense industry. The dual-use terminology in relation to defense R&D and so-called "high technology activity" was first introduced in the 1996 European Commission's communication on "The Challenges Facing the European Defence-Related Industry, A Contribution for Action at European Level."[89] However, at that time member states did not welcome the commission's activism concerning defense industrial actors because they regarded the issue as a sensitive and controversial one. In this respect, funding for dual-use technology in civilian R&D Framework Programmes was considered an "unofficial secret" in the Directorate-General for Scientific Research and Technological Development.[90] The 1996 communication argued that civilian and defense synergies are important for defense industrial competitiveness (emphasis added):

> The action by the European Union to facilitate **integration of defence-related industrial activities** will have to take account not only of the specific nature of the armaments sector but also of its essential and ever **closer links with the civil sector (dual-use technologies, components, products and production installations) in order to encourage the development of technological and industrial synergies** between these two sectors at European level. Traditionally it has been argued that defence R&D generates externalities in the form of innovations for the benefit of the civilian side of the economy (the **"spin-off" effect**). Since the 1960s, however, the relationship between defence and civil activities has changed: the defence-related industry is increasingly relying on the technological dynamism of the civil sector by making more use of the technologies, components and products of civil origin (the **"spin-in: effect**).

> With **defence R&D and production making up a smaller and smaller part of high technology activity**, technological performance is coming to depend increasingly on firms' success in managing the interface between civil and defence technology. They have to become more adept at **assimilating civil hardware and software into defence equipment**, at organizing **R&D programmes around dual-use technologies and at transmitting knowledge and expertise across the civil-defence divide**. Defence-related companies which operate in both civil and defence markets have an interest and important role to play in exploiting civil-defence synergies.[91]

The "dual-use" framing of technological innovation provides an important loophole and backdoor in the EU's Framework Programmes.

The above language easily could be taken from the commission' more recent Action Plan dating from February 2021, the "Three-Point Belt Plan" on civil, defense, and space industry synergy.[92] The language and the overall framing discourse have remained essentially the same; only the context and the political opportunity have changed—or rather, have aligned.

The 2021 Action Plan builds on a civil-defense synergies approach and proposes a more horizontal, cross-domain approach for boosting dual-use research, technology development, and the EU's overall innovation power. It aims to establish a structured approach and create new opportunities for innovation synergies among relevant EU-funded programs and instruments, especially for emerging and disruptive technologies. It defines critical technologies as relevant across the defense, space, and related civil industries and as essential to Europe's technological sovereignty by reducing risks of overdependence on external players.

3. EU civilian science and technology programs and security and defense have begun to cross-fertilize.[93]

This cross-fertilization, which equally implies a sharing/hybridization of expertise between civil and military sectors, has been valuable in influencing the conditions leading to shifts in policy perception.[94] It also has impacted governance practices in managing security and defense articulations and expectations for the future of the European defense integration process, and in defining material interests in the sectors.

The defense industry's heavy concentration in advisory and interest groups presents an important governance challenge. Such groups fix power structures and high-level agenda-setting venues with little transparency and less potential for public oversight. Civil society has had no meaningful representation in such groups—a glaring omission. This absence of a more inclusive and transparent policymaking process has significant consequences in terms of shifting patterns of authority in the governance of the EU's security and defense policy and in redefining public-private partnership in security and defense research.

The defense industry's heavy concentration in advisory and interest groups presents an important governance challenge.

Whereas the PASR (2004–2006) was a test case for a full-fledged security research program under the FP7, and the FP7's ESRP (2007–2013) focused on developing security and dual-use technologies, the Horizon 2020 (2014–2020) went a step further by incorporating security research as one of the seven societal challenges. Horizon 2020–the EU Framework Program for Research and Innovation prioritized dual-use R&D and R&T, focusing on specific emergent technologies and pilot cases (such as RPAS) that apply to both the EU's internal and external security.

Horizon 2020 and Dual-Use Drone Technologies

The November 2013 Council Conclusions identified drones as a key area for civil-military cross-fertilization. It makes the ideological connections between a stronger EDTIB, military and dual-use capabilities, and the notion of strategic autonomy (emphasis added):

> The Council invites the European Commission to **maximise cross-fertilisation between EDA programmes and the outcome of EU civil research programmes in areas of dual use technologies** such as, inter alia, **RPAS** and Governmental Satellite Communications in order to support activities by Member States in these areas. The Council encourages the European Commission, the EDA and the EEAS to examine modalities for **dual-use capabilities, starting with pilot cases such as RPAS**. . . . The Council recalls that, including in the context of a fully comprehensive CSDP, a more integrated, sustainable, innovative and competitive European Defence Technological and Industrial Base (EDTIB) remains crucial for developing and sustaining **Europe's military capabilities**. This can also enhance **Europe's strategic autonomy**, strengthening its ability to act with partners.[95]

Although many observers regard the concept of strategic autonomy in relation to security and defense industrial matters as a post-2016 innovation, in November 2013 the European Council already had used the term in relation to the defense industry.[96] The December 2013 Council Conclusions singled out the concept in the context of strengthening the development of CSDP via dual-use aerospace capabilities such as drones.

This clear chain of events raises the questions of why aerial surveillance technologies were prioritized, and whether this decision came from the strong influence of a technologically competitive European aerospace industry advocating for a more streamlined approach to the production of technologies such as RPAS. To answer these questions, drones are simultaneously an emerging technology with dual-use production and a platform for security, both internal (border patrolling) and external (employing armed drones in countries with low sophistication of air defense systems). In this light, it comes as no surprise that the European Commission has looked to the defense industry, in particular to the ASD lobby group representing European Aeronautics, Space, Defence and Security industries, to provide technological expertise and to determine security and defense technology R&D and innovation priority areas with regards to RPAS.[97]

The launch of the Horizon 2020 also saw the establishment of a new Secure Societies Advisory Group, later renamed the Protection and Security Advisory Group. One of the priority areas identified in the group's 2015 publication "Strategic Recommendations for Secure Societies Theme in Horizon 2020" was the management of "migratory pressures" at the

This clear chain of events raises the questions of why aerial surveillance technologies were prioritized.

EU's borders.[98] From the group's perspective, this area would require a wide range of border management measures and increased funding for dual-use drone technologies for maritime and border surveillance.[99]

Another transnational interest group, the European Organization for Security, whose members include Airbus, Thales, and Finmeccanica (now Leonardo S.p.A.), has been one of the most active and influential defense industry lobbying entities for increased EU border security.[100] It has played a central role in the design, framing, and the transformation of the EU's border security governance. In this regard, the European Commission intended "to improve border security, ranging from improved maritime border protection to supply chain security," as one of the primary aims of its Horizon 2020 Secure Societies Challenge.[101]

EU treaty rules have generally prohibited the EU from tapping into research grants under the FP7 and Horizon 2020 for the specific funding of military drone projects. The concept of dual-use technologies managed to circumvent such rules by blurring the lines in equipment development for both civilian and military objectives. By prioritizing dual-use technologies, RPAS in particular, the goal was to preserve the European defense and aerospace industry's global competitiveness in frontline technologies, thus ensuring that Europe also maintains its technological sovereignty in this key strategic area. Their multiplier potential is another rationalization.[102] The advancement of such technologies strengthens the robotics industrial base for both military and commercial uses; encourages the development of systems engineering skills and the fusion of different civil-military technological domains; and calls for expertise in cyber technologies, autonomous systems, and artificial intelligence.

Furthermore, the prominence of dual-use RPAS on the EU's security research agenda comes from legitimizations of their manifold advantages:

- they are relatively affordable to produce;

- they can be used for policing and border control as well as for military purposes;

- they can reduce the presence of troops on the ground in CSDP civil-military operations; and

- they provide clear-cut advantages in intelligence, surveillance, and reconnaissance practices for long durations of time.

Overall, the EU has made considerable efforts to fund security and dual-use R&D projects that benefit both the interests of European defense consortia and the advancement of military technologies.

Yet such efforts come with several caveats. The European Parliament 2014 study "Review of Security Measures in the 7th Research Framework Programme FP7 2007–2013," commissioned by the Directorate General for Internal Policies, found that security research has only partly addressed security concerns and those of EU citizens and that security research has been mainly put at the "service of industry rather than society."[103] The study emphasized that the policymaking process on security research, as well as the high-level public-private dialogues and expert groups tasked with defining security research, largely bypassed other societal actors. Whereas representatives of security and defense industry and EU institutional or security bodies were overwhelmingly present in expert and advisory groups, civil actors or actors representing citizens' interests, including MEPs or nongovernmental organizations, were largely absent from these forums. This state of affairs raises concerns regarding the public and political oversight of European security and defense research.

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The next section will examine the emergence of a European Defense Research and Industrial Program by focusing on the commission's launch of the EDF and its precursor programs. In doing so, it will address various aspects of the evolving supranational, intergovernmental, and industrial dynamics in the EU's security and defense policy processes and their role in shaping the governance and direction of a future European Defence Union.

The How: The Erosion of Intergovernmentalism and The Emergence of a Supranational European Defense Research Program

From EU Security Research to the EU Defense Research and Innovation

The institutionalization of the EU's security and defense policy has been one of the most noteworthy developments in the history of EU integration. In recent years, various actors have encouraged an undeniable push for an EU-level, European community–based approach to security and defense industrial research, coupled with targeted efforts to shore up European security and defense R&D and R&T. This progress has been bolstered by the widely shared belief that the EU and its members states need to support and strengthen the

EDTIB if they want to mitigate issues with Europe's defense capability expectations and technological-innovation gaps in order to secure Europe's strategic autonomy and economic future.[104]

To some observers, this line of thinking appears to have been backed by and embedded in the European Commission policy entrepreneurship on European defense industrial matters going back decades, and in terms of the incremental emergence of a European Defense Industrial and Research Program.[105] As earlier sections of this paper have demonstrated, this mindset has come from a longer, more proactive thought process.[106] Against this background, various defense industrial and research issues have gained traction on the EU's policy agenda, as highlighted from the wider setting of the December 2013 European Council Conclusions and the array of post-2016 initiatives.

With a view to developing civil-military spin-in and spin-off effects, and by building on best practices and lessons learned from previous security research efforts under the Framework Programmes and focusing on dual-use research, the December 2013 European Council Conclusions first mentioned the intention to set up a preparatory action on CSDP-related research. This research would serve as a test bed for more EU involvement in defense and for directly funding defense R&D under the EU budget (emphasis added):[107]

> To ensure the long-term competitiveness of the European defence industry and secure the modern capabilities needed, it is essential **to retain defence Research & Technology (R&T) expertise, especially in critical defence technologies**. The European Council invites the Member States to increase investment in cooperative research programmes, in particular collaborative investments, and **to maximise synergies between national and EU research**. . . . A Preparatory Action on CSDP-related research will be set up, while seeking synergies with national research programmes whenever possible.[108]

The Preparatory Action on CSDP-related Research

The launch of a preparatory action on CSDP-related research was an unprecedented move. It institutionalized a new policy framework for financial resources earmarked for defense-related R&D at the EU level and under the EU budget. However, for the preparatory action to be successful, it will have to demonstrate the relevance of new funding under the EU budget and outside the Framework Programmes and Horizon 2020 for a fully-fledged and self-standing European defense research program under the EU budget. In line with the EU-level institutionalization of security research, the above defense research–oriented preparatory action introduced another dimension to the EU's involvement in security and defense R&D.

As suggested by the European Commission's July 2013 communication, "Towards a more competitive and efficient defence and security sector," and June 2014 communication, "A New Deal for European Defence," this high politics field needed EU intervention, especially in areas where defense capacities and capabilities were lacking.[109] The commission's July 2013 communication conceptually linked the notion of strategic autonomy with the need for more EU activism in the field of defense research and investments (emphasis added):

> **The European Defence Technological and Industrial Base (EDTIB) constitutes a key element for Europe's capacity to ensure the security of its citizens and to protect its values and interests.** Europe must be able to assume its responsibilities for its own security and for international peace and stability in general. This necessitates a certain degree of **strategic autonomy**: to be a credible and reliable partner, Europe must be able to decide and to act without depending on the capabilities of third parties. Security of supply, access to critical technologies and operational sovereignty are therefore crucial. **Currently defence companies are surviving on the benefits of R&D investment of the past and have been able to successfully replace falling national orders with exports**. . . .
>
> This in turn has serious implications for the long-term competitiveness of the EDTIB. **The problem of shrinking defence budgets** is aggravated by the persisting fragmentation of European markets which leads to unnecessary duplication of capabilities, organisations and expenditures. . . . Defence is still at the heart of national sovereignty and decisions on military capabilities remain with Member States. However, the EU does have a significant contribution to make. It has policies and instruments to implement structural change and it is the best framework for Member States to maintain collectively an **appropriate level of strategic autonomy.**[110]

Following the commission's July 2013 communication and the European Council's December 2013 conclusions, the commission yet again created a new high-level expert group on defense research to inform its plans to launch the Preparatory Action on CSDP-related Research.

The commission's new high-level expert group on defense research was in keeping with previous instances under the Framework Programmes in which the European defense industry received an extensive role in EU-level advisory and expert bodies and groups on security research. Some have characterized this trend as an increasingly militarized security angle, used as a stepping-stone for the EU to fund a full-scale military

Some have characterized this trend as an increasingly militarized security angle, used as a stepping-stone for the EU to fund a full-scale military dimension.

dimension.[111] Furthermore, these high-level advisory groups suggest the emergence of an EU politico-military-industrial complex, owing to their corporate membership and widespread policy involvement at the EU level.[112]

Group of Personalities on Defence Research

In its June 2014 communication on "A New Deal for European Defence," the commission announced the establishment of the Group of Personalities on Defence Research, describing it as an "independent advisory body made up of top-level decision-makers and experts."[113] The group's rapporteur was Antonio Missiroli, then director of the European Union Institute for Security Studies.

Many defense industrial representatives are included in the group, such as:

- AeroSpace and Defence Industries Association of Europe

- Airbus Group

- BAE Systems

- Finmeccanica

- Indra

- MBDA

- SAAB

This group, officially launched in March 2015, included chairpeople and chief executives of leading European defense companies, various defense-related research institutes, and political leaders. It was chaired by former commissioner Elżbieta Bieńkowska and supported by Mogherini, who was represented by former EDA chief executive Jorge Domecq. The group presented its recommendations for a long-term vision in support of European defense cooperation in the February 2016 Report on the Preparatory Action for CSDP-related Research, "European Defence Research: The Case for an EU-funded Defence R&T Programme."[114] The report had a strong impact on the setting of priorities for the EU's security and defense research and innovation programs and shaped the direction of policy and capability development projects, such as the launch of the PADR (2017–2019). In this manner, tailored expert groups such as the Group of Personalities on

In this manner, tailored expert groups such as the Group of Personalities on Defence Research have provided high-level opportunities for industrial and policy stakeholders to meet and mold defense research policy processes.

Defence Research have provided high-level opportunities for industrial and policy stakeholders to meet and mold defense research policy processes.[115]

In anticipation of the launch of the PADR in 2017, and in order to rapidly test the added value of defense-related research within a permanent EU framework, in the fall of 2014 the European Parliament established a Pilot Project on Defence Research (2015–2018) for about 1.4 million euros (nearly $1.6 million).[116] The parliament's involvement helped the EU overcome the stalemate caused by the Barroso Commission's lack of interest in this topic. Although the sum was symbolic, this development was an important step in the EU defense research integration process for two reasons.

- It demonstrated unprecedented agenda-setting on the part of the European Parliament and its Subcommittee on Security and Defence.[117]

- It was the first time that the EU had tested the conditions for defense research in an EU framework, funded by the EU budget under the 2014–2020 MFF.

The European Parliament's activism and budgetary powers in this regard were spearheaded by Gahler, who is currently president of the Kangaroo Group (at the time of writing) and also a member of the Group of Personalities on Defence Research.[118] The launch of the pilot project highlighted a mobilization of interests across institutional boundaries among the European Parliament, the European Commission, and the EDA, and among expert groups representing overlapping defense industrial interests such as the parliament's Kangaroo Group and the commission's Group of Personalities on Defence Research.

> **The launch of the pilot project highlighted a mobilization of interests across institutional boundaries.**

The Pilot Project on Defence Research (2015–2018)

The management of the pilot project was delegated to the EDA, and three projects were selected. Yet again, drone-related technologies were a priority. The EDA chose a pilot project for three individual activities that deal with RPAS-related technologies and strategic enablers:

- the SPIDER project on awareness inside buildings and navigation for urban warfare, a surveillance system intended to advance soldiers' situational awareness in urban combat environments;

- the TRAWA project, designed to standardize RPAS "detect and avoid" systems; and

- the EuroSWARM project, aimed at demonstrating an unmanned heterogeneous swarm of sensor platforms, maintaining the same level of military effects without the use of lethal capabilities.[119]

Table 6. Timeline of the European Defense Industrial and Research Programs

Precursors and Testing Programs for EU-funded Defense Research and Industrial Development in Preparation for the European Defence Fund

EDF Research Window Test Phase				EDF Capability Development Window Test Phase	
Pilot Project on Defence Research (2015–2018) Participants: EU member states Partners: European Commission, European Parliament	Preparatory Action on Defence (2017–2019) Participants: EU member states, Norway Partners: European Commission, European Parliament			European Defence Industrial Development Programme (2019–2020)	European Defence Fund (2021–2027)
SPIDER project EuroSWARM project TRAWA project	2017 Projects: PYTHIA OCEAN2020 GOSSRA VESTLIFE ACAMSII	2018 Projects: SOLOMON TALOS EXCEED	2019 Projects: ARTUS OPTIMISE PILUM	9 calls for project proposals (2019) 12 calls for project proposals (2020)	about 8 billion euros (over $9 billion)
about 1.4 million euros (almost $1.6 million)	25 million euros (over $28 million)	40 million euros (over $45 million)	25 million euros (over $28 million)	500 million euros (over $568 million)	

The pilot project was intended to pave the way for the launch of the European Commission's PADR in 2017, followed by the EDIDP in 2019 (see table 6). These projects were to lead to a fully-fledged EDF in 2021, as part of the EU's next MFF (2021–2027).

With the PADR starting in May 2017, the European Commission funded defense-related research and technology-related projects directly from the EU budget line, not through member states' joint initiatives. This scheme was framed as a concrete step to demonstrate the added value of EU-supported defense research and innovation. At the time, questions were raised by the expert community concerning how investments in defense research would actually solve capability and technological gaps, with regard to differences between capability-driven research designed to fill short-term military needs and technology-driven research to provide long-term support for the creation of a technological innovation ecosystem.[120]

The Preparatory Action on Defence Research (2017–2019)

The PADR ran over a three-year period (2017–2019) and its budget of 90 million euros (over $102 million) was broken down into three annual calls for proposals, each of them organized around three themes. Under the 2017 call, the PADR work program included topics focusing on a technological demonstrator for enhanced situational awareness in a naval environment, research in technology and products in the context of force protection and soldier systems, and strategic technology foresight.[121]

For instance, led by Leonardo S.p.A., an Italian multinational company specializing in aerospace, defense, and security, the OCEAN2020 consortium is the biggest PADR-funded project with a budget of roughly 35 million euros (nearly $40 million). It consists of forty-three partners from fifteen member states (see table 7).[122] It aimed at supporting maritime surveillance and interdiction missions at sea by enhancing air, naval surface, and underwater unmanned systems and integrating them into fleet operations. The large European dimension was thought to be fundamental to demonstrate the possibility of pursuing future collaboration on defense capabilities and programs and of including small countries. PYTHIA, another consortium funded under this call, aimed to deliver a methodology for improving civil and defense technology foresight. Its innovative approach would be able to deliver "predictions" on technology-related matters, including the discovery of major trends in a particular area of R&D.[123]

Table 7. The PADR-Funded OCEAN2020 Consortium

Large Enterprises	Small and Medium Enterprises	University and Research Institutes	End Users
LEONARDO, INDRA, SAAB, CTM, SAFRAN, IDE, QINETIQ, SKYSOFT, MBDA, IDS, GMV, TERMA, ECA, FINCANTIERI, E-GEOS, HENSOLDT, UMS SKELDAR	BPTI, CYBERNETICA, SEADRONE, AUTONAUT, BLUE BEAR, PROLEXIA, SCHÖNHOFER, ANTYCIP, INFINITE VISION, INSIS, ALTUS, LUCIAD, BLACKSHAPE	CMRE, IOSB, TNO, VTT, CNIT, NKUA, IAI	Italian Navy, Lithuanian Navy, Hellenic Ministry of Defense (MoD), Portuguese Navy, Spanish MoD, German MoD

Source: "Partners," OCEAN2020: Open Cooperation for European mAritime awareNess, accessed November 19, 2021, https://ocean2020.eu/partners.

Under the 2018 call, the PADR work program prioritized a European high-performance, trustable, (re)configurable system-on-a-chip or system-in-package for defense applications; a European high-power laser effector; and (once again) strategic technology foresight. The SOLOMON project funded under this call is an interesting case, because it fits with recent

discussions surrounding the EU's defense and technological sovereignty. It contrasted such debates against the need for a closer alignment between geopolitical and business considerations. It aims (emphasis added)

> to provide the methodologies and tools to the EU to ensure that the industries responsible for the delivery of the EU armament systems and services could rely on a trusted supply and that in turn EU, as a whole, could overcome the issues related to **critical defence technological dependencies**. The project intends to merge the **two complementary visions of grand strategy** (as it emerges from EU geo/political/economic postures) and **business strategy** (as it emerges from the Michael Porter's value chain theory) in order to outline the possible roadmaps for tackling the supply risk of the EU armament systems in a world of changing strategies, **emerging technologies** and mutating government restrictions.[124]

Finally, the PADR 2019 call focused on topics related to electromagnetic spectrum dominance; future disruptive defense technologies, including emerging game changers and efforts at challenging the future, cutting-edge, high-risk/high-impact research leading to game-changing impact in a defense context; and interoperability standards for military unmanned systems. This call also established the terminology of "future disruptive defense technologies." However, it remains unclear what exactly is meant by such technologies and whether the PADR 2019 selected proposals (seen in table 8) fully fit this description.

European Defense Industrial Development Programme (2019–2020)

The PADR has further paved the way for the EDIDP under the EU budget for 2019–2020, with a view to boosting European defense industrial competitiveness and the development capacity of the defense industry.[125] The EDIDP regulation was adopted in July 2018 for a duration of two years. Calls for proposals were launched in 2019 and 2020. The EDIDP had a budget of 500 million euros (over $565 million) and was managed directly by the European Commission:

- 200.5 million euros (nearly $227 million) in 2019 allocated to calls for proposals;

- 162.5 million euros (nearly $184 million) in 2020 allocated to calls for proposals; and

- two direct awards:

  a) a grant totaling 100 million euros (around $113 million, or 20 percent of the EDIDP total budget) awarded over two years to Airbus, Dassault, and Leonardo for their Eurodrone project; and

  b) a grant totaling 37 million euros (nearly $42 million) to Thales SA, Leonardo S.p.A., and Indra, for their ESSOR project.

Table 8. PADR 2019 Selected Proposals

Name of Proposal	Description	Industry Participant(s)
ARTUS	The Autonomous Rough-terrain Transport UGV Swarm (ARTUS) project will develop a technological feasibility concept and demonstrator for a small swarm of intelligent and autonomously operating unmanned ground vehicles to support infantry platoons during their missions.	DIEHL BGT Defence GMBHCOKG (Germany)
OPTIMISE	The innOvative PosiTIoning systeM for defence In gnSs-denied arEas (OPTIMISE) project will propose an Autonomous positioning, navigation, and timing toolbox, offering a set of emerging technologies—or a smart combination of disruptive technologies—as well as a backbone software architecture to integrate them.	MDA Italia SPA (Italy) Sener Aeronautica Sociedar Anonima (Spain) STAR NAV (France)
PILUM	The Projectiles for Increased Long-range effects Using electroMagnetic railgun (PILUM) project is a feasibility study on the use of the electromagnetic railgun as a long-range artillery system, examining the possibility of integrating it into terrestrial and naval platforms.	DIEHL BGT Defence GMBH CO KK (Germany) ICAR S.p.A. Industrial Condensatry (Italy) NAVAL Group (France) NEXTER SYSTEMS (France)
CROWN	European Active electronically scanned array with combined radar, communications, and electronic warfare functions for military applications: CROWN will design, develop, and test a compact, lightweight, multifunction radiofrequency system prototype that integrates radar, electronic warfare, and communication in one single system, without any end-user restrictions.	Indra Sistemas SA (Spain) Thales DMS France SAS SAAB AB (Sweden) Leonardo S.p.A (Italy)
AIDED	Artificial Intelligence for Detection of Explosive Devices (AIDED). The armed conflicts in Afghanistan, Iraq, and Syria have seen a dramatic rise in the use of improvised explosive devices and land mines by adversaries.	
QUANTAQUEST	Quantum Secure Communication and Navigation for European Defence: The project will develop quantum sensing for navigation and timing without relying on Global Navigation Satellite Systems and quantum communication to secure command, control, communications, computers, intelligence, surveillance, and reconnaissance.	Thales SA (France) Leonardo S.p.A. (Italy) Lionix International BV (the Netherlands) Telespazio SPA (Italy) Thales Alenia Space France SAS (France)
INTERACT	The Interoperability Standards for Unmanned Armed Forces Systems project aims to create a basis for a future European interoperability standard for military unmanned systems. The technical knowledge and operational experience available in Europe on control, monitoring, and application of unmanned systems will be integrated for the concept definition of a future European cross-industry interoperability standard.	AIRBUS Defence and Space S.A. (Spain) Indra Sistemas (Spain) Leonardo S.p.A. (Italy) MBDA France Safran Electronics & Defense (France) Thales SA (France)

However, this issue of direct awards could set a dangerous precedent for member states. Some medium-sized states, such as Italy, are afraid that EU money will finance only integrated Franco-German groups. Smaller states are equally afraid that funds will follow the trend set by the Eurodrone and ESSOR. Direct awards mean that the commission decides on the basis of efficiency and not on political criteria of redistribution.

The program, with its financial envelope of 500 million euros (over $565 million), co-financed the joint development of defense products and technologies. The 2019 call for proposals addressed nine categories of defense capabilities, including the following:

- multipurpose unmanned air and ground systems;

- permanent air or space capabilities for intelligence, surveillance, reconnaissance and communication, and tactical RPAS; and

- cyber situational awareness and defense capabilities, military networks, and technologies for secure communication and information sharing.

The last category, dedicated to innovative and future-oriented defense solutions, was devoted to small and medium sized enterprises (SMEs) and aimed at supporting any action on innovative defense products, solutions, materials and technologies, including those that can create disruptive effects.

For instance, the approved European Detect and Avoid (DAA) for safe insertion of large military (EUDAAS) project will develop and validate a 100 percent European detect and avoid solution for safe insertion of large military RPAS in European air traffic so that RPAS can operate along with other manned and unmanned aircrafts.[126] EUDAAS also aims to increase the maturity of noncooperative sensors to enable a wider and more flexible use of RPAS. According to the project description, it addresses the current user needs by focusing on specific use cases such as the European medium-altitude long-endurance remotely piloted aircraft system (MALE RPAS), and it will have a maximum EU contribution of around 21.2 million euros (nearly $24 million). Under the lead of Saab (Sweden), the consortium includes other major defense industrial players such as Diehl (Germany), Indra (Spain), Leonardo (Italy), Safran (France), and Thales (France).

Another EDIDP unmanned systems–related project is an integrated modular unmanned ground system (iMUGS) project with a maximum EU contribution of 30.6 million euros (over $34.6 million).[127] It will develop a modular, scalable architecture for hybrid manned-unmanned systems in order to address a large range of missions and to enable easy update or modification of assets and functionalities within the system: aerial and ground platforms; command, control and communication equipment; sensors; payloads; and algorithms.

Yet another EDIDP selected project, LynkEUs, aims to define a preliminary concept of operations for a beyond-line-of-sight European capability and demonstrate it through a full-scale firing campaign.[128] The project consists of a land missile system, a turret system to support and set up the missile using an unmanned aerial vehicle for target designation, a land platform, and an unmanned aerial vehicle providing a cyber-secured target location and contributing to the development of a family of "man-on-the loop" beyond-line-of-sight missile systems. It is under the coordination of MBDA France, including industrial entities such as Safran (France) and Thales (Belgium), and with a maximum EU contribution of around 6.45 million euros (about $7.3 million). Highlighting European strategic autonomy and technological sovereignty ambitions, Eric Béranger, chief executive officer of MBDA, stated that "LynkEUs is the first cooperative project in the missile systems field leveraging on the new EU defence instruments, and the first EU defence R&D project to be coordinated by MBDA. . . . It also demonstrates our commitment to serve European strategic autonomy and technological sovereignty ambitions."[129]

The 2020 EDIDIP call for proposals focused on twelve call categories, addressing among others the following priority areas:

- preparation, protection, deployment and sustainability;

- information management and superiority and command; control, communications, computers, intelligence, surveillance, and reconnaissance; and cyber defense and cyber security;

- engagement and effectors; and

- cross-domain capabilities, one of which is specifically dedicated to SMEs in order to encourage the participation of such enterprises and to foster innovation.[130]

Several categories identified under the calls are worth mentioning, such as chemical, biological, radiological, and nuclear detection capabilities and medical countermeasures, which are also relevant in the context of the coronavirus pandemic; counter–unmanned air systems capabilities; maritime surveillance capabilities; air combat capabilities; and defense technologies supported by artificial intelligence, as well as innovative and future-oriented defense solutions by SMEs.

European Defence Fund (2021–2027)

Overall, the EDIDP was meant to help member states and the defense industry pass the sensitive phase of turning the results of technological research and innovation into full-grown industrial programs, as well as to prepare the groundwork for implementing the EDF

> **The EDF was aimed at retaining key technologies and industrial capacities in Europe in order to underpin the EU's Global Strategy ambition that the EU should become a more autonomous defense actor.**

(2021–2027). At its launch, the EDF was intended to bolster cross-border cooperation and coordination among member states, the defense industry, SMEs, and research centers. Its research window provided funding for collaborative defense research projects and its capability development window supported defense products and technologies through co-financing from the EU budget.

With the opening of a research window under the PADR and a capability window under the EDIDP, it is clear that the EU has entered a rapid phase of progress on European defense research and industrial matters. In this respect, the two test programs, the PADR and the EDIDP, paved the way for the EDF under the 2021–2027 MFF, framed as a timely catalyst for cutting-edge defense research and innovation.[131] The EDF was aimed at retaining key technologies and industrial capacities in Europe in order to underpin the EU's Global Strategy ambition that the EU should become a more autonomous defense actor.

Initially, the exact sum allowed to the EDF for the period 2021–2027 was not fully clear. The commission's proposed amount was expected to be 13 billion euros (nearly $15 billion), out of which between 4 to 8 percent would be dedicated to target breakthrough innovation, disruptive technologies, and innovative equipment.[132] However, the originally anticipated amount has been now reduced to about 8 billion euros (about $9 billion), under the December 2020 provisional political agreement with the European Parliament on a regulation establishing the EDF in the context of the MFF for 2021–2027.[133] In light of the reduced funding, and given that the EDF budget negotiations have been taking place under the impact of the coronavirus pandemic and its potential economic and sociopolitical fallouts, the EDF's real potential to incentivize and add value to technological and industrial cooperation and competitiveness in Europe remains unclear. Within the current financial envelope, roughly 2.6 billion euros (about $2.9 billion) will be allocated to research and 5.3 billion euros (around $6 billion) will be devoted to development actions (see table 9). It also remains to be seen if the reduced funding for the EDF and the small percentage flagged for disruptive military technologies are sufficient to foster the much-touted, high-risk, high-reward technological innovation in the European defense sector, with potential spin-off effects in the civilian domain.

Table 9. The EU's European Defence Fund

Total budget: 7,953,000,000 euros (around $9,000,000,000)	
First Pillar: To fund collaborative defense research to address emerging and future security threats.	2,651,000,000 euros (around $3,000,000,000)
Second Pillar: To co-finance collaborative capability development projects.	5,302,000,000 euros (around $6,000,000,000)
From 4 to 8 percent of the EDF budget is devoted to development of research for disruptive technologies (such as technologies that have the potential to create game-changing innovations).	

Source: European Commission, "EU Defence Gets a Boost as the European Defence Fund Becomes a Reality," April 29, 2021, https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2007.

At the moment of its launch, many rushed to argue that the EDF truly was a fundamental step forward in the European defense integration process. In the words of Bieńkowska, the EDF is "yet another important building block to ensure that Europe becomes a stronger security provider for its citizens. . . . The Fund will foster technological innovation and cooperation in the European defense sector, so that Europe benefits from cutting-edge, interoperable defense technology and equipment in novel areas like artificial intelligence, encrypted software, and drone technology or satellite communication."[134] With regard to the attitudes of member states, the larger states generally supported an approach oriented by capacity priorities and efficiency of expenditure, to be promoted by incentive mechanisms and the accountability of prime contractors in supply chain management. Smaller states promoted a vision oriented toward geographic balance, region- al representation, and (above all) the cross-border access of new SMEs to established defense spheres.

Time will tell whether the rhetoric surrounding the EDF will indeed become reality. What is certain, though, is that the EDF marks an important transformation in consolidating the EU's increased supranational activism in the defense techno- logical and industrial field. It also highlights the commission's strong interventionism in a high-politics field that traditionally was the exclusive preserve of national sovereignty. The EDF sends a clear message that development of the European industrial and technological base will be crucial to European strategic autonomy *and* technological independence.

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The EDF as a financial instrument represents an important consolidation of the commission's institutional role as a nontraditional defense actor. This shift has led to increased agency in the security and defense technological and industrial field, as well as stronger supranational interventionism in the EU's traditionally intergovernmental security and defense policy domains. Furthermore, the decision to create the DG DEFIS under the new European Commission and the leadership of von der Leyen represents another concrete step and a political signal that the EU and the European Commission should have increased competences in this domain.

Given such developments, it is no surprise that new governance issues have arisen over the launch and management of the EDF. These issues revolve around the tensions among supranational, intergovernmental, industrial, and national logics. Whereas both the European Parliament and the council determine budget allocations by co-decision, the European Commission has the right of initiative in terms of defining priorities for EU budget spending under the EDF and plays a key role in implementing and evaluating projects and programs financing. The commission may also opt to delegate the implementation process, as shown with the case of the pilot project that was delegated to the EDA.

Overall, if successfully implemented, the EDF and DG DEFIS are expected to significantly increase the commission's agenda-setting power in the field of security and defense R&D. In this regard, the EDF and DG DEFIS have made unprecedented moves to supranationalize the EU's security and defense policy, with the European Commission as a political entrepreneur.[135] It is hoped that this process will inject new life into the European political project through deepened defense integration at the EU level and the emergence of a strong EDTIC.

Conclusion

When it comes to the EU's security and defense policy as well as defense industrial matters, there are no ready-made blueprints. This paper explored the factors that came together to create a new opportunity in the EU's defense agenda, traced the origins of a European security and defense industrial strategy by examining some of the actors involved and the role of the defense industry in setting the agenda, and reflected on the emergence of an EU defence research program through the growing role of the European Commission and the increasing supranationalization of security and defense matters.

The EDF is liable to affect the "very nature and the orientation of the European project," as it indicates a trend of greater supranational involvement in a previously intergovernmental field.[136] This interpretation highlights the increasing agency of the European Commission in the areas of security and defense research and industrial matters. It also raises further

questions about the commission's role in reorganizing the EU's defense governance model away from intergovernmentalism and toward a supranational approach that brings in various public and private stakeholders across Europe and in support of the EDTIB. Although the EU's CSDP remains in principle an intergovernmental affair, particularly in relation to its civil and military missions and operations, in reality the commission increasingly has been steering the funding agenda and decisions for defense research and capability development.[137]

The paper further highlighted that the European security and defense integration process involves a complex policy and institutional landscape, characterized by rising supranational activism in defense research and innovation, weakening intergovernmental decisionmaking, and increased defense industrial influence. Regardless of how the intergovernmental and supranational institutional dynamics might change in the future and what effect such changes may have on the EU's security and defense integration process, democratic governance–related challenges are likely to emerge.[138] Even though policy innovations and supranational consolidation have been advancing rapidly, few substantive political and public debates have focused on democratic oversight and transparency issues in the EU's defense policy agenda. Potential transparency and legitimacy questions include whether these initiatives are democratically accountable, whether they afford meaningful parliamentary scrutiny and oversight by either European or national parliaments, and how they would substantially transform the EU's identity as a civilian power.

An enhanced defense union will need to ensure the democratic accountability of further security and defense integration. In particular, more consideration should be given to whether the rapprochement between European Commission and defense industrial stakeholders, such as high-level expert and interest groups, is a legitimate source for transformative policy practices in the EU. As shown in the analysis, this coalition-building around defense interests has had a notable impact on the European civilian research and innovation culture under the EU's Framework Programmes. More broadly, it may be engendering a broader paradigmatic shift in the EU's political identity as a peace project and its rise as a defense and technological power.

The expanded connections between the European Commission and major weapons manufacturers, both within successive security and defense R&D programs and across various high-level and opaque expert and interest groups, also raises democratic governance concerns. Ideally, the European Parliament and national parliaments should play a more meaningful role in the evaluation and reporting processes on such programs.[139] Of particular concern is the European Parliament's and national parliaments' relative lack of in-house

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expertise in technological matters, especially concerning disruptive technologies. Parliamentary scrutiny of technical issues, such as security and defense research and capability development programs, is especially challenging. Consequently, MEPs should have the resources to provide meaningful oversight by drawing on in-depth knowledge of such programs and should demonstrate more interest in scrutinizing their activity. Yet this area also involves democratic challenges, especially in terms of meaningful oversight of policy developments and projects that demand not only secrecy with regard to sensitive matters but also significant expertise to comprehend various dimensions of security and defense issues and technological innovation.

All in all, even though some of the abovementioned developments such as the EDF have yet to make their mark on the EU's potential as a defense actor, they nevertheless have helped to redesign the EU's security and defense governance. As shown in previous sections, the launch and management of successive security and defense research programs and projects have tended to bypass a certain level of public scrutiny, for various reasons:

- Traditionally, decisionmaking in the security and defense policy fields has been dominated by the need for high-level expertise, opaqueness, and stringent secrecy requirements typical in the military and defense realms, as well as the sometimes-classified nature of military technological development.

- Even though the EU research and innovation policy traditionally has been a civil program, the policymaking processes on security and defense research increasingly have been transformed by the growing convergence of interests from EU-level industrial, political, and policy elites.

These factors have resulted in the creation of a community of socialized elites who contribute expertise and collaborate in policy legitimation practices, but most importantly benefit from these policy outcomes. Moreover, the overwhelming concentration of technological *and* technocratic expertise within interest and advisory groups, including in terms of high-level public-private EU networks, has been a significant obstacle for meaningful public scrutiny and democratic oversight.

To address the uneven representation of interests and perspectives within the EU's security and defense policy fields, the EU will need to take several steps. To be successful, it will need to be more inclusive and transparent in the field of defense, as well as accountable to the European Parliament and national parliaments across all member states. Ultimately, the emergence and significance of a EDTIC will require EU security and defense policies to be grounded in more participatory approaches, including the involvement of civil society organizations and EU citizens in defining the EU's level of ambition in defense technological and industrial matters in the foreseeable future.

About the Authors

Raluca Csernatoni is a visiting scholar at Carnegie Europe, where she works on European security and defense with a specific focus on disruptive technologies.

Acknowledgments

Appendix I

Key Initiatives in the Development of a European Security and Defense Industrial Strategy

1996	The Challenges Facing the European Defence-Related Industry, A Contribution for Action at European Level (Commission of the European Communities)
1997	Implementing European Union Strategy on Defence-Related Industries (Commission of the European Communities)
2003	The EU's European Security Strategy ("Solana Strategy")
2004	Security Research: The Next Steps (Commission of the European Communities)
2004	Research for a Secure Europe – Report of the Group of Personalities in the field of Security Research
2007	A Strategy for a Stronger and More Competitive European Defence Industry (Commission of the European Communities)
2007	A Strategy for the European Defence Technological and Industrial Base (EDTIB) (European Defence Agency)
2008	A European Defence Research and Technology Strategy (EDRTS) (European Defence Agency)
2008	European Armaments Cooperation Strategy (European Defence Agency)
2010	Review of Security Measures in the Research Framework Programme (European Parliament)
2010	The Lancaster House Treaties (Two Treaties between the United Kingdom and France for Defence and Security Cooperation
2010	German-Swedish Food for Thought Paper on European Imperative Intensifying Military Cooperation in Europe ("Ghent Initiative")
2010	Defence and Development, Press Release (3055th and 3056th Council of the European Union Meetings – Defense sessions focused on military capabilities)
2013	The cost of Non-Europe in Common Security and Defence Policy (European Parliamentary Research Service)

2013	The Development of a European Defence Technological and Industrial Base (EDTIB) (Directorate-General for External Policies of The Union, European Parliament)
2013	Towards a More Competitive and Efficient European Defence and Security Sector (European Commission)
2013	Preparing the December 2013 European Council on Security and Defence Interim Report by the High Representative European
2013	European Council Conclusions from 19/20 December 2013 – "Defense matters" (European Council)
2014	Council Conclusions on Common Security and Defence Policy (Council of the European Union)
2014	Review of Security Measures in the 7th Research Framework Programme FP7 2007–2013 (European Parliament)
2014	A New Deal for European Defence – Toward a More Competitive and Efficient Defence and Security Sector (European Commission)
2015	In Defence of Europe – Defence Integration as a Response to Europe's Strategic Moment, European Political Strategy Centre Strategic note by Michel Barnier, then Special Adviser on European Defence and Security Policy to President Jean-Claude Juncker (European Commission)
2015	Position Paper on Technology Priorities for the EU Preparatory Action on CSDP-related Research (ASD – AeroSpace and Defence Industries Association of Europe)
2016	Report of the Group of Personalities on the Preparatory Action for CSDP-related Research – European Defence Research – The Case for an EU-funded Defence R&T Programme (European Union Institute for Security Studies)
2016	Implementation Plan on Security and Defence proposed by the High Representative of the Union for Foreign Affairs and Security Policy, Vice President of the European Commission, and Head of the European Defence Agency (Council of the European Union)
2016	European Defence Action Plan: Towards a European Defence Fund (European Commission)
2017	Reflection Paper on the Future of European Defence (European Commission)
2017	Launching of the European Defence Fund (EDF) (European Commission)
2017	Launching of the European Commission's Preparatory Action on Defence Research (Research Strand of the EDF) (Implemented by the European Defence Agency)
2018	Council Recommendation Concerning a Roadmap for the Implementation of PESCO (Council of the European Union)
2018	The Establishment of the European Defence Industrial Development Programme (EDIDP)
2019	Launching of the European Commission's European Defence Industrial Development Programme (Industrial Development Strand of the EDF) (Implemented by the Directorate-General for Defence Industry and Space – DG DEFIS)
2020	Agreement Reached between the European Parliament and the Member of the European Union on the European Defence Fund with a budget of nearly €8 billion under the 2021–2027 Multiannual Financial Framework
2021	"Three-Point Belt" Action Plan" on Synergies between Civil, Defence, and Space Industries (European Commission)

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