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Benchmarking Defence

A Roadmap for Türkiye–EU Defence Industrial Synergy in the Age of Global Competition

Ekrem Cünedioğlu · Prof. Ahmet Erdi Öztürk · Can Selçuki



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Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning
ADR	Aerospace, defence and related (products)	ISIC	International Standard Industrial Classification
ASAP	Act in Support of Ammunition Production	METU	Middle East Technical University (ODTÜ)
BACI	CEPII database of international trade at product level	MoU	Memorandum of understanding
BAMF	Federal Office for Migration and Refugees (Germany)	MSB	Ministry of National Defence of Türkiye
CEPII	Centre d'études prospectives et d'informations internationales	MSCA	Marie Skłodowska-Curie Actions
CJEU	Court of Justice of the European Union	NABO	National Assembly Budget Office (South Korea)
CORDIS	Community Research and Development Information Service	NACE	Statistical classification of economic activities in the European Community
CSET	Center for Security and Emerging Technology	NIF	NATO Innovation Fund
DAPA	Defense Acquisition Program Administration (South Korea)	OSB	Organised industrial zone (organize sanayi bölgesi)
DEDAS	State-to-state military sales model (Devletten Devlete Askerî Satış)	PESCO	Permanent Structured Cooperation
DIANA	Defence Innovation Accelerator for the North Atlantic	PGZ	Polska Grupa Zbrojeniowa (Polish state defence group)
EDA	European Defence Agency	R&D	Research and development
EDF	European Defence Fund	RCA	Revealed comparative advantage
EDIP	European Defence Industry Programme	SAFE	Security Action for Europe
EEA	European Economic Area	SIPRI	Stockholm International Peace Research Institute
EFTA	European Free Trade Association	SMEs	Small and medium-sized enterprises
EIC	European Innovation Council	SSB	Presidency of Defense Industries (Savunma Sanayii Başkanlığı)
EIF	European Investment Fund	SWP	German Institute for International and Security Affairs
ESSI	European Sky Shield Initiative	TIV	SIPRI trend-indicator value
EUDIS	EU Defence Innovation Scheme	TUSAŞ	Turkish Aerospace
FOB	Free on board	TÜBİTAK	Scientific and Technological Research Council of Türkiye
GERD	Gross domestic expenditure on R&D	TÜİK	Turkish Statistical Institute
HS	Harmonized System	TİM	Turkish Exporters Assembly
ICT	Information and communication technologies	UNIDO	United Nations Industrial Development Organization
IISS	International Institute for Strategic Studies	WTO	World Trade Organization

Abbreviation	Meaning	Abbreviation	Meaning
ISCED	International Standard Classification of Education	YÖK	Council of Higher Education of Türkiye

Executive Summary

Europe is rearming faster than its industry can produce, and much of what it buys comes from outside the Union. Türkiye, a NATO Ally and EU candidate, has a fast-growing defence industry that already works with European firms. Its relations with the EU, however, are strained by the Cyprus issue, its low alignment with EU foreign policy and concerns about democracy and the rule of law, and accession negotiations have stood still since 2018. This desk study asks whether and how defence industrial cooperation can grow under these conditions, as a track of its own that neither alters the conditions of accession nor replaces accession.

Its answer is that the main obstacle is legal and political rather than industrial. Turkish capacity is narrower than often claimed, strongest in ammunition, explosives, less complex platforms and parts, but it matches some of the bottlenecks that the Commission itself has named. What stands in the way is the absence of the agreements on which the EU's deeper defence partnerships rest. Until they exist, the route that works is production inside the EU, which Turkish firms have already begun to take.

Main findings

European industry cannot supply all the defence equipment that member states want to buy. EU member states spent EUR 418 billion on defence in 2025, and in 2021–2025 the United States provided about half of their imports of major arms and South Korea about a tenth. For 155 mm shells, the Commission names high explosives and powders as the main bottlenecks, and Turkish exports of propellant powders to member states rose quickly in 2022–2024. The Kiel Institute, by contrast, finds shell output close to demand, while production of tanks, infantry fighting vehicles, missiles and fighter jets remains low.

Türkiye's defence industry has grown quickly, and most of its imports of major arms come from EU member states. The Turkish defence and aerospace sector, civil aerospace included, exported USD 10.0 billion in 2025, against USD 1.7 billion in 2016, and USD 11.2 billion in the twelve months to July 2026, and five Turkish firms were in the SIPRI Top 100 for 2024. Germany, Spain and Italy provided almost 80% of Türkiye's imports of major arms in 2021–2025, and member states licensed EUR 3.34 billion of military exports to Türkiye in 2024, although reported exports are much smaller. Some member states buy Turkish ammunition, and Turkish Aerospace makes parts for Airbus.

Türkiye's new export strengths are mainly in arms, ammunition and explosives, and rarely in complex products. In 2022–2024 Türkiye had a revealed comparative advantage (a larger share of a product in its exports than in the exports of all major exporters) in 22 of 49 aerospace, defence and related products. This was up from 10 in 2012–2014, but several advantages rest on large shipments in one or two years, and for 2021–2023 the count is only 15. Türkiye has none in lasers and optical parts, radar or small jet engines, products far from its current exports. Since 2016–2018, Turkish sales in the EU market have grown mainly through a few large deliveries of drones and ammunition to Poland, Slovakia and Romania. On present trade data, Türkiye is more useful to the EU as a source of extra capacity and parts than as a substitute for US or Korean makers of complex systems.

Turkish firms already invest and produce together with European firms inside the EU. Baykar and Leonardo own an equal joint venture in Italy, and Otokar builds armoured vehicles for the Romanian army at a plant it bought in Romania. Airbus and Turkish Aerospace jointly lead the Hürjet jet trainer

contract for Spain, in which aircraft built in Türkiye are converted in Spain. Production inside the EU fits two new EU programmes: the Security Action for Europe (SAFE), which lends for common procurement, and the European Defence Industry Programme (EDIP). In principle, both support production only in the EU or a few associated countries such as Norway and limit components from other countries to 35% of the cost of components.

Joint production zones in Thrace, the Turkish region near the EU border, would not meet most legal tests. Goods made there could not receive EU funding, would count as non-EU content under SAFE and EDIP, and would need export licences for trade in both directions. The region can still host component suppliers within the 35% limit, and test work for joint ventures in the EU.

South Korea shows that buyers now expect production in their own country, and that EU content rules apply to all outside suppliers. Korea became a net exporter of major arms in the same period as Türkiye, and its firms offer local production in large contracts. Mainly because of Poland, its exports of aerospace, defence and related products to the EU reached one and a half times the level a trade model predicts in 2022–2024. Like Türkiye, it asked for SAFE talks, but the EU opened negotiations only with Canada and the United Kingdom.

EU defence instruments are closed to Türkiye because three legal preconditions are missing. Türkiye has no security of information agreement with the EU, which governs the exchange of classified information. Nor does it have an agreement under Article 17 of SAFE, which would open SAFE procurement to its firms, or an administrative arrangement with the European Defence Agency, needed for the Agency's projects. Without the first, Türkiye cannot join projects under Permanent Structured Cooperation (PESCO), even if every member state agrees. Firms based in a member state but controlled from Türkiye need host-state guarantees or screening to join SAFE, EDIP and the European Defence Fund. According to the IISS, Greece and Cyprus blocked the start of SAFE talks with Türkiye.

Turkish defence start-ups hardly appear in the open data on Europe's defence venture capital. European defence, security and resilience start-ups raised USD 8.7 billion in 2025, but open data list almost no Turkish defence technology deals. Türkiye invests in the NATO Innovation Fund and hosts an accelerator site and many test centres of NATO's Defence Innovation Accelerator for the North Atlantic (DIANA). Yet only three Turkish companies entered the 2026 DIANA cohort, against nine each from Germany and Italy, so these NATO channels, open to Turkish firms on equal terms, seem under-used.

Türkiye's research cooperation with the EU is civil, and in sensitive technologies Türkiye has less access than other partners. Türkiye is associated to Horizon Europe, and Turkish participants received EUR 402 million in grants signed up to August 2026, 0.64% of the net EU contribution, below the shares of Israel, Norway and the United Kingdom. Yet 18 of the 82 topics in the 2025 work programme for digital, industry and space, with 28.7% of the budget, were closed to entities established in Türkiye. Nine of them, in artificial intelligence, quantum computing and networks, were open to South Korea, Israel, Canada and the United Kingdom.

Türkiye has a large talent pool, and more skilled Turkish nationals are moving to the EU. In 2024 Türkiye had more graduates in engineering and in information and communication technology than any EU member state, although almost half came from short-cycle programmes below bachelor's level. Turkish citizens received the third-largest number of EU Blue Cards in 2024. Most Blue Card holders of all nationalities in Germany stay long term. Joint talent schemes can work at scale only for unclassified work until a security of information agreement exists.

Four member states with links to Turkish industry can work with Türkiye where EU unanimity is not needed. Poland, Romania, Italy and Spain have documented industrial links with Turkish firms and, according to independent research, promising or relatively cooperative relations with Türkiye. They are not natural advocates for Türkiye, but together they can make host-state procedures predictable, continue co-production and use small-group formats such as the European Sky Shield Initiative (ESSI). Germany can also help, for example by backing Türkiye's request to join the ESSI framework agreement, as it did in January 2026.

Recommendations

- **Companies and investment.** Turkish firms should favour joint ventures and subsidiaries in EU member states and prepare for host-state screening and guarantees (R1). Thrace should become a base for component suppliers and test work serving joint ventures in the EU (R2). Turkish start-ups should make fuller use of the NATO Innovation Fund and DIANA, supported by the Investor Matchmaking Series (Annex B; R3). The Presidency of Defense Industries (SSB) and the Turkish Statistical Institute (TÜİK) should publish better data on defence R&D, capacity and co-production (R4).
- **Bilateral and small-group cooperation.** The partner states should publish clear host-state procedures for Turkish-controlled defence firms (R5), and together with Türkiye they should agree frameworks for co-production (R6). Germany and the other ESSI participants should decide on Türkiye's request to join the framework agreement for joint procurement (R7). Türkiye and interested member states should launch the Blue Bridge talent initiative for unclassified work (Annex A; R8).
- **EU instruments.** The EU and Türkiye should open negotiations on a security of information agreement, the most important single step (R9). The European Defence Agency and Türkiye should explore an administrative arrangement with a narrow initial scope (R10). The EU and Türkiye should restore political dialogue, including meetings of the Association Council (R11). The EU should publish the conditions under which Turkish entities can take part in restricted research topics (R12), and the negotiations on the post-2027 instruments should define a route for candidate countries (R13). Türkiye should align with the EU Common Position on arms exports and with EU positions in multilateral export control arrangements (R14).

The smaller legal steps, a security of information agreement and an arrangement with the European Defence Agency, should come first, because an agreement under SAFE and a PESCO project build on them.

1. Introduction

1.1 Purpose of the report

Europe is rearming. Defence spending of EU member states reached EUR 418 billion in 2025 and is projected to rise further in 2026 (European Defence Agency, 2026a). The EU has also created new instruments to finance defence production and common procurement (Council of the EU, 2025; European Parliament and Council, 2025). The European Commission and the High Representative, however, state that the European defence industry cannot yet produce equipment in the quantities and at the speed that member states need (European Commission and High Representative, 2025). Türkiye, a NATO Ally and an EU candidate country, has built a defence industry whose exports have grown strongly over the past decade and that already works with European firms. But Türkiye's political relations with the EU are difficult, and accession negotiations have been at a standstill since 2018 (European Commission, 2025g).

This is part of a wider change in which defence production has become an instrument of economic statecraft. The United States wants to be again "the world's premier arsenal" for its allies while asking Europeans to take primary responsibility for their conventional defence (Section 2.2). Large buyers now expect production and technology transfer in their own country (Section 3.5). The EU's new instruments reward production inside the Union and cap components from outside it (Chapter 4). In this competition, the question for Türkiye is not only whether its industry can sell to Europe, but on which side of the EU's content rules its production takes place.

This report asks whether and how defence industrial cooperation between Türkiye and the EU can grow despite these political difficulties. To answer this question, it compares Türkiye with the EU's other partners and with South Korea, which, like Türkiye, moved from net importer to net exporter of major arms in 2021–2025. The comparison covers trade and industry, investment, research and human capital.

The intended readers are policy makers, industry and experts in Brussels, Berlin, Ankara and other European capitals. The report takes no position on Türkiye's accession to the EU. It treats defence industrial cooperation as a separate track, for the reasons set out in Section 2.6.

1.2 Research questions

The report tests three claims often made about Türkiye's role in European defence: that European industry cannot meet European demand, that Turkish industry can fill part of the gap, and that industrial cooperation can progress while political relations are blocked. These claims are turned into nine research questions and tested against published data and legal texts (Table 1.1).

Table 1.1. Research questions of the report

Area	Research question	Chapter	Main sources
Context	How have European defence spending, industrial capacity and dependence on non-European suppliers changed, and where does Türkiye stand?	2	NATO, European Defence Agency and SIPRI data; EU strategy documents

Area	Research question	Chapter	Main sources
EU partnerships	Which legal instruments does the EU use with non-member partners in defence, and which of them does Türkiye have?	2, 7	EU legal acts; Council decisions; partnership texts
Trade and industry	How large is defence and aerospace trade between Türkiye and the EU, what does it show about Turkish capabilities, and in which forms do Turkish and European firms co-produce?	3	Eurostat, CEPII (BACI) and SIPRI data; company and ministry documents
Benchmark	What can be learned from South Korea's path from importer to exporter?	3	SIPRI and CEPII (BACI) data; Korean official sources
Production zones	Are joint production zones in Thrace a workable model under EU and Turkish law?	3	Customs Union law; EU regulations; Turkish law; regional data
Investment	How can Turkish firms and start-ups take part in NATO and EU funding for defence innovation?	4	SAFE, EDIP and European Defence Fund regulations; NATO Innovation Fund and DIANA; start-up data
Research	What is the level of Turkish participation in EU research, and where are the limits in dual-use fields?	5	CORDIS; Horizon Europe work programmes; OpenAlex; OECD
Human capital	How large is the movement of skilled Turkish nationals to the EU, and which legal channels allow circulation?	6	Eurostat; BAMF; EU directives; Turkish law
Political strategy	Which member states can form a partner group, and what can such a group do?	7	NATO and SIPRI data; think-tank research; ministry sources
Roadmap	Which steps should be taken, by whom and in which order?	8	Findings of Chapters 2 to 7

1.3 Structure of the report

Chapter 2 describes the strategic setting and the legal instruments of EU cooperation with non-member states. Chapters 3 to 6 examine the four pillars: trade and industrial integration, investment and risk capital, research and innovation, and human capital. Chapter 7 turns to the political strategy and the partner group, and Chapter 8 sets out the roadmap and the recommendations. Annex A contains a draft framework for the Blue Bridge talent initiative, Annex B a concept note for the Investor Matchmaking Series for dual-use ventures, and Annex C the methods of the trade analysis in Chapter 3. Amounts are in current prices unless stated otherwise.

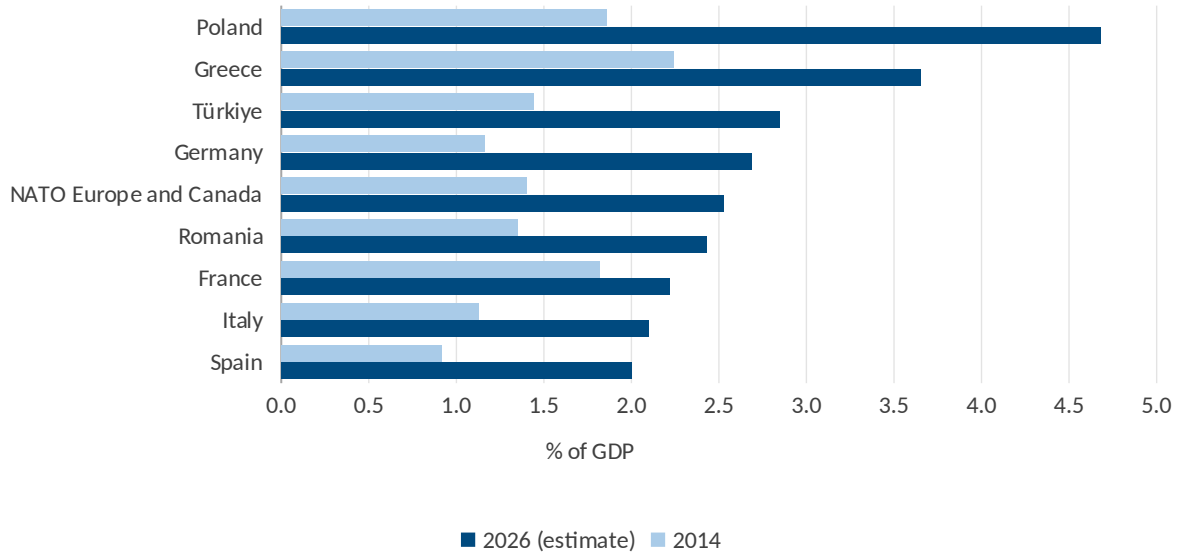
2. The Strategic Setting

This chapter describes the conditions for defence industrial cooperation between Türkiye and the EU: European rearmament and dependence on outside suppliers, Türkiye's industrial rise, political relations and the EU's cooperation with non-member states in defence.

2.1 Europe's rearmament and its industrial gap

Defence spending in Europe has grown quickly since 2022. According to the European Defence Agency, total defence expenditure of the 27 EU member states reached EUR 418 billion in 2025, or 2.2% of GDP. This was 20% more than in 2024 in constant 2025 prices, and spending is projected to reach EUR 454 billion, or 2.4% of GDP, in 2026 (European Defence Agency, 2026a). NATO data show the same trend. Core defence expenditure of the European Allies and Canada rose from 1.40% of GDP in 2014 to an estimated 2.53% in 2026 (Figure 2.1). At the NATO Summit in The Hague in June 2025, Allies committed to spending 5% of GDP a year by 2035, with at least 3.5% on core defence requirements (NATO, 2025).

Figure 2.1. Core defence expenditure as a share of GDP, selected Allies, 2014 and 2026



Source: NATO (2026a). Share of real GDP, 2021 prices; 2026 figures are estimates.

Money is no longer the only constraint, as the Commission and the High Representative make clear in the Joint White Paper for European Defence Readiness 2030. They state that the European defence industry "is not able to produce defence systems and equipment in the quantities and speed that Member States need" and that it "remains too fragmented" (European Commission and High Representative, 2025). The fragmentation shows in procurement, trade and equipment. Only 18% of equipment spending went to collaborative European procurement in 2022, far below the benchmark of 35% agreed by member states (European Commission and High Representative, 2024). In 2025, collaborative spending including partners outside the EU reached 24% of equipment procurement, while European collaborative spending accounted for only 11% of defence investment in the 19 member states that reported it (European Defence Agency, 2026a). Trade in defence goods between member states represents only 15% of the EU defence market (European Commission and High

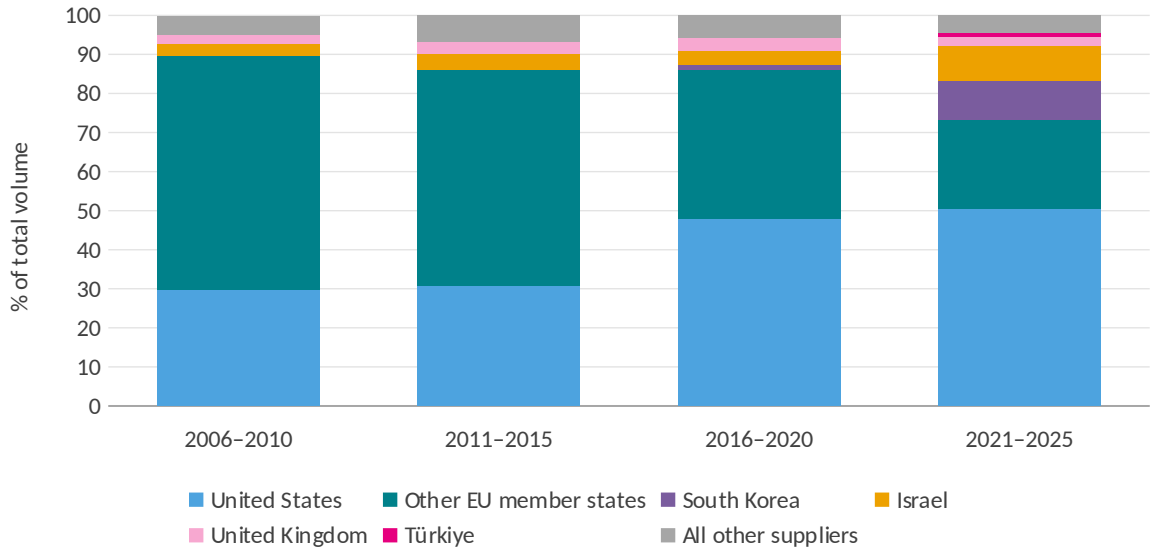
Representative, 2024). European armed forces use a large number of different models of main battle tanks, artillery systems and infantry fighting vehicles (European Defence Agency, 2025).

Production capacity has increased, but more slowly than demand. In March 2024 the Commission reported that capacity for artillery ammunition had grown by 50% since the start of Russia's war against Ukraine, to 1 million rounds a year (European Commission and High Representative, 2024). One year later, the White Paper set a minimum objective of 2 million rounds of large-calibre ammunition a year for Ukraine alone (European Commission and High Representative, 2025).

2.2 Dependence on non-European suppliers and the shift in US priorities

European rearmament has so far relied heavily on suppliers outside the EU. Calculations for this report from SIPRI arms transfer data show that the volume of major arms imported by the 27 EU member states in 2021–2025 was about three times the level of 2016–2020. The United States supplied 51% of this volume, compared with 30% in 2006–2010. Over the same period, the share of other EU member states fell from 60% to 23%. In 2021–2025, South Korea supplied about a tenth and Türkiye 1% (Figure 2.2).

Figure 2.2. Imports of major arms by EU member states, by supplier, 2006–2025



Source: SIPRI (2026a), data generated on 26 September 2026; calculations for this report. Shares of the volume of deliveries in SIPRI trend-indicator values, a unit that measures the volume of transfers, not their financial value. Imports of the 27 member states are added up, so transfers between member states are included.

The Commission gives a similar picture, stating that 78% of member states' defence acquisitions between February 2022 and June 2023 were made outside the EU, with the United States alone representing 63% (European Commission and High Representative, 2024). This figure comes from an external study and refers to acquisitions, while the SIPRI data measure deliveries. In response, the Commission and the High Representative invite member states to procure at least 50% of their defence investment within the EU by 2030 and 60% by 2035 (European Commission and High Representative, 2024).

Dependence is most serious in specific capabilities. The White Paper lists air and missile defence and strategic enablers such as intelligence and surveillance among seven priority capability areas (European Commission and High Representative, 2025). Germany uses the US Patriot system for long-

range air defence and announced in 2022 that it would procure the Israeli Arrow 3 system against long-range ballistic missiles (Federal Ministry of Defence (BMVg), 2022a). The Kiel Institute finds that overall US weapon imports are “not excessive”, but that reliance on American systems in critical modern capabilities remains a concern (Kiel Institute for the World Economy, 2025).

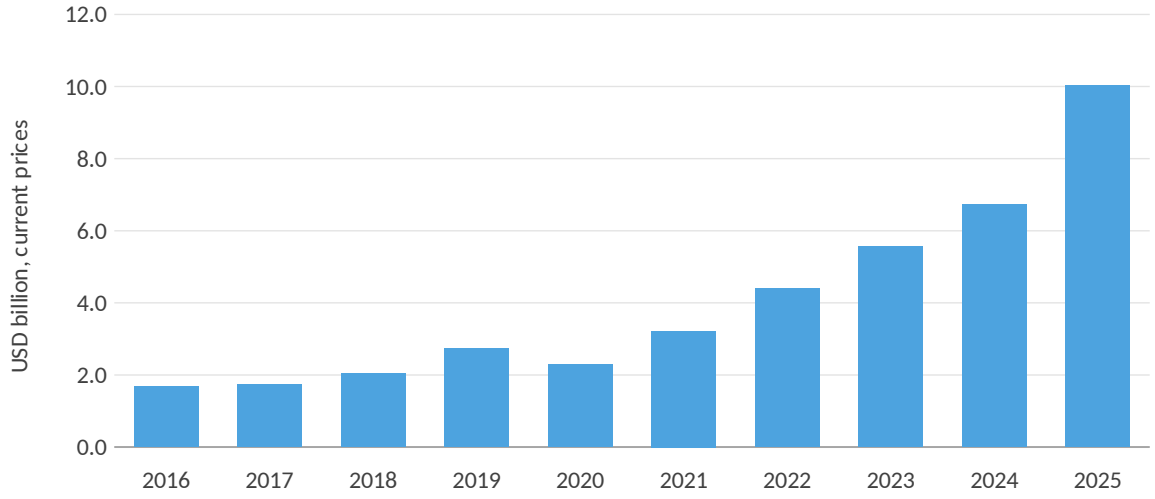
US priorities have also changed. The 2026 National Defense Strategy sets four lines of effort in this order: defending the US homeland, deterring China in the Indo-Pacific, increasing burden-sharing with allies and partners, and strengthening the US defence industrial base. It states that the United States will enable NATO allies “to take primary responsibility for Europe’s conventional defense with critical but more limited U.S. support” (US Department of War, 2026). The Strategy also aims to make the United States once again “the world’s premier arsenal” for its allies and partners (US Department of War, 2026). European buyers thus face two pressures, to buy more from the United States and, as the EU itself wants, to buy more in Europe. Any role for Turkish suppliers has to be judged against both.

2.3 Türkiye’s defence effort and industrial rise

Türkiye has increased its defence spending faster than most Allies. NATO data show core defence expenditure of 1.44% of GDP in 2014 and an estimated 2.85% in 2026, above the figure for NATO Europe and Canada as a whole (2.53%). In real terms, spending is estimated to rise by 240% between 2014 and 2026 (NATO, 2026a). SIPRI, which uses a different definition, estimates Turkish military expenditure at USD 30.0 billion, or 1.9% of GDP, in 2025. In the same estimate, allocations to the special fund that supports the Turkish arms industry accounted for 22% of military expenditure in 2025 (SIPRI, 2026c).

Five Turkish companies were in the SIPRI Top 100 arms-producing companies for 2024, the highest number ever, with combined arms revenues of USD 10.1 billion (SIPRI, 2025b). Türkiye was the 11th largest exporter of major arms in 2021–2025. Its share of global exports was 1.8%, and the volume of its exports was 122% higher than in 2016–2020 (SIPRI, 2026b). Export registration figures of the Turkish Exporters Assembly (TİM) show that exports of the defence and aerospace sector rose from USD 1.7 billion in 2016 to USD 10.0 billion in 2025 (Figure 2.3). These figures include civil aerospace, which was the largest part of the foreign sales reported by the sector’s companies in 2022 and 2023 (SASAD, 2024), so they should not be read as arms exports. The Presidency of Defense Industries (SSB) set a target of USD 11 billion for 2028 (SSB, 2024) and expects to reach it in 2026 (SSB, 2026b). Exports in the twelve months to July 2026 were already USD 11.2 billion (TİM, 2026).

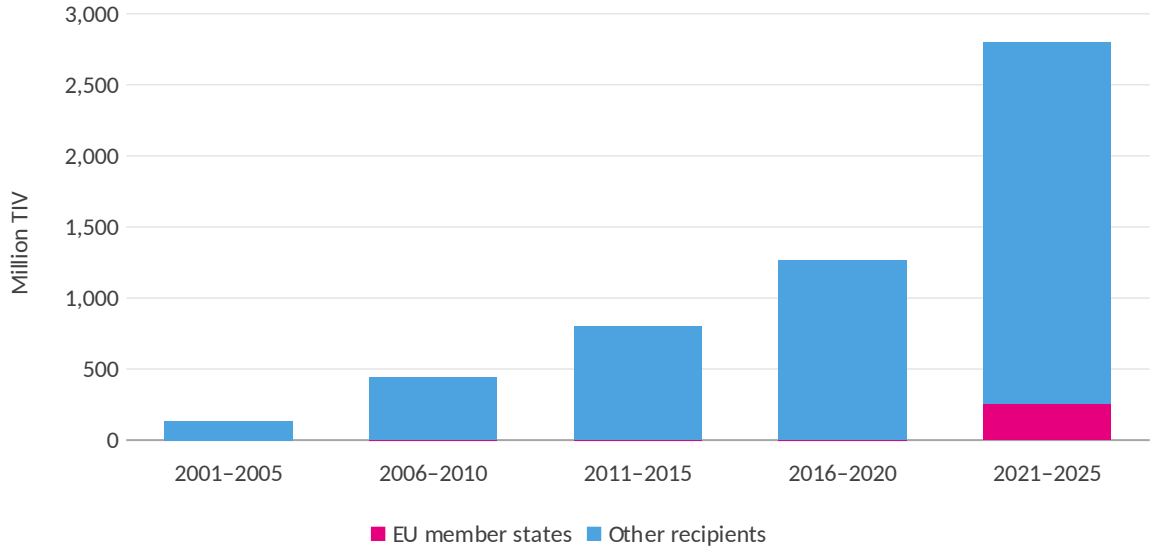
Figure 2.3. Exports of Türkiye's defence and aerospace sector, 2016–2025



Source: TİM (2026), sectoral export registration figures. The sector includes civil aerospace.

Most Turkish arms exports go to countries outside the EU. The main recipients in 2021–2025 were Pakistan (16% of the volume), the United Arab Emirates (12%) and Ukraine (8.4%) (SIPRI, 2026b). Deliveries to EU member states were close to zero until 2020. In 2021–2025 they reached 9% of the volume of Turkish arms exports, with Romania, Poland, Estonia, Hungary and Croatia as recipients (Figure 2.4).

Figure 2.4. Volume of Türkiye's exports of major arms by destination, 2001–2025



Source: SIPRI (2026a), data generated on 26 September 2026; calculations for this report. Five-year totals in millions of SIPRI trend-indicator values.

Trade also runs from the EU to Türkiye, so the two sides depend on each other. Germany, Spain and Italy supplied about four fifths of Türkiye's imports of major arms in 2021–2025 (SIPRI, 2026b), and Turkish programmes still depend on European subsystems and on European export licences for them (Sections 3.1 and 3.2). The International Institute for Strategic Studies (IISS) describes the Turkish industry as "deeply embedded in the Western defence-industrial and aerospace ecosystem" (IISS, 2024).

2.4 Türkiye–EU political relations

Türkiye has been a candidate country since December 1999 (European Commission and High Representative, 2023). Accession negotiations have been at a standstill since 2018; 16 negotiating chapters have been opened and one of them provisionally closed (European Commission, 2025g). In April 2024 the European Council asked for work on the recommendations of the 2023 Joint Communication on EU–Türkiye political, economic and trade relations to advance "in a phased, proportionate and reversible manner" and attached particular importance to the Cyprus settlement talks (European Council, 2024).

Several obstacles affect security and defence cooperation directly. The Commission and the High Representative state that Türkiye's stance on the Cyprus issue and the non-recognition of the Republic of Cyprus "continues to hamper different paths of cooperation, including in the areas of security and defence" (European Commission and High Representative, 2023). Türkiye's alignment with EU foreign policy declarations fell to 4% in 2025, from 6% in 2024 (European Commission, 2025g). Turkish officials argue that this indicator does not fairly reflect Türkiye's alignment, because Ankara is often not notified of the declarations in a timely way (International Crisis Group, 2026). The European Parliament names the S-400 air defence system among the obstacles to trust. It asks the Turkish authorities to "place less emphasis on the country's capabilities in security and defence" and to address the state of democracy. It also notes that further serious backsliding in the rule of law and in fundamental rights has been documented in the most recent period. Even so, the Parliament considers it important to explore cooperation with Türkiye in EU security and defence policies (European Parliament, 2026).

Despite these obstacles, Türkiye is the largest non-EU contributor of troops to the EU operation Althea in Bosnia and Herzegovina (European Commission, 2025g). Informal EU–Türkiye consultations on the Common Security and Defence Policy resumed in June 2025 after four years (European Commission, 2025g).

2.5 How the EU works with non-member states in defence

The EU describes its approach to partners as "an open architecture combined with variable geometry" (European Commission and High Representative, 2025). In practice, defence cooperation with non-member states rests on a set of legal instruments, from a Security and Defence Partnership to an agreement under Article 17 of the 2025 SAFE Regulation (Box 2.1). Six selected partners hold very different sets of these instruments, and their association to Horizon Europe also differs (Table 2.1).

Box 2.1. Key EU instruments in this report

Security Action for Europe (SAFE). Loans of up to EUR 150 billion to member states for common procurement (Council of the EU, 2025).

European Defence Industry Programme (EDIP). EU support to the defence industry of EUR 1.2 billion up to the end of 2027, plus EUR 300 million for Ukraine (European Parliament and Council, 2025).

European Defence Fund. EU funding for defence research and development of EUR 9.453 billion for 2021–2027 (European Parliament and Council, 2021c).

Permanent Structured Cooperation (PESCO). The framework for joint defence projects of member states. A third country can join a project only if the project members agree and the Council decides (Council of the EU, 2020).

Security and Defence Partnership. A framework for regular dialogue and cooperation on security and defence.

Security of information agreement. It sets the rules under which the EU and a partner exchange and protect classified information.

Agreement under Article 17 of SAFE. It lets a partner country's firms take part in SAFE procurement on agreed terms, as the agreement with Canada of 2026 does (EU and Canada, 2026).

Administrative arrangement with the European Defence Agency. The condition for a partner to take part in the Agency's projects (European Defence Agency, 2026b).

Table 2.1. Legal building blocks of defence cooperation between the EU and selected partners, September 2026

Partner	Security and Defence Partnership	Security of information agreement	EDA arrangement	PESCO project	European Defence Fund	SAFE	Horizon Europe
Norway	Yes (2024)	Yes (2004)	Yes (2006)	Military Mobility (2021)	Associated (EEA)	Eligible as EEA EFTA state	Associated
United Kingdom	Yes (2025), non-binding	Yes (2021)	No	Military Mobility (2022)	Not associated	Talks ended without agreement	Associated*
Canada	Yes (2025)	Yes (2018)	No	Military Mobility (2021)	Not associated	Agreement (2026)	Associated to Pillar II
Japan	Yes (2024)	No; to be explored	No	No	Not associated	Eligible to negotiate	Associated to Pillar II
South Korea	Yes (2024)	No; to be explored	No	No	Not associated	Requested talks; none started	Associated to Pillar II
Türkiye	No	No	No	Request reported (2021); no decision published	Not associated	Requested talks; none started. Firms not authorised	Associated

Sources: EU and Norway (2024); EU and Japan (2024); EU and Republic of Korea (2024); EU and Canada (2026); House of Commons Library (2026); UK House of Commons (2026); Council of the EU (2020, 2021b, 2021a, 2022, 2025, 2026a); European Defence Agency (2026b); European Parliament and Council (2021c); European Parliament (2021); European Commission (2025g, 2025a, 2026a); IISS (2024, 2025a). Years in the security of information column refer to entry into force. * Except the EIC Fund.

Norway is the most integrated partner. Through the European Economic Area it is part of the European defence industrial base, and it aligns with EU foreign policy positions (EU and Norway, 2024). It holds all

the instruments in Table 2.1 (EU and Norway, 2024; Council of the EU, 2021b; European Defence Agency, 2026b; European Parliament and Council, 2021c) and, as an EEA EFTA state, can take part in SAFE common procurement on the same terms as member states (Council of the EU, 2025). The United Kingdom adopted a non-binding Security and Defence Partnership with the EU in May 2025. The Council authorised negotiations on its participation in SAFE in September 2025, but the talks ended without an agreement (House of Commons Library, 2026; UK House of Commons, 2026).

Canada concluded an agreement with the EU on its participation in SAFE in June 2026 (Council of the EU, 2026a), and Section 4.5 describes its terms. Japan and South Korea concluded Security and Defence Partnerships with the EU in November 2024, but both commit only to exploring a security of information agreement (EU and Japan, 2024; EU and Republic of Korea, 2024).

Türkiye has none of the first three instruments in Table 2.1. Its framework agreement with the EU from 2006 covers only participation in EU crisis management missions (European Commission, 2025g). The lack of a security of information agreement has a direct legal effect, because the PESCO rules require a third country to have one in force, and where applicable an administrative arrangement with the European Defence Agency, before it can join a project (Council of the EU, 2020). Press reports in 2021 described a Turkish request to join the PESCO project Military Mobility, but no Council decision on it has been published (European Parliament, 2021; IISS, 2024). As a candidate country, Türkiye may conclude a participation agreement under SAFE (Council of the EU, 2025). In August 2025, however, the Commission confirmed that no such agreement exists and that "Turkish companies are not authorised to participate in SAFE common procurements" (European Commission, 2025a). According to the IISS, four non-EU countries asked for negotiations under SAFE in 2025, namely Canada, South Korea, the United Kingdom and Türkiye, and talks were opened only with Canada and the United Kingdom (IISS, 2025a).

2.6 From normative to functional alignment: the approach of this report

The EU's relations with a candidate country normally rest on normative alignment: closer ties follow the partner's convergence with the Union's values, laws and foreign policy. Section 2.4 shows that this route is blocked for Türkiye. Another possible model is functional integration, meaning close cooperation in specific sectors without membership, similar to the EU's relations with Norway and the United Kingdom. The evidence in this chapter supports this idea only in part. The EU does work with non-member states in flexible ways, but each deeper partnership rests on specific legal instruments. Apart from its association to Horizon Europe, Türkiye holds none of those that defence cooperation requires today.

Even so, Turkish companies have already set up or bought production capacity in Italy and Romania, and Turkish Aerospace works with Airbus on a training aircraft programme for Spain (Chapter 3). In these projects, part of the production or conversion work is located inside the EU. Under SAFE, companies established in the EU but controlled from a third country may take part in common procurement if they pass investment screening or give guarantees (Council of the EU, 2025).

Several independent studies favour dealing with defence cooperation apart from accession. The German Institute for International and Security Affairs (SWP) recommends that the EU treat enhanced defence cooperation with Ankara and the accession process as "two separate issues" (SWP, 2025). The International Crisis Group advises relying less on EU channels, which tend to be "clogged by political blockages", and more on bilateral and small-group arrangements (International Crisis Group, 2026).

Carnegie Europe, for its part, expects progress to come “through more bilateral commercial and industrial agreements, not as part of a political grand bargain” (Carnegie Europe, 2026).

For these reasons, this report treats defence industrial cooperation separately from the accession process, without changing the conditions of accession, and examines it on three levels: companies and investment, bilateral and small-group cooperation with member states, and EU instruments. For each level, the following chapters ask what current rules already allow, which legal instruments are still missing and which steps can be taken first.

2.7 Summary

European demand for defence equipment is growing faster than European production, and much of the new equipment comes from outside the EU. Türkiye’s industry has grown quickly and trades with European firms in both directions. Political relations are held back by the Cyprus issue, low alignment with EU foreign policy and concerns about the rule of law and democracy. Türkiye has none of the EU’s legal instruments for defence cooperation, so this report looks for cooperation that does not depend on accession, at the three levels set out in Section 2.6.

3. Pillar I: Trade and Industrial Integration

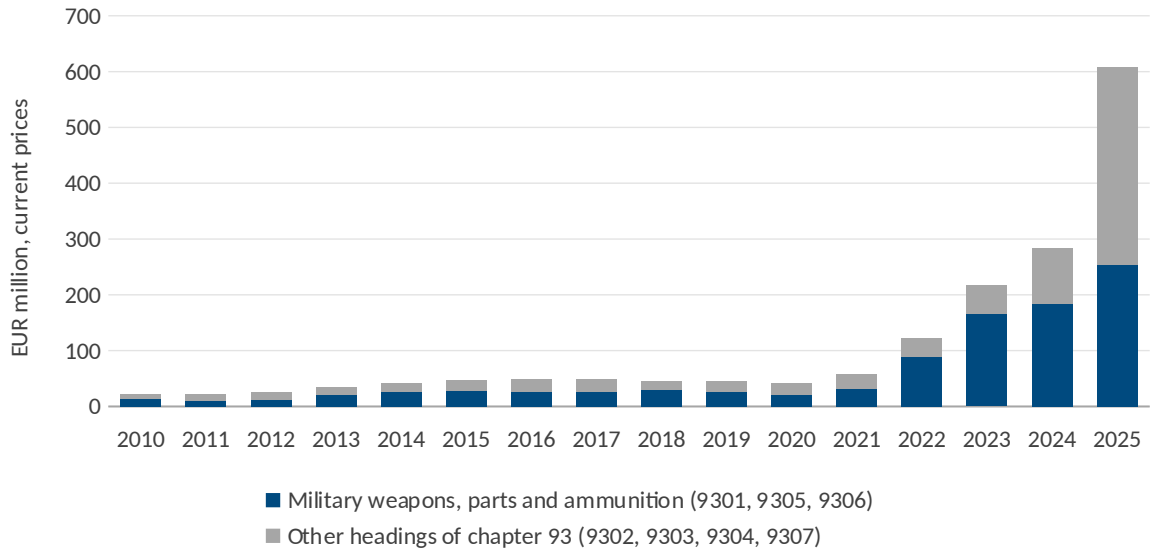
This chapter looks at the industrial side of the relationship and asks how far trade, investment and production data support a larger role for Turkish firms in European supply chains.

3.1 Trade in arms and aircraft between Türkiye and the EU

Customs data give a first measure of the trade relationship, but they record the value of goods that cross the border, whatever their end use, and so do not measure arms transfers. The relevant products are arms and ammunition, chapter 93 of the Harmonized System (HS), and aircraft and aircraft parts (chapter 88), which is mostly civil trade.

In arms and ammunition, trade was small until 2021, and the balance changed direction from year to year. EU exports to Türkiye were EUR 137.7 million in 2025, while EU imports from Türkiye rose from EUR 57.6 million in 2021 to EUR 607.8 million in 2025 (Figure 3.1). Türkiye has had a surplus in this trade with the EU in every year since 2021. About two fifths of the increase since 2021 is in ammunition (heading 9306), where EU imports from Türkiye rose from EUR 19.6 million in 2021 to EUR 242.5 million in 2025. The larger part, about three fifths, falls in the other headings of chapter 93 (pistols, sporting and hunting guns, other arms and swords). These headings cover civil as well as military goods, so this part cannot be classified as either. Most of the rise in 2025 is in these headings, from EUR 99.0 million in 2024 to EUR 353.4 million. Two member states took two thirds of EU imports under HS chapter 93 in 2021–2025: Czechia (33.5%) and Poland (32.9%). Almost all of Czechia's imports fall outside the headings for military weapons, their parts and ammunition (9301, 9305 and 9306), while most of Poland's are ammunition. EU exports to Türkiye in HS chapter 93 came mainly from Italy (40.9%) and Spain (31.6%) (Eurostat, 2026a).

Figure 3.1. EU imports from Türkiye of arms and ammunition (HS 93), by heading, 2010–2025

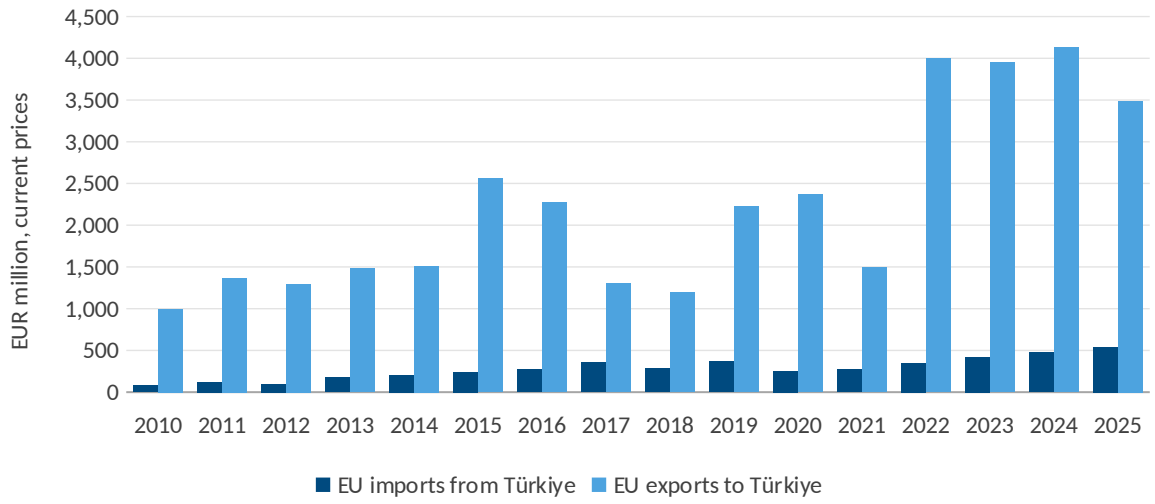


Source: Eurostat (2026a); calculations for this report. EUR million, current prices. Reporter EU27, partner Türkiye. Military weapons, their parts and ammunition are headings 9301, 9305 and 9306; the other headings of chapter 93 (9302, 9303, 9304 and 9307) cover pistols, sporting and hunting guns, other arms and swords. EU exports to Türkiye are given in the text. Customs values of trade in goods; chapter 93 is not limited to military goods, and the values are not a measure of arms transfers.

The BACI database of the research centre CEPII gives a wider view. It combines the figures reported by exporters and by importers for about 200 economies, product by product at the six-digit level of the HS (CEPII, 2026b). In 2024 Türkiye's exports of military weapons and their parts, ammunition not elsewhere specified, armoured vehicles and warships were USD 373.0 million, 1.46% of the world total, against USD 149.5 million and 1.19% in 2022. Its largest world share is in drones: exports under subheading 8806.99 were USD 245.8 million, 64.9% of the world total. Next come shotguns (29.4%), other firearms of heading 9303 such as signal and blank-firing pistols (15.8%), warships (13.9%) and pistols and revolvers (13.3%) (CEPII, 2026b). For 2024 the data record 73.2% of Türkiye's exports under heading 8806 as going to Romania and 23.4% to Poland, although SIPRI records deliveries of Turkish drones to 25 countries in 2022–2024 (SIPRI, 2026a). Most buyers therefore do not seem to declare such imports, and customs data understate trade in complete military systems. SIPRI data and customs data give different pictures of suppliers, because SIPRI measures the volume of major arms transferred between states in trend-indicator values (SIPRI, 2026b), while customs data record the declared value of goods, including civil firearms and ammunition. Because BACI also draws on the declarations of exporting countries, its values for EU imports from Türkiye can differ from the Eurostat figures above (Annex C).

Aircraft trade shows the opposite balance. EU exports of aircraft and parts to Türkiye were EUR 3,486.4 million in 2025. EU imports from Türkiye grew from EUR 79.1 million in 2010 to EUR 541.4 million in 2025, with falls in 2012, 2018 and 2020 (Figure 3.2). In 2021–2025, 87.6% of them went to Germany and France (Eurostat, 2026a). This pattern fits the supply links of Turkish Aerospace with Airbus, for which the company manufactures components for the A220, A320, A330 and A350 families and is the sole source of metallic parts for the A350 freighter (Turkish Aerospace (TUSAŞ), 2025b). The work is civil, but it places the company in the serial production chain of a large European aircraft maker (Turkish Aerospace (TUSAŞ), 2025b, 2025c).

Figure 3.2. EU trade with Türkiye in aircraft and aircraft parts (HS 8802, 8803 and 8807), 2010–2025



Source: Eurostat (2026a); calculations for this report. EUR million, current prices. Reporter EU27, partner Türkiye. Headings 8802 and 8803 up to 2021, and 8802 and 8807 from 2022, after the change of the Harmonized System in 2022. Other headings of chapter 88 are not included, among them unmanned aircraft, which have their own heading (8806) from 2022, so the series may have a break in 2022.

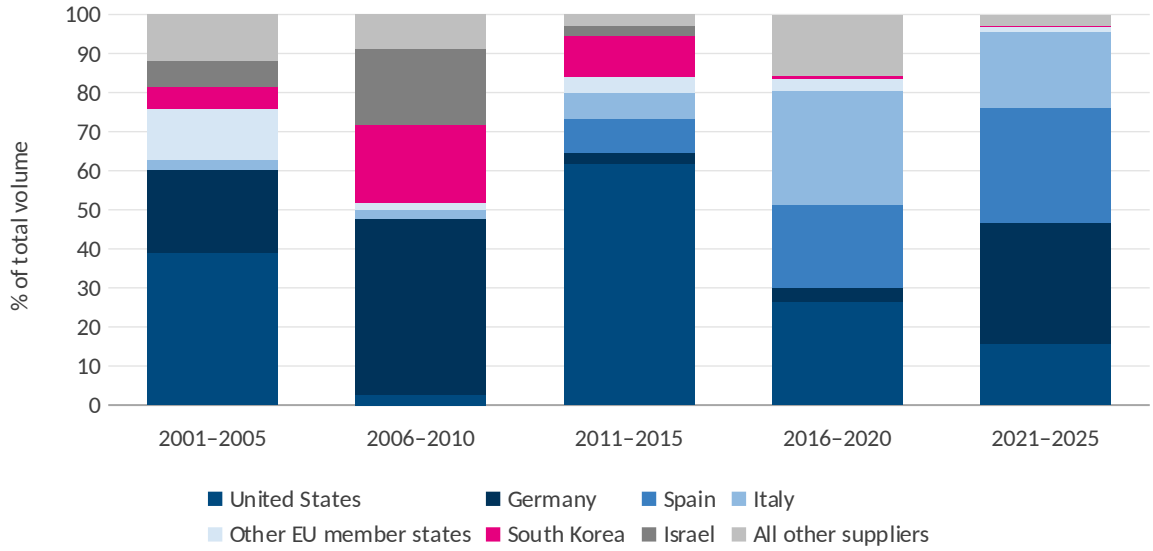
Customs data by chapter do not identify military goods recorded under other headings, and they do not cover services. Licensing data fill part of this gap, although licence values do not measure deliveries. According to the EU annual report on arms exports published in 2026, member states issued 637

export licences for Türkiye in 2024, with a value of EUR 3.34 billion (Council of the EU, 2026b). About 72% of this value comes from licences issued by Slovakia, and the actual exports reported by member states are much smaller (Council of the EU, 2026b). The report also records two refusals for Türkiye in 2024, and Türkiye is not among the third countries officially aligned with the EU Common Position on arms exports (Council of the EU, 2026b).

3.2 From buyer to producer

SIPRI data on transfers of major arms show a clear change in the origin of Türkiye's imports. In 2001–2005 the United States supplied 39.0% of the volume. In 2021–2025 its share was 15.8%, while Germany supplied 30.9%, Spain 29.4% and Italy 19.4% (Figure 3.3). The three member states together accounted for 79.8% of Türkiye's imports of major arms in 2021–2025, against 54.1% in 2016–2020.

Figure 3.3. Türkiye's imports of major arms by supplier, 2001–2025



Source: SIPRI (2026a), data generated on 26 September 2026; calculations for this report. Shares of the volume of deliveries in SIPRI trend-indicator values, five-year periods. Other EU member states are France, the Netherlands and Denmark in these periods. The United Kingdom is included in all other suppliers.

The total volume of Türkiye's imports fell by 9.7% between 2016–2020 and 2021–2025 (SIPRI, 2026b), a fall that coincides with the growth of domestic production. The Presidency of Defense Industries (SSB) reports a localisation rate of 81.3% for 2024 (SSB, 2026b). According to the SSB President, the rate is calculated in financial terms and the remaining foreign content is mainly in subsystems and a few platforms (Kurç et al., 2025). European export decisions still matter for these subsystems, and the same study links delays in the Altay tank programme partly to Germany's refusal to supply engines and transmissions (Kurç et al., 2025). European firms, for their part, earn from Turkish demand for components and platforms.

3.3 What trade data reveal about capabilities and demand

Trade data can also show what a country exports competitively and where its products meet demand. This section applies standard tools of trade analysis to BACI data for 2012–2024 and looks at 49 six-digit products in aerospace, defence and related fields (ADR products), from arms, ammunition and explosives to aircraft, aero-engines, radar, optics, armoured vehicles and warships (CEPII, 2026a,

2026b). Many of them are civil or dual-use, so the results describe export strengths in industrial products, not arms transfers. Box 3.1 explains how to read the indicators and their limits.

Box 3.1. How to read the trade indicators

Revealed comparative advantage (RCA). A country has an RCA in a product when the product's share in its exports is higher than its share in the combined exports of all countries that export at least USD 1 billion a year on average. An RCA of 1 or more marks a relative strength.

Product complexity. A product is more complex when few countries export it and these countries also export many other products (Hidalgo and Hausmann, 2009). A complexity percentile of 98 means that the product is more complex than 98% of all products.

Closeness. It shows how near a product is to what a country already exports, based on how often countries export the two products together (Hidalgo et al., 2007). A low percentile means that the product is far from current exports. Close products are much more likely to become new strengths.

Actual to predicted trade. A gravity model estimates how much two countries would normally trade, given their trade with the world, the distance between them and shared features such as a border, a language or a trade agreement. A ratio of 1 means that trade equals this benchmark, 1.5 means 50% more and 0.5 means half.

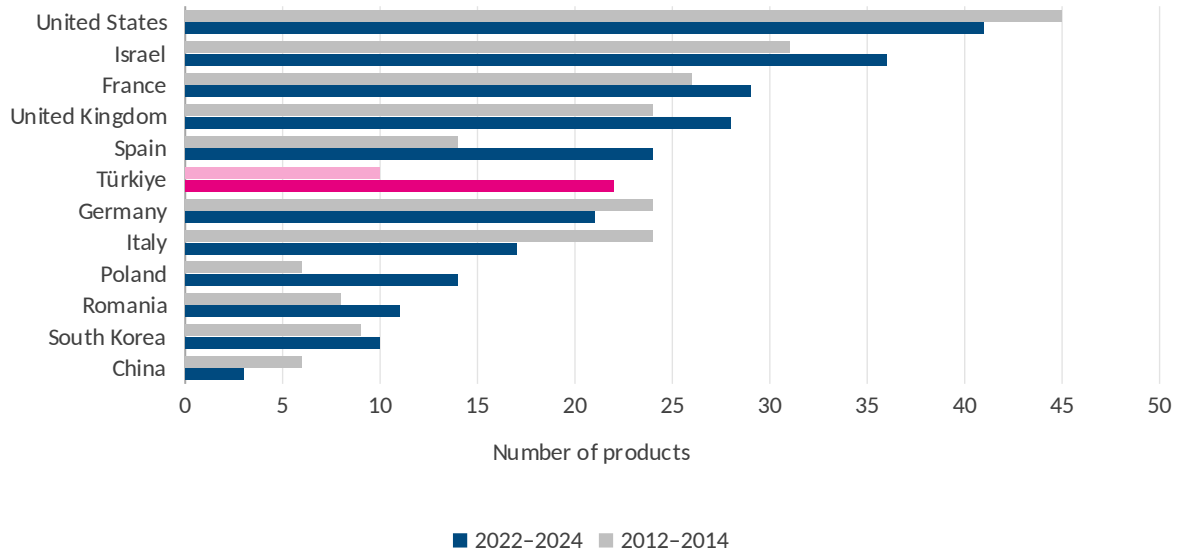
Grubel–Lloyd index. It shows how much trade in the same products runs in both directions, from 0 when trade goes one way only to 1 when exports equal imports.

Shift-share decomposition. It splits the change in a country's share of world exports into gains in the same products and markets (competitive effect), presence in the fastest-growing products and markets (structural effect) and gains in those markets (interaction). Where a market has only a few large contracts, it is an accounting split.

Limits. The indicators cover exports of goods only, not services or production for the home market. Customs data miss many deliveries of complete military systems (Section 3.1), and single large shipments can change a result. Annex C gives the methods.

Türkiye had a revealed comparative advantage (RCA) in 22 of the 49 ADR products in 2022–2024, against 10 in 2012–2014, the largest increase among the countries compared (Figure 3.4). It now has about as many as Germany (21) and Spain (24), but fewer than the United States (41), Israel (36), France (29) and the United Kingdom (28). The new advantages include parts of pistols, other military weapons, cartridges, propellant powders and other explosives, telescopic sights, warships, aeronautical navigation instruments and parts of jet engines, and four products in aircraft and spacecraft. The count overstates the lasting change, however, because it depends strongly on 2024; for 2021–2023 it is only 15. Several of the new advantages also rest on large shipments in one or two years: light aircraft including drones (2022), spacecraft, all exported to the United States (2023 and 2024), and warships, air combat simulators and propellant powders (2024).

Figure 3.4. Number of ADR products with a revealed comparative advantage, 2012–2014 and 2022–2024



Source: CEPII (2026a); calculations for this report. Number of the 49 ADR products (HS 2012, six digits; list in Annex C) with an RCA of 1 or more, 2012–2014 and 2022–2024 pooled; method in Annex C. For 2021–2023, Türkiye's count is 15. In the HS 2012 edition drones are recorded under aircraft headings, and Türkiye's drone exports to Poland (2022–2024) and Romania (2024) appear under aircraft of more than 15,000 kg (8802.40). Counts for Poland and Romania may include re-exports to Ukraine.

The count does not show how difficult these products are to make, which the complexity and closeness measures of Box 3.1 capture. Closeness helps to predict new strengths. Across all countries, of the products in which a country had no advantage in 2016–2018, 9.8% of the tenth closest to its exports had become advantages by 2022–2024, against 0.3% of the tenth most distant. By the same method, the complexity of Türkiye's whole export basket ranked 53rd of 162 countries in 2022–2024, almost the same as in 2012–2014 (57th of 155), while South Korea rose from 8th to 3rd (CEPII, 2026a). Most of Türkiye's ADR advantages are in products of medium complexity close to what it already exports, mainly arms, ammunition and explosives. Its advantages in more complex products are few: aeronautical navigation instruments since 2020, parts of jet engines only just above the threshold, and three products that rest on single shipments (warships, air combat simulators and spacecraft).

Türkiye has no advantage in several of the most complex ADR products, such as lasers, optical and navigation parts, radar and small jet engines (Table 3.1). Measured against Türkiye's own export mix, most of these are in the bottom quarter of all products by closeness. Germany, France and Sweden are strong in most of them. A study of four latecomers, Singapore, South Korea, Türkiye and the United Arab Emirates, finds that their firms achieved only limited catch-up and found it hard to move beyond linking with foreign partners and building on these links. Features of the defence sector, such as controls on technology transfer, and weak innovation systems held them back, and Korea made this move faster than Türkiye (Anderson and Luiz, 2025).

Table 3.1. The most complex ADR products in which Türkiye has no comparative advantage, 2022–2024

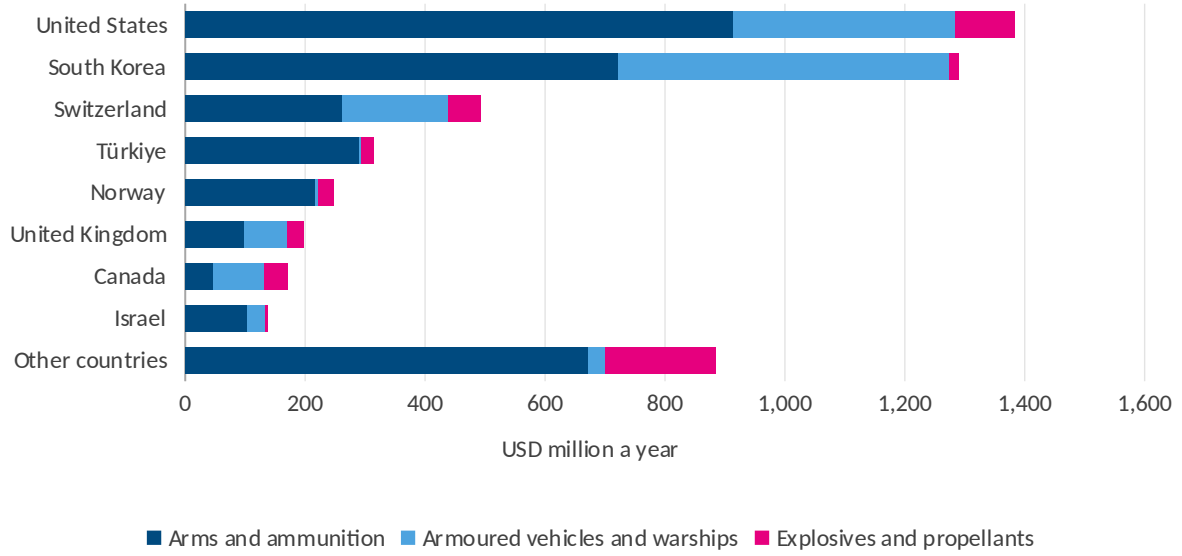
HS code	Product	Complexity (percentile, 0–100)	RCA Türkiye	Closeness to Turkish exports (percentile, 0–100)	RCA DE	RCA FR	RCA SE	Member states with RCA ≥ 1
9013.20	Lasers (other than laser diodes)	98	0.04	6	4.33	0.65	0.36	4

HS code	Product	Complexity (percentile, 0–100)	RCA Türkiye	Closeness to Turkish exports (percentile, 0–100)	RCA DE	RCA FR	RCA SE	Member states with RCA ≥ 1
9013.90	Parts of optical instruments and lasers	94	0.05	11	2.74	0.47	1.49	7
8526.10	Radar apparatus	94	0.27	23	1.98	1.43	5.26	9
9014.90	Parts of navigation instruments	89	0.22	11	1.11	3.83	0.79	6
8411.11	Turbojets, thrust up to 25 kN	87	0.28	11	0.46	0.97	0.05	3
9305.91	Parts of military weapons	86	0.23	45	1.07	0.32	4.00	12
8412.10	Reaction engines other than turbojets	86	0.23	<1	0.36	3.48	0.63	1
8803.20	Aircraft undercarriages and parts	76	0.51	6	0.67	6.08	0.03	3

Source: CEPII (2026a); calculations for this report. DE Germany, FR France, SE Sweden. ADR products in the top quarter of all 5,199 products by product complexity, in which Türkiye's RCA is below 1. Complexity and closeness (density) are computed for 162 countries with average exports of at least USD 1 billion a year, 2022–2024 pooled. Closeness is the percentile of the product among all products, ranked by density for Türkiye; a low value means that the product is far from Türkiye's current exports. Compared with other countries, Türkiye is in the top tenth by closeness to each of these products, so the distance is measured against Türkiye's own export mix.

On the demand side, member states imported on average USD 10.5 billion a year of arms and ammunition, explosives, armoured vehicles and warships in 2022–2024, USD 5.1 billion of it from outside the EU (CEPII, 2026b). The United States supplied 27.0% of these imports from outside the EU, South Korea 25.2%, most of it for Poland, Switzerland 9.6%, Türkiye 6.1% and Norway 4.9% (Figure 3.5). Türkiye's shares were highest in civil or mixed products, such as parts of shotgun cartridges (52.6%) and shotguns (44.9%), and in ammunition (14.5% under subheading 9306.30). In aerospace, more than four fifths of EU imports of aero-engines and their parts come from outside the EU, 39.4% of them from the United States but only 0.4% from Türkiye. In large drones, almost all recorded EU imports come from outside the EU, and Türkiye supplied 81.0% of them under subheading 8806.99 (CEPII, 2026b). These figures rest on a few large purchases by Romania and Poland (Section 3.1).

Figure 3.5. EU imports of arms, ammunition, explosives, armoured vehicles and warships from outside the EU, by supplier, 2022–2024



Source: CEPII (2026b); calculations for this report. USD million, current prices, average of 2022–2024. Imports of the 27 member states from non-member countries, HS 2022 chapter 93 except 9303.10, headings 3601–3603, subheadings 8710.00 and 8906.10; lines with EU imports below USD 5 million a year are excluded. Chapter 93 includes civil firearms and ammunition. Customs data do not record many deliveries of complete military systems, so the values are not a measure of arms transfers.

The gravity model (Box 3.1) was estimated for 159 countries and 2015–2024 (CEPII, 2026a, 2022). In total trade, Türkiye exported about a fifth more to member states than the model predicts for a partner with a trade agreement (a ratio of about 1.2). This extra trade is consistent with the closer links of the customs union (Table 3.2). It depends on the model, however, because without the variable for trade between member states it falls to a few per cent. In ADR products there is no such extra trade, as Türkiye's exports to member states were close to the prediction in all three periods. South Korea's rose from well below the prediction before 2022 to one and a half times it in 2022–2024, mainly because of Poland. The Turkish average was stable, but the partners changed. Between 2015–2017 and 2022–2024, the ratio for Türkiye's ADR exports to Romania rose from 0.16 to 5.74 and that for Poland from 0.22 to 1.99. The ratio for Italy fell from 3.13 to 0.71 and that for Spain from 1.38 to 0.60. The rises rest on a few large deliveries: drones to Poland in 2022–2024 and to Romania in 2024, and ammunition worth about USD 275 million to Slovakia in 2024, which explains the largest rise, from 0.12 to 9.17 times the predicted value (CEPII, 2026a, 2022).

Türkiye's ADR trade with the EU has become more one-way again. The Grubel–Lloyd index of two-way trade (Box 3.1) rose from 0.30 in 2012–2014 to 0.43 in 2016–2018 and fell to 0.28 in 2022–2024. The share of parts in Türkiye's ADR exports to the EU fell from 68% to 46%, because sales of complete products to Poland, Slovakia and Romania grew faster than sales of parts to aircraft makers. Parts still made up 90% of exports to Germany (CEPII, 2026a). Values per kilogram are relatively low. Türkiye's aircraft parts and jet engine parts were valued at about 0.6 times the world average in 2022–2024, and its shotguns at 0.4 times the Italian value (CEPII, 2026b). Such unit values reflect the mix of products within each customs line as well as prices: Türkiye's jet engine parts sent to the EU, for example, were valued at USD 148 per kilogram, against USD 937 for those sent to other countries (CEPII, 2026b). Measured by the trade complementarity index (Annex C), South Korea's exports in a narrower set of defence products also became a closer match to the EU's import pattern over the period, while Türkiye's did not (CEPII, 2026a).

Table 3.2. Türkiye and South Korea in EU markets for ADR products

Indicator	Period	Türkiye	South Korea
ADR exports to the EU, actual to predicted value	2015–2017	0.98	0.68
	2018–2021	0.91	0.68
	2022–2024	0.96	1.52
All exports to the EU, actual to predicted value	2015–2017	1.22	0.71
	2018–2021	1.24	0.82
	2022–2024	1.18	0.88
Grubel–Lloyd index of two-way ADR trade with the EU	2012–2014	0.30	0.19
	2016–2018	0.43	0.28
	2022–2024	0.28	0.31
Parts in ADR exports to the EU (%)	2012–2014	68	47
	2022–2024	46	16

Sources: CEPII (2026a, 2022); calculations for this report. Actual to predicted values come from a gravity model for 159 countries (Box 3.1; method in Annex C); a value of 1 means that trade equals the prediction. Gravity estimates start in 2015; the other indicators start in 2012.

These results qualify the case for Turkish capacity in European supply chains. Türkiye's industrial base has broadened fast, but since 2016–2018 its growth in the EU market has come mostly from a few large deliveries of drones and ammunition to eastern member states. Its links with the supply chains of the large member states have not become deeper. On present trade data, Türkiye's value for the EU lies mainly in additional capacity in ammunition, explosives and less complex platforms and in parts for European prime contractors. It is less relevant as a replacement for US or Korean suppliers of complex systems.

3.4 Co-production and investment inside the EU

In an earlier period of closer relations, firms from France, Italy, Spain and the United Kingdom launched joint ventures and licensed production in Türkiye (IISS, 2024). Since 2024, however, the direction of investment has changed, and several recent projects place production in EU member states, with Turkish firms as investors, designers or suppliers (Table 3.3).

Table 3.3. Selected cases of industrial cooperation between Turkish and European firms

Case	Partners	Year	Form of cooperation	Where production takes place
LBA Systems (unmanned aircraft)	Leonardo (Italy), Baykar (Türkiye)	MoU 2025; joint venture 2025; operational 2026	50/50 joint venture with legal and operational headquarters in Italy	Italy: Leonardo sites and Baykar's plant in Italy (planned; first batch of Astore Levante in production at Leonardo)
Piaggio Aerospace	Baykar (Türkiye)	2025	Acquisition approved under Italy's Golden Power rules; plan to produce Baykar aircraft	Italy

Case	Partners	Year	Form of cooperation	Where production takes place
COBRA II armoured vehicles	Otokar (Türkiye), Romanian Ministry of National Defence	Contract 2024; takeover 2026	Contract for 1,059 vehicles; takeover of Automecanica SA	Romania: plant at Mediaș
Hürjet jet trainer	Airbus (Spain), Turkish Aerospace	Contract 2025	Purchase of 30 aircraft with conversion to Spanish requirements	Türkiye (manufacture); Spain (conversion centre)
TCG Anadolu amphibious ship	Navantia (Spain), Sedef	Contract 2015	Navantia design, built with engineering support and technology transfer	Türkiye; Navantia support agreement with the naval shipyards directorate (2026)
Type 214 submarines	ThyssenKrupp Marine Systems (Germany)	Contract 2009; first boat commissioned 2024	German design; six boats being built in Türkiye with company support	Türkiye
A400M transport aircraft	Airbus; Türkiye as partner nation	Partner since 2003	Programme partnership	n.a.
Air and missile defence study	Eurosam (France, Italy), ASELSAN, Roketsan	2017–2018	Heads of agreement and an 18-month definition study	n.a.
Bayraktar TB2 (for contrast)	Baykar; Poland and Romania	2021 (Poland); 2023 (Romania)	Purchase	Türkiye

Sources: LBA Systems: Leonardo (2025, 2026); Baykar (2025a); Piaggio: Baykar (2025b); COBRA II: Otokar (2024, 2026); IISS (2025b); Hürjet: Airbus (2025); Turkish Aerospace (TUSAŞ) (2025a); TCG Anadolu: Navantia (2026); Type 214: IISS (2024); A400M: Airbus (2026); Eurosam: MBDA (2018b, 2018a); TB2: Ministry of National Defence of Poland (2021); Ministry of National Defence of Romania (2024). n.a.: not available.

The recent projects are in Italy, Romania and Spain, three of the four member states of the partner group examined in Chapter 7. In the Italian and Romanian cases the production facility is inside the EU and fully or partly owned by a Turkish company. LBA Systems is an equal joint venture of Leonardo and Baykar, with its legal and operational headquarters in Italy (Leonardo, 2025). Two aircraft types, the Astore Levante and the Kızılelma, are to be made at Leonardo sites, where a first batch of the Astore Levante is already in production, and two others, the TB2 and the Akıncı, at Baykar's plant in Italy (Leonardo, 2026). Otokar completed the takeover of Automecanica SA in Romania in June 2026, an investment of about EUR 85 million for 96.77% of the company, and began production of COBRA II vehicles at Mediaș for the Romanian army (Otokar, 2026). The company describes itself as the first Turkish land vehicle maker to produce inside the EU (Otokar, 2026). The Hürjet contract with Spain combines production in Türkiye with conversion and support in Spain, led jointly by Airbus, as the national coordinator, and Turkish Aerospace, as the manufacturer (Airbus, 2025).

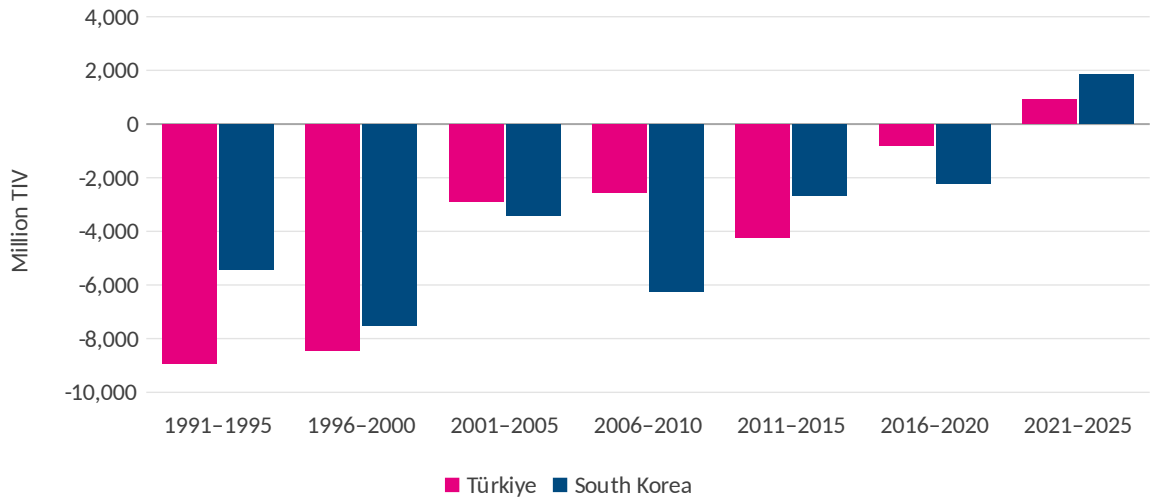
The location matters for EU funding. As Chapter 4 explains, EU programmes in principle support only facilities located in the EU or in the EFTA countries of the European Economic Area (EEA), and in the case of SAFE also in Ukraine, and they limit components from outside the EU. A plant owned by a Turkish firm but located in Italy or Romania can contribute to European production in a way that a plant in Türkiye cannot. The International Crisis Group expects near-term cooperation to depend less on EU instruments and "more on bilateral co-production partnerships". It describes LBA Systems as a case in which Turkish expertise supports a European company "whose production lines remain inside the EU" (International Crisis Group, 2026).

The COBRA II contract, signed on 27 November 2024, is worth EUR 857 million excluding VAT (Otokar, 2024). Trade and company data do not show how much of the value of each product is created in each country, so the economic effect of these projects on both sides cannot yet be judged.

3.5 The South Korea benchmark

South Korea followed a path similar to Türkiye's, from licensed production of foreign designs to own development and exports (Kim and Liang, 2025). It has been the principal non-Western defence-industrial supplier and technology partner of the Turkish industry in the last two decades (IISS, 2024), and its recent export growth came mainly from European demand after 2022 (Kim and Liang, 2025), which makes it a useful point of comparison. The two paths also differ. Anderson and Luiz (2025) find that Korea moved in sequence from small arms and ammunition to vehicles and later to military air systems, while Türkiye ran simple and advanced projects in parallel and relied longer on offsets. Korea is reported to have localised nearly 70% of low-tier components, but it still depends largely on foreign advanced technology and parts (Kwon, 2025). SIPRI data show that both countries were net importers of major arms in every five-year period from 1991 to 2020 and became net exporters only in 2021–2025 (Figure 3.6). In that period South Korea's exports were 4,564 million trend-indicator values (TIV) and Türkiye's 2,802 million, against 947 million and 436 million in 2006–2010 (SIPRI, 2026a). South Korea was the 9th largest exporter in 2021–2025 with 3.0% of the world total (SIPRI, 2026b).

Figure 3.6. Exports minus imports of major arms, Türkiye and South Korea, 1991–2025



Source: SIPRI (2026a), data generated on 26 September 2026; calculations for this report. Millions of SIPRI trend-indicator values, five-year sums. A value below zero means that the country imported more than it exported.

The five Turkish companies in the SIPRI Top 100 for 2024 (Section 2.3), against two in 2015, had combined arms revenues of USD 10.1 billion, compared with USD 14.1 billion for the four Korean companies (SIPRI, 2025a, 2025b). The arms revenues of the Turkish companies in the list grew more than fivefold at current prices between 2015 and 2024, partly because new companies entered the list.

World trade data show that the two countries gained share in different ways. The world market for military weapons and their parts, ammunition not elsewhere specified, armoured vehicles and warships doubled in value between 2022 and 2024, and recorded imports of Ukraine and Poland account for about half of the increase. South Korea's share rose from 3.77% to 12.69% (Table 3.4). A shift-share decomposition (Box 3.1) attributes 3.45 percentage points of this rise to the competitive

effect and 3.84 to the structural effect. The latter came almost entirely from the markets it sold to (3.61 points), not from its mix of products. Türkiye's share rose from 1.19% to 1.46%, mainly because it was present in fast-growing markets such as Poland and Nigeria and because of single large sales to Romania, Qatar and Slovakia. In the same products and markets as before, it lost a little share, mainly in Indonesia and Poland, so its competitive effect was slightly negative. With only a few large contracts in each market, the effects for both countries are an accounting result and do not measure price or quality competitiveness. If explosives and large drones are added, Türkiye's share rose from 1.36% to 2.25%, and most of the gain (0.71 of 0.89 points) came from interaction, which here reflects deliveries of drones and ammunition to Romania in 2024 (CEPII, 2026b).

Table 3.4. Change in world export shares of military goods, Türkiye and South Korea, 2022–2024

Product group	Exporter	Share 2022 (%)	Share 2024 (%)	Change (points)	Competitive effect	Structural effect	Interaction
Weapons, ammunition, armoured vehicles, warships	Türkiye	1.19	1.46	+0.27	−0.09	+0.27	+0.09
	South Korea	3.77	12.69	+8.92	+3.45	+3.84	+1.64
The same, plus explosives and large drones	Türkiye	1.36	2.25	+0.89	+0.04	+0.13	+0.71
	South Korea	3.16	10.53	+7.37	+2.60	+3.17	+1.60

Source: CEPII (2026b); calculations for this report. Shares of world exports in USD at current prices, HS 2022 subheadings 9301.10, 9301.20, 9301.90, 9305.91, 9306.90, 8710.00 and 8906.10; the second group adds headings 3601–3603 and subheadings 8806.91–8806.99 (unmanned aircraft not limited to remote-controlled flight, mainly large drones; the other subheadings of 8806 are mainly civil). Decomposition over products and destination markets; the structural effect is the sum of product and market effects. In 2023 and 2024 the world market includes large deliveries to Ukraine and large exports from Bulgaria to Poland and Romania, part of which may be in transit to Ukraine. Shares change strongly from year to year (Türkiye 1.19% in 2022, 0.62% in 2023 and 1.46% in 2024), so the results depend on the years compared. Effects in percentage points.

The comparison of Korea's policy tools with those that Türkiye has or plans is only indicative (Table 3.5).

Table 3.5. Policy tools for defence exports: South Korea and Türkiye

Policy tool	South Korea	Türkiye
Lead agency and R&D model	The Defense Acquisition Program Administration (DAPA) oversees procurement; the Agency for Defense Development leads state R&D (Kim and Liang, 2025)	SSB, financed through the Defence Industry Support Fund (Republic of Türkiye, 1985b; SSB, 2026b)
Export target	Among the four largest exporters; USD 20 billion of orders targeted for 2024 (National Assembly Budget Office of Korea (NABO), 2024)	USD 11 billion of exports by 2028 (SSB, 2024)
Cross-government coordination	Defence Industry Development Council, co-chaired by the defence and trade ministers (National Assembly Budget Office of Korea (NABO), 2024)	SSB coordinates export promotion (SSB, 2024)
Export finance	Two export credit agencies and a one-stop support centre founded in 2009 (National Assembly Budget Office of Korea (NABO), 2024)	Defence export credit mechanism in preparation; 60% complete at the end of 2025 (SSB, 2026b)

Policy tool	South Korea	Türkiye
Budget for export support	KRW 81.8 billion in 2024, mostly for adapting systems to buyers (National Assembly Budget Office of Korea (NABO), 2024)	n.a.
Government-to-government sales	n.a.	Government-to-government channels already support exports (Anderson and Luiz, 2025); a formal state-to-state sales model (DEDAS) is planned (SSB, 2024)
Offsets and industrial participation	DAPA offset policy (Defense Acquisition Program Administration (DAPA), 2026)	SSB industrial participation and offset rules (SSB, 2026a, 2026b)
Production in buyer countries	Australia (Geelong, agreed in 2021), Poland (K2 consortium) (National Assembly Budget Office of Korea (NABO), 2024; Kim and Liang, 2025)	Italy (LBA Systems, Piaggio), Romania (COBRA II) (Leonardo, 2026; Baykar, 2025b; Otokar, 2026)
Known weaknesses	Dependence on designs developed abroad; need for own R&D (National Assembly Budget Office of Korea (NABO), 2024)	More than 700 projects run at the same time; need to control the outflow of critical technologies (IISS, 2024)

Sources: as shown in each cell. n.a.: not available.

For both Türkiye and the EU, the Korean case shows that localised production in the buyer country has become part of the offer in large contracts. Korean firms agreed to set up production of K9 howitzers in Australia (National Assembly Budget Office of Korea (NABO), 2024) and formed a consortium with the Polish state group PGZ for a Polish version of the K2 tank (Kim and Liang, 2025). The Korean budget office notes that buyers now ask for a comprehensive package that includes localisation and technology transfer (National Assembly Budget Office of Korea (NABO), 2024). Turkish firms in Italy and Romania follow the same model. The case also shows that the EU's content rules apply to all third countries, while access to better terms has been selective. Korean components count towards the same 35% limit on non-EU components in SAFE and EDIP (Council of the EU, 2025; European Parliament and Council, 2025; Kim and Liang, 2025). Like Türkiye, it asked for talks on SAFE participation, but negotiations started only with Canada and the United Kingdom (IISS, 2025a). European partners are likely to see a risk here, since technology that Korea transferred for the Altay tank helped to create a competitor to its own K2 tank (Kim and Liang, 2025; National Assembly Budget Office of Korea (NABO), 2024).

3.6 European production bottlenecks

The case for Turkish capacity in European supply chains rests on the view that European production cannot meet demand. Official documents support this view for artillery ammunition in 2022–2023, with important limits. In July 2023 the regulation on ammunition production (ASAP) described production in the Union as "almost at maximum capacity" (European Parliament and Council, 2023). In March 2024 the Commission expected annual capacity to reach 2 million rounds by the end of 2025 (European Commission and High Representative, 2024), the same volume that the White Paper set a year later as a minimum objective for Ukraine alone (Section 2.1).

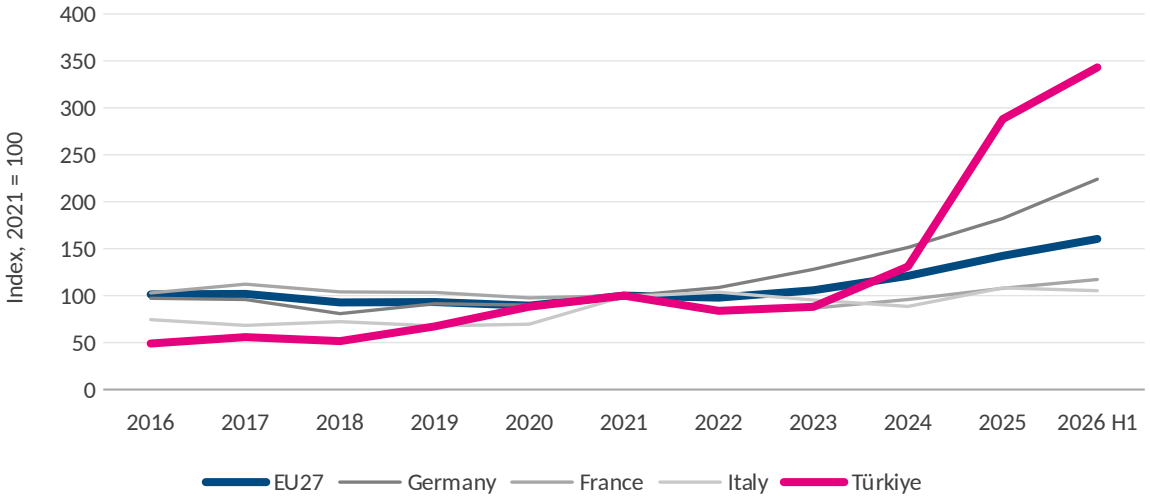
The Commission's 2024 report on ASAP places the main constraints on shell production in specific inputs, high explosives and powders, and to a lower extent in shell assembly (European Commission, 2024b). ASAP supports projects that will add more than 10,000 tonnes of powder and more than 4,300 tonnes of explosives a year (European Commission, 2024b). The Kiel Institute finds that the production of artillery shells has increased substantially and is close to meeting demand, while production of tanks,

infantry fighting vehicles, missiles and fighter jets remains low. In its assessment, Russia outproduces four large European countries across several weapon systems, and their production must increase by a factor of about five to tilt the balance decisively in Europe's favour. The institute reports delivery delays of three years or more (Kiel Institute for the World Economy, 2025). The Commission and the High Representative, however, state that European capacity was underestimated and that the growing share of third-country producers in the EU market "must thus be reversed" (European Commission and High Representative, 2024).

Trade data show a recent change in Turkish supplies of these inputs. Türkiye's exports of propellant powders rose from USD 1.0 million in 2022 to USD 44.7 million in 2024, 3.5% of world exports, and member states' imports of propellant powders from Türkiye rose from USD 0.8 million to USD 43.0 million (CEPII, 2026b). Italy (USD 21.5 million), Bulgaria (USD 15.9 million) and Spain (USD 7.3 million) were the main buyers of Turkish explosives and powders in 2024 (CEPII, 2026b).

Eurostat's production index for the manufacture of weapons and ammunition (NACE class 25.4, which also covers civil firearms and ammunition) shows how fast Turkish output grew (Eurostat, 2026g). Measured against 2021, Turkish production fell in 2022 and 2023, then rose to 131.0 in 2024 and 287.9 in 2025 (Figure 3.7). EU production rose more steadily, to 142.3 in 2025, with Germany at 182.1. The index measures growth, not the level of output, and a high growth rate from a small base does not show large capacity. The trend matches the production index of the United Nations Industrial Development Organization (UNIDO) for the wider industry of other transport equipment, which includes military vehicles, ships and aircraft. In 2025 this index (2021 = 100) stood at 218.4 for Türkiye, against 182.4 for South Korea, 146.6 for Poland and 120.6 for Germany (UNIDO, 2026). The International Crisis Group adds that Turkish production lines for drones, armoured platforms and certain air defence components can be scaled up, but it gives no production data (International Crisis Group, 2026).

Figure 3.7. Production index for the manufacture of weapons and ammunition, EU, selected member states and Türkiye, 2016–2026



Source: Eurostat (2026g); calculations for this report. NACE Rev. 2 class 25.4, which includes civil firearms and ammunition; volume of production, seasonally and calendar adjusted, 2021 = 100; annual averages of quarterly data. 2026: first half.

3.7 Joint production zones in Thrace: a test of two models

One option for closer cooperation is joint production zones in Thrace, near the EU border, where European and Turkish firms would produce for European demand. The Halkalı–Kapıkule railway, the largest infrastructure project of EU–Türkiye financial cooperation, with about EUR 275 million of EU funds for its Çerkezköy–Kapıkule section (Ministry of Transport and Infrastructure of Türkiye, 2019), was being built through the region in 2024, with completion planned in stages up to 2026, and three ports in Tekirdağ have expanded their capacity (Trakya Development Agency (TRAKYAKA), 2024). Tekirdağ has 5,863 hectares of land in organised industrial zones and one free zone of 191 hectares (Trakya Development Agency (TRAKYAKA), 2024). Baykar runs a flight and test centre in Çorlu, where it carried out tests with Leonardo in May 2026 (Baykar, 2026). A Thrace zone is compared on twelve criteria with a joint venture located in an EU member state, the model that the recent cases follow (Table 3.6).

Table 3.6. Joint production zones in Thrace and joint ventures inside the EU, tested against twelve criteria

Criterion	Joint production zone in Thrace	Joint venture located in an EU member state
1. Customs treatment	The Customs Union covers industrial goods but allows restrictions on security grounds (EC-Turkey Association Council, 1995). Free zones are treated as outside the Turkish customs territory for customs and foreign trade rules and as inside it for rules of origin (Republic of Türkiye, 1985a; Ministry of Trade of Türkiye, 2026). According to the Commission, they are in breach of Customs Union rules (European Commission, 2025g).	Goods are produced inside the EU customs territory.
2. Turkish licensing	Production, location and exports need permission of the Ministry of National Defence under Law No. 5201, and the goods concerned are defined in the Ministry's control list (Republic of Türkiye, 2004a; Ministry of National Defence (MSB), 2023).	Turkish licensing applies only to inputs sent from Türkiye.
3. Security clearance	Facility and personnel clearances are mandatory for classified work; visits to classified areas need prior permission (Republic of Türkiye, 2004b).	National clearance of the host member state.
4. EU funding (EDIP, ASAP)	Not eligible in principle: facilities must be located in the EU or an EEA EFTA state (European Parliament and Council, 2025, 2023). EDIP allows an exception where no alternative is readily available in the EU or an associated country and the use does not harm the security and defence interests of the Union, including good neighbourly relations (European Parliament and Council, 2025). ASAP funding ended in June 2025 (European Parliament and Council, 2023).	Eligible, subject to control and ownership rules (European Parliament and Council, 2025).
5. EU content rules	Output counts as non-EU content, within the 35% ceiling (European Parliament and Council, 2025; Council of the EU, 2025).	Output counts as EU content.
6. Export control	EU exports for production in third countries need export licences; the simpler EU rules for transfers of defence products between member states do not apply (Council of the EU, 2008; European Parliament and Council, 2009).	The simpler rules for transfers between member states apply (European Parliament and Council, 2009).

Criterion	Joint production zone in Thrace	Joint venture located in an EU member state
7. Public procurement	Not covered by the Customs Union (EC-Turkey Association Council, 1995).	Access to national procurement of the host state.
8. Logistics	Favourable: rail link to the EU border under construction, and ports (Trakya Development Agency (TRAKYAKA), 2024).	Depends on the site.
9. Land	Favourable: large industrial zones in Tekirdağ (Trakya Development Agency (TRAKYAKA), 2024).	Depends on the site; existing plants can be acquired (Baykar, 2025b; Otokar, 2026).
10. Environment and risk	New groundwater allocations closed in four of the seven Ergene sub-basins; earthquakes are the main disaster risk, highest in the south of the region (Trakya Development Agency (TRAKYAKA), 2024).	Depends on the site.
11. Fit with EU bottlenecks	Partial: Turkish exports of propellant powders, a bottleneck named by the Commission, are rising, but the Kiel Institute finds shell output close to demand (Section 3.6).	Can be targeted to European bottlenecks with EU support.
12. Political acceptance	Low for EU instruments; Greece and Cyprus object to Turkish participation (International Crisis Group, 2026).	Higher: bilateral deals in Italy, Romania and Spain already exist (Leonardo, 2026; Otokar, 2026; Airbus, 2025).

Sources: as shown in each cell. Assessment by the authors of this report.

Such a zone would meet the practical criteria but fail most of the legal ones. Production there could not be funded by the EU, it would count as non-EU content in SAFE and EDIP, and it would need export licences in both directions. Turkish firms that invest in EU member states avoid these problems, and some firms have already chosen this route. Thrace can still serve joint ventures located in the EU, through component suppliers within the 35% ceiling and through test and integration work of the kind the Baykar test centre already does (Recommendation 2).

3.8 Summary

Türkiye sells arms and ammunition to the EU and buys aircraft, parts and major arms from European suppliers. The most important change since 2024 is Turkish investment in production inside the EU. Türkiye's export strengths have broadened, but they lie mostly in products of medium complexity, and part of the gain rests on single large shipments. On present trade data, Türkiye is more useful to the EU for additional capacity and parts than as a replacement for suppliers of complex systems. Turkish exports of propellant powders, a bottleneck for shell production, rose quickly in 2022–2024. The Thrace test points to joint ventures inside the EU as the more workable model, and the Korean case shows that buyers now expect production in their own country.

4. Pillar II: Investment and Risk Capital

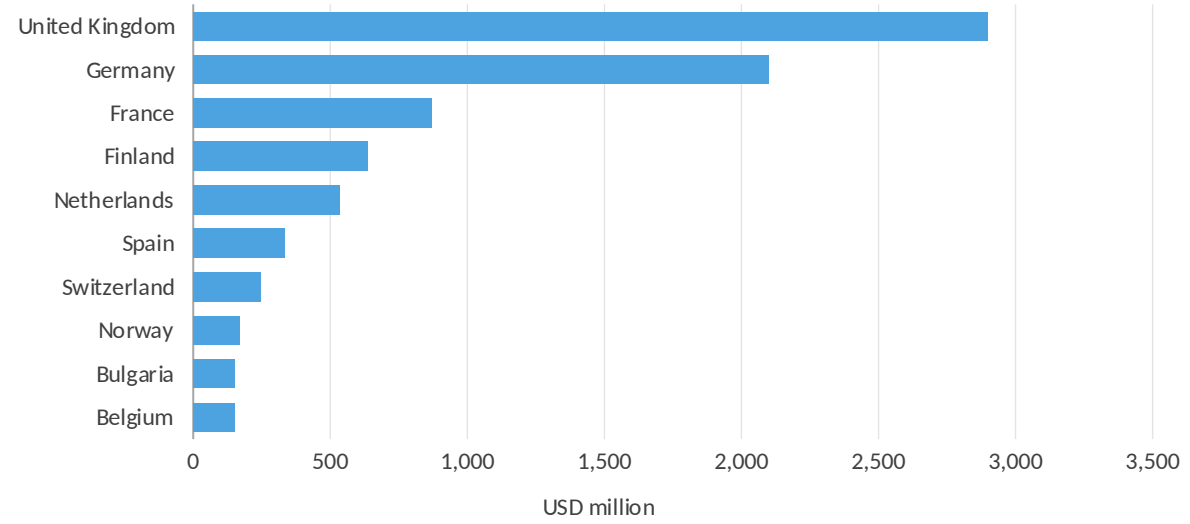
This chapter examines the money available in Europe for defence production and innovation, and the EU rules that decide how much of it Turkish firms can reach.

4.1 Europe's defence funding and the rise of defence venture capital

Since 2023 the EU has created or enlarged several funding instruments for defence. The largest is the Security Action for Europe (SAFE), which provides up to EUR 150 billion in loans to member states for common procurement (Council of the EU, 2025). The European Defence Fund has EUR 9.453 billion for 2021–2027 in current prices (European Parliament and Council, 2021c). The new European Defence Industry Programme (EDIP) has EUR 1.2 billion for the period to the end of 2027, plus EUR 300 million for Ukraine (European Parliament and Council, 2025). The European Investment Bank Group reports more than EUR 4 billion of security and defence financing in 2025, up from EUR 1.2 billion in 2024 (European Investment Bank, 2026b). Its exclusion list still covers weapons and ammunition, and outside the EU it also excludes military and police equipment and infrastructure (European Investment Bank, 2026a).

Private capital for defence is growing from a low base. The Joint White Paper for European Defence Readiness 2030 states that access to finance is a major concern for 44% of defence small and medium-sized enterprises, which have fewer opportunities than in the US or the UK, and that "US investors represent 60% of the total" (European Commission and High Representative, 2025). According to Dealroom and the NATO Innovation Fund, European deep tech start-ups in defence, security and resilience, which develop emerging technologies such as artificial intelligence, autonomy, quantum and space, raised USD 8.7 billion of venture capital in 2025, in current prices. This was 55% more than in 2024 and 13% of all venture capital in Europe (Dealroom and NATO Innovation Fund, 2026). Most of this money goes to a few countries, with the United Kingdom and Germany together accounting for more than half and the ten largest countries for about 93%, on the source's country values (Figure 4.1). Türkiye does not appear in this ranking. Dealroom and the NATO Innovation Fund do not list the countries they cover, so it is not clear whether Turkish start-ups were included.

Figure 4.1. Venture capital in defence, security and resilience start-ups by European country, 2025



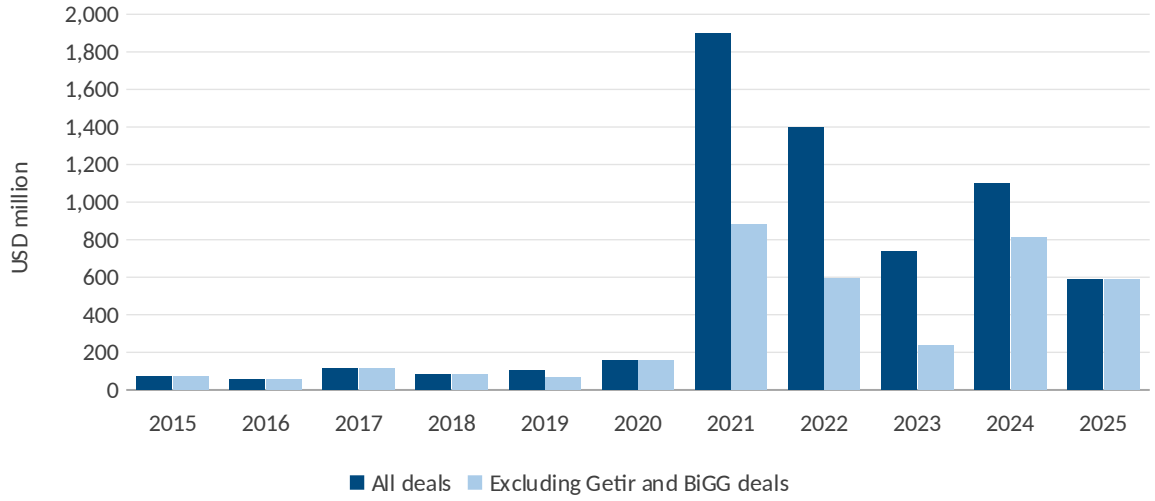
Source: Dealroom and NATO Innovation Fund (2026). USD million, current prices; ten largest countries as ranked in the source. Values for the United Kingdom and Germany are rounded to USD 0.1 billion in the source. The source's regional table gives USD 856.1 million for France. The sector is defined by NATO Innovation Fund challenge areas and covers deep tech start-ups only.

The EU's own equity instrument for defence is small. The Defence Equity Facility combines EUR 100 million from the European Defence Fund with EUR 75 million from the European Investment Fund, and it aims to mobilise about EUR 500 million in total (European Investment Fund and European Commission, 2024). By June 2026 it had committed EUR 161 million to nine funds (European Investment Fund, 2026). Funds and final recipients must be established in the EU or Norway (European Commission, 2026b).

4.2 The Turkish start-up base

Türkiye has an active start-up market, but it has no measurable defence technology segment in the open data. According to Startups.watch, angel and venture capital investment in Turkish start-ups peaked at USD 1.9 billion in 2021, or USD 883 million without the rounds of the delivery company Getir and the TÜBİTAK BiGG pre-seed tickets, and fell to USD 589 million in 306 deals in 2025 (Figure 4.2). The same source records no later-stage investment (Series C rounds and later) in 2025 (Startups.watch, 2026).

Figure 4.2. Angel and venture capital investment in Türkiye, 2015–2025

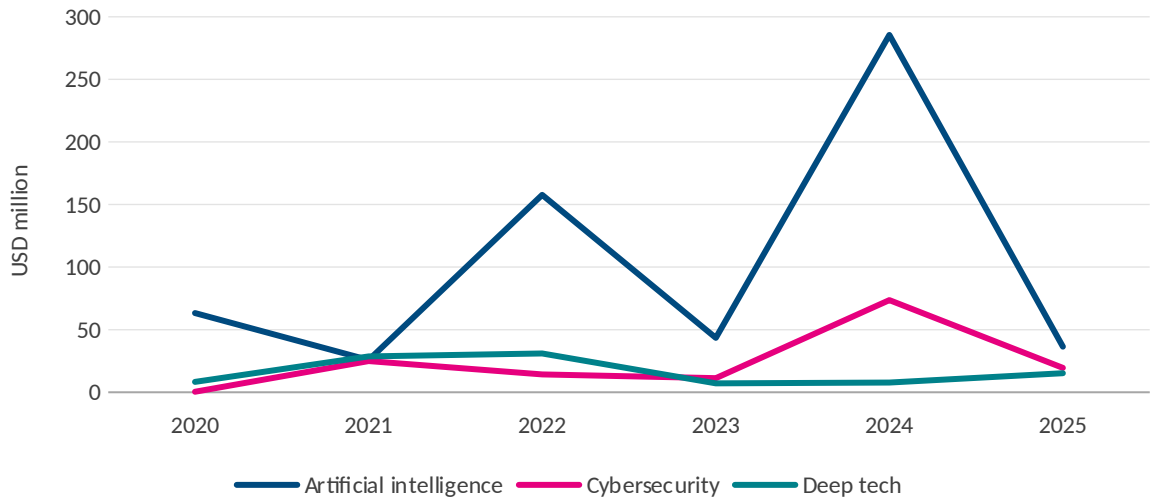


Source: Startups.watch (2026). USD million, current prices. Values are chart labels in the source, which rounds 2021, 2022 and 2024 to USD 0.1 billion. Only disclosed equity rounds are counted; acquisitions, secondary transactions, debt and grants are excluded. The second series leaves out the rounds of Getir and the pre-seed tickets of the TÜBİTAK BiGG programme.

Sources give different totals for this market because their definitions differ. Dealroom reports EUR 1.2 billion of venture capital for Turkish start-ups in 2024, and it includes start-ups founded in Türkiye that later moved their headquarters abroad (Dealroom, 2025). KPMG and 212 report USD 1.4 billion for 2025, but acquisitions account for 64.3% of that total, and without them the figure is USD 490 million (KPMG Türkiye and 212, 2026). This report uses Startups.watch for the trend and Dealroom only for rankings. On Dealroom's measure, Türkiye was 15th in Europe, the Middle East and Africa by venture capital in 2024 and 6th by investment in artificial intelligence (Dealroom, 2025).

None of these sources has a defence or dual-use category for Türkiye, so artificial intelligence, cybersecurity and deep technology are the closest proxies. Investment in artificial intelligence and cybersecurity fell sharply in 2025, and investment in deep technology remained small (Figure 4.3). The most detailed open list of Turkish deals in 2025 tags only two deals as defence technology, both at seed stage, the earliest stage of funding (KPMG Türkiye and 212, 2026). The Presidency of Defense Industries (SSB) reports that its venture capital fund grew by 25% in 2025, but it does not publish the size of the fund (SSB, 2026b). The gap between Türkiye's large, state-led defence industry and the very few private defence start-ups in the open data is one reason for the Investor Matchmaking Series proposed in Annex B.

Figure 4.3. Investment in artificial intelligence, cybersecurity and deep technology start-ups in Türkiye, 2020–2025



Source: Startups.watch (2026). USD million, current prices, value of deals by sector tag. The source has no defence or dual-use category; these sectors are shown as proxies only. Tags overlap, so the lines cannot be added up.

4.3 Türkiye in NATO's innovation instruments

NATO offers two instruments in which Turkish firms take part on equal terms with firms from other Allies. The NATO Innovation Fund (NIF) is a venture capital fund that invests EUR 1 billion in start-ups and funds working on dual-use technologies (NATO, 2022). Türkiye was among the 22 Allies that launched it in 2022 and is one of its limited partners, that is, one of the investors in the fund (NATO, 2022; NATO Innovation Fund, 2023). An investor from Türkiye was among the members of the Board of Directors appointed in 2023 (NATO, 2023). The fund prefers to lead investment rounds, with initial tickets of up to EUR 15 million, in companies headquartered in its partner countries (NATO Innovation Fund, 2026a). The Defence Innovation Accelerator for the North Atlantic (DIANA) gives each selected start-up a contract of EUR 100,000 and access to test centres. Start-ups selected for its Mission Track may receive up to EUR 300,000 more (NATO DIANA, 2026b). Firms must be incorporated, headquartered and majority-owned in a NATO country (NATO DIANA, 2026c).

Table 4.1. Participation in the NATO Innovation Fund and DIANA, selected Allies

Indicator	Türkiye	Poland	Romania	Italy	Spain	Germany	Greece
NIF founding signatory (2022)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NIF limited partner (2026)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DIANA accelerator sites	1	1	0	1	1	1	1
DIANA test centres (entries in list)	16	10	3	19	14	24	4
Companies in the DIANA 2026 cohort (of 150)	3	3	1	9	6	9	2

Sources: NATO (2022); NATO Innovation Fund (2023, 2026a); NATO DIANA (2026b, n.d., 2026a). The DIANA list of test centres is undated.

The NATO instruments are today the one channel in which Turkish firms compete with European firms under the same rules, but Turkish firms seem to make little use of them. Access does not seem to be the reason (Table 4.1). Türkiye hosts a DIANA accelerator at ODTÜ Teknokent, the technology park of

Middle East Technical University (METU), and has more test centre entries than Spain (NATO DIANA, 2026b, n.d.). Yet only three Turkish companies were selected for the 2026 DIANA cohort of 150, as many as from Poland but fewer than from Spain (6), Italy (9) or Germany (9) (NATO DIANA, 2026a). DIANA's published figures do not break down applications by country, so it is not clear whether few Turkish firms applied or few of their applications succeeded. No Turkish company can be identified in the portfolio that the NIF publishes (NATO Innovation Fund, 2026b), and the NIF does not state the size of Türkiye's commitment to the fund.

4.4 EU rules for non-EU firms and components

EU defence funding goes to firms established in the EU, or in the countries of the European Economic Area (EEA) that take part in the programme, and the rules limit the share of components from other countries (Table 4.2). In EDIP and the European Defence Fund, an "associated country" is an EEA EFTA state (European Parliament and Council, 2025, 2021c). This meaning is different from association to Horizon Europe, which Türkiye has (Chapter 5).

Table 4.2. Rules for non-EU firms and components in SAFE, EDIP and the European Defence Fund

Rule	SAFE	EDIP	European Defence Fund
Instrument	Loans to member states, up to EUR 150 billion (Art. 6)	Grants, prizes, procurement and financial instruments (Art. 7); EUR 1.2 billion plus EUR 0.3 billion for Ukraine, to 2027 (Art. 3)	Grants, prizes, procurement and financial instruments (Art. 8); EUR 9.453 billion, 2021–2027 (Art. 4)
Non-EU countries covered	EEA EFTA states and Ukraine; candidate countries and partners may join as buyers (Art. 2(3)) and may conclude agreements for industrial access (Art. 17)	EEA EFTA states only; Ukraine through its own instrument (Art. 2(3), 8)	EEA EFTA states only (Art. 5)
Establishment of contractors	In the EU, EEA EFTA or Ukraine (Art. 16(3))	In the EU or an associated country (Art. 9(1))	In the EU or an associated country (Art. 9(1))
Firms controlled from outside	Allowed after investment screening or with guarantees verified by the member state (Art. 16(5))	Allowed with guarantees; test of good neighbourly relations (Art. 9(6))	Allowed with guarantees (Art. 9(4))
Limit on non-EU components	35% of the estimated cost of components (Art. 16(10))	35% of the estimated cost of components (Art. 10(3)–(4))	No percentage limit
Non-EU subcontractor with 15–35% of contract value	Allowed with an earlier contract or a study on replacing it within two years (Art. 16(4))	Allowed only with a contract signed before 30 December 2025 (Art. 11(7))	Not provided
Route for a new third country	Agreement under Art. 17 (Canada from 2026)	None	None

Sources: Council of the EU (2025) for SAFE; European Parliament and Council (2025) for EDIP; European Parliament and Council (2021c) for the European Defence Fund. Article numbers refer to each regulation.

For Türkiye, one of the most important rules is the 35% limit. It applies to the cost of all components from outside the EU, the EEA EFTA states and, under SAFE, Ukraine together, including American, British, Korean and Turkish components (Council of the EU, 2025; European Parliament and Council, 2025). No part of it is reserved for Türkiye, and components from a country that "contravenes the

security and defence interests of the Union and its Member States" are excluded altogether (Council of the EU, 2025). The rules are becoming stricter over time. Under SAFE, a subcontractor established outside the EU, the EEA EFTA states and Ukraine can hold 15–35% of a contract in two cases. The first is when it already had a contract with the prime contractor before SAFE entered into force. The second is when the prime contractor commits to study, within two years, whether the input can be replaced by an input from the EU, the EEA EFTA states or Ukraine (Council of the EU, 2025). The later EDIP allows only the first case, a contract that existed before EDIP entered into force (European Parliament and Council, 2025). EDIP also adds a test of "good neighbourly relations" for firms controlled from outside the EU (European Parliament and Council, 2025). It is not yet known how this test will be applied to Turkish-controlled firms. The European Parliament uses the same principle in its demands on Türkiye (European Parliament, 2026), and member states that oppose Turkish participation can use the test as a legal argument (Chapter 7).

The rules on control also apply to joint ventures. Commission training material on the European Defence Fund explains that joint control exists where strategic decisions need the approval of both EU and non-EU shareholders. In that case, control by the non-EU side is also present (European Commission, 2023). A 50/50 joint venture such as LBA Systems (Leonardo, 2025) is therefore likely to count as controlled from outside the EU under these rules, even though it is based in Italy. It can still take part in EU programmes, but only if the host member state provides the required guarantees or approves it after screening (Council of the EU, 2025; European Parliament and Council, 2025, 2021c). The attitude of the host member state is thus decisive. This is one reason why Chapter 7 focuses on a group of partner states.

4.5 Türkiye and SAFE: the current position

As a candidate country, Türkiye may conclude an agreement under Article 17 of SAFE, but no such agreement exists, and Turkish companies are not authorised to take part in SAFE common procurement (European Commission, 2025a). The IISS reports that Türkiye's 2025 request for negotiations (Section 2.5) did not gain enough political support, and that Greece and Cyprus blocked the start of talks (IISS, 2025a). This account comes from a research institute, and the official documents on the request are not public.

The Canada agreement shows what an agreement under Article 17 involves. Canadian components may exceed 35% of the cost of components, while components from the EU, the EEA EFTA states or Ukraine must be at least 20% (EU and Canada, 2026). Canada pays an administrative contribution of EUR 2.5 million. On contracts that use these terms, it also pays a participation contribution of 15% of the value of Canadian content, with a first instalment of EUR 7.5 million (EU and Canada, 2026). No participation contribution is due on contracts with more than 65% EU content (EU and Canada, 2026). Canada gives commitments on security of supply and on re-transfers within the EU, and exchanges of classified information follow the security of information agreement that Canada and the EU signed in 2017 (EU and Canada, 2026). The agreement was signed in February 2026 and concluded by the Council in June 2026 (Council of the EU, 2026a).

The Canada agreement relies on a security of information agreement for the exchange of classified information (EU and Canada, 2026), and Türkiye has no such agreement with the EU (European Commission, 2025g). According to the IISS, a Turkish request would also need the unanimous support of member states because Türkiye is a candidate country (IISS, 2025a). The SAFE timetable is short,

since implementing decisions must be adopted by 30 June 2027 and loans are available until the end of 2030 (Council of the EU, 2025). Turkish firms cannot count on a SAFE agreement in the near term.

4.6 Options for Turkish firms

Under the current rules, Turkish firms have four ways to take part in the new European defence market (Table 4.3).

Table 4.3. Options for Turkish firms in European defence funding

Option	What the firm or state must do	What it gains	Limits and risks	Time
1. Supply from Türkiye into SAFE-funded contracts	Stay within the 35% non-EU share, or act as a 15–35% subcontractor while the prime contractor studies replacement	Sales to European prime contractors without an agreement	Shared ceiling with all third countries; security clause; not available for new contracts in EDIP	Now to 2030
2. Firm established in an EU member state, controlled or jointly controlled from Türkiye	Pass investment screening or obtain guarantees from the host member state	Access to SAFE contracts, EDIP and the European Defence Fund	Depends on the host state; good neighbourly relations test in EDIP	1–3 years
3. NATO channels (NIF, DIANA)	Apply to DIANA challenges; seek NIF investment	Funding, test centres, investor network	Few Turkish firms selected so far; DIANA is not a fund	Now
4. Türkiye–EU agreement under SAFE Article 17	Negotiate content shares, a financial contribution and security of supply; conclude a security of information agreement first	Full access to SAFE common procurement on agreed terms	Unanimity; short SAFE timetable; no security of information agreement yet	3 years or more

Sources: Council of the EU (2025); European Parliament and Council (2025, 2021c); EU and Canada (2026); European Commission (2023, 2025a); NATO Innovation Fund (2026a); NATO DIANA (2026c); IISS (2025a). Assessment by the authors of this report.

Firms already use the second option, a company in a member state that is controlled or jointly controlled from Türkiye. It fits the rules of all three EU instruments and builds on the investments described in Chapter 3. Its weakness is that it depends on the host state, which must approve guarantees or clear the investment. Supply from Türkiye into SAFE-funded contracts is possible now, though only until SAFE loans end in 2030. The NATO channels are open, but so far few Turkish firms appear among their participants. An agreement under SAFE Article 17 requires political decisions outside the reach of firms, and it depends on a security of information agreement, which Chapter 8 treats as the first step of the roadmap.

4.7 Summary

Turkish start-ups are almost invisible in the open data on Europe's growing private market for defence technology, and few Turkish firms have been selected for NATO's instruments. EU funding rules exclude firms established in Türkiye, and SAFE and EDIP cap all non-EU components together at 35%. Talks on a SAFE agreement for Türkiye have not started. For now, Turkish firms can use the NATO instruments and can reach European money through companies established in EU member states with the approval of the host state. Annex B proposes a matchmaking series to support both routes.

5. Pillar III: Research and Innovation

Research is the area in which Türkiye's relationship with the EU is most developed. Türkiye takes part in Horizon Europe as an associated country, and Turkish universities and firms work with European partners in hundreds of projects. The link stops, however, at the border between civil and defence research, and in some sensitive technologies it is narrower than for other partners.

5.1 Association to Horizon Europe and its limits

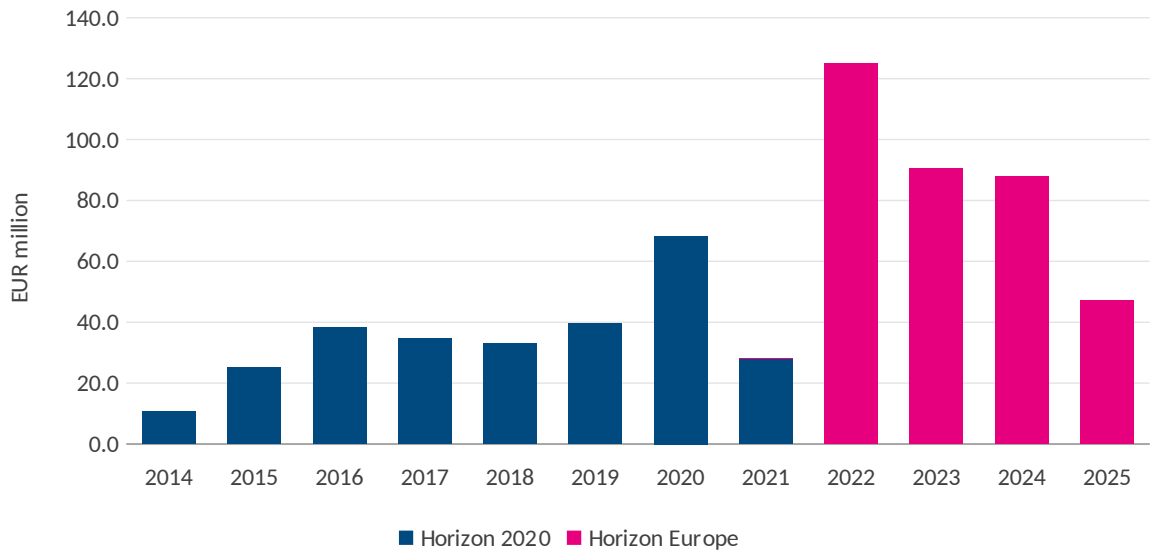
The agreement on Türkiye's association to Horizon Europe was signed in October 2021 and applies from 1 January 2021 (EU and Türkiye, 2022). It allows legal entities established in Türkiye to take part in Horizon Europe "under conditions equivalent to those applicable to legal entities established in the European Union" (EU and Türkiye, 2022). The same provision refers to Article 22(5) of the Horizon Europe Regulation (EU and Türkiye, 2022). Under this article, the work programme may limit participation in actions related to the Union's strategic assets, interests, autonomy or security. It may admit only entities from member states, or from member states and specified associated or other third countries (European Parliament and Council, 2021b). The 2025 work programme for Cluster 4 relies on this article when it closes some topics to entities from Türkiye, as Section 5.3 shows (European Commission, 2025d).

Research cooperation with Türkiye under EU programmes is limited to civil research. Horizon Europe has "an exclusive focus on civil applications" (European Parliament and Council, 2021b). The European Defence Fund, which finances defence research and development, is open to member states and, among non-member countries, only to the EEA EFTA states (European Parliament and Council, 2021c). A company established in a member state but controlled from Türkiye can take part in the Fund only with guarantees approved by that member state (European Parliament and Council, 2021c). Recipients may cooperate with entities outside the EU and the EEA EFTA states only if this does not harm the security and defence interests of the Union and its member states. The costs of such cooperation are not eligible for support from the Fund (European Parliament and Council, 2021c).

5.2 Turkish participation in Horizon 2020 and Horizon Europe

Turkish participation has grown under Horizon Europe. In the Commission's CORDIS data, organisations established in Türkiye received EUR 402.2 million of net EU contribution in Horizon Europe grants signed up to August 2026, in 1,349 participations. Net EU contribution is the EU grant that each participant receives, minus any share it passes on to linked third parties. In the whole of Horizon 2020, Turkish organisations received EUR 277.3 million in 1,215 participations. Counted by year of grant signature, Horizon Europe grants averaged EUR 70.1 million a year in 2021–2025, about twice the Horizon 2020 average of EUR 35.6 million in 2014–2020, in current prices (Figure 5.1).

Figure 5.1. Net EU contribution to Turkish participants in Horizon 2020 and Horizon Europe, by year of grant signature, 2014–2025



Source: CORDIS (2026b, 2026a), project and organisation files updated in August 2026; calculations for this report. EUR million, current prices; net EU contribution to organisations established in Türkiye, all participant roles. Horizon 2020 grants were still signed in 2021 and 2022.

Turkish organisations received only 0.64% of the net EU contribution in Horizon Europe, compared with 1.58% for Israel, 2.93% for Norway and 3.56% for the United Kingdom, which has been associated only since 2024, according to the same CORDIS data. Participation is also concentrated. The Scientific and Technological Research Council of Türkiye (TÜBİTAK) alone received 15.2% of the Turkish total, and the ten largest Turkish recipients 40.2%. The Commission's review of the first three years of Horizon Europe is more positive about Turkish applications, with a success rate of 14.0% in 2021–2023 against 10.4% in Horizon 2020 (European Commission, 2024a). Newcomers made up 55.7% of participants from associated countries, and the review shows Türkiye with the highest share of newcomers among the selected countries (European Commission, 2024a). The main partners of Turkish participants are Italy and Germany, each present in 478 of the 803 Horizon Europe projects with Turkish participation, followed by Spain with 473 projects. These three member states are also Türkiye's main suppliers of major arms (Section 3.2).

5.3 Calls closed to Turkish entities

The general rule of equal treatment has exceptions in the technologies that matter most for defence. The 2025 work programme for Cluster 4 (Digital, Industry and Space) contains 82 call topics with a total indicative budget of EUR 1,375.1 million (European Commission, 2025d). Eighteen of these topics, with EUR 394.5 million or 28.7% of the budget, are open only to entities from member states and a named list of other countries that excludes Türkiye (Table 5.1).

Table 5.1. Horizon Europe Cluster 4 topics of 2025 that are closed to entities established in Türkiye

Topic (HORIZON-CL4-2025-)	Subject	Eligible countries	Budget (EUR million)
03-DATA-08	Large-scale pilots for Telco Edge Cloud (3C networks)	A	75.0

Topic (HORIZON-CL4-2025-)	Subject	Eligible countries	Budget (EUR million)
04-DATA-02	AI and generative AI along the cognitive computing continuum	A	30.0
04-DATA-03	Software engineering for AI and generative AI	A	15.0
03-DIGITAL-EMERGING-02	Quantum computing software stack	A	10.0
03-DIGITAL-EMERGING-07	Generative AI for robotics and industrial automation	A	85.0
03-DIGITAL-EMERGING-09	Challenge-driven GenAI4EU booster	A	45.0
04-DIGITAL-EMERGING-04	Assessment of general-purpose AI capabilities and risks	A	7.0
04-DIGITAL-EMERGING-07	Learning strategies for general-purpose AI	A	30.0
02-SPACE-12	Autonomy for space transport: digital building blocks	C	3.0
02-SPACE-13	Autonomy for space transport: demonstration	C	7.0
02-SPACE-21	In-space operations and services (ISOS) pilot: servicing component	B	18.0
02-SPACE-22	In-space operations and services (ISOS) pilot: host component	B	17.5
02-SPACE-23	In-space operations and services (ISOS) pilot: logistics component	C	12.0
02-SPACE-71	Space components: RISC-V microprocessor (7 nm)	B	5.0
02-SPACE-72	Space equipment: chip-scale atomic clocks, solar cells	B	8.0
02-SPACE-73	Space components: connectors	B	1.0
02-SPACE-74	Space components: advanced packages and memories	B	6.0
03-HUMAN-15	Generative AI for virtual worlds	A	20.0
Total (18 topics)			394.5

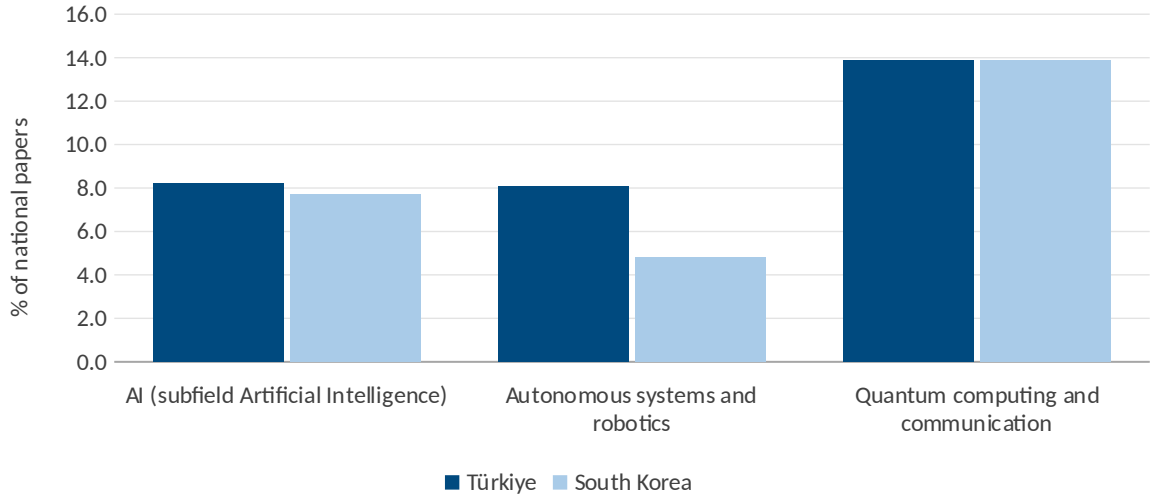
Source: European Commission (2025d), eligibility conditions of each topic; calculations for this report. Eligible countries: A = EU member states, Iceland, Norway, Canada, Israel, South Korea, New Zealand, Switzerland and the United Kingdom; B = EU member states, Iceland and Norway; C = group B plus Canada, New Zealand, Switzerland and the United Kingdom. Total of the five 2025 Cluster 4 calls: EUR 1,375.1 million in 82 topics, including EUR 45.0 million from the 2027 budget.

South Korea, Israel, Canada and the United Kingdom are admitted to the artificial intelligence and quantum topics in Table 5.1, while Türkiye, which is associated to the whole programme, is not (European Commission, 2025d). Canada and South Korea are associated only to Pillar II of Horizon Europe, the part of the programme that contains the thematic clusters such as Cluster 4 (European Commission, 2026a; European Parliament and Council, 2021b). The work programme states that several of its actions support the "promote" pillar of the EU's economic security strategy, which includes "investing in research and innovation for strategic and dual-use technologies" (European Commission, 2025d). It does not explain why some associated countries are listed and others are not. In the CORDIS data for Cluster 4 as a whole, Turkish organisations had 153 participations and EUR 51.7 million of EU contribution in grants signed up to August 2026, or 0.75% of the total.

5.4 Research links in three dual-use fields

Co-publications show whether researchers already work together. Using OpenAlex data, this report measured the share of Turkish and South Korean papers in three fields in 2015–2024 that have at least one co-author at an institution in the EU (Figure 5.2). The shares are similar for the two countries in artificial intelligence and quantum computing, and the Turkish share is higher in autonomous systems and robotics. Germany, France, Spain, the Netherlands, Poland and Italy are Türkiye's main EU partners in artificial intelligence (OpenAlex, 2026).

Figure 5.2. Share of Turkish and South Korean research papers with at least one co-author in the EU, by field, 2015–2024



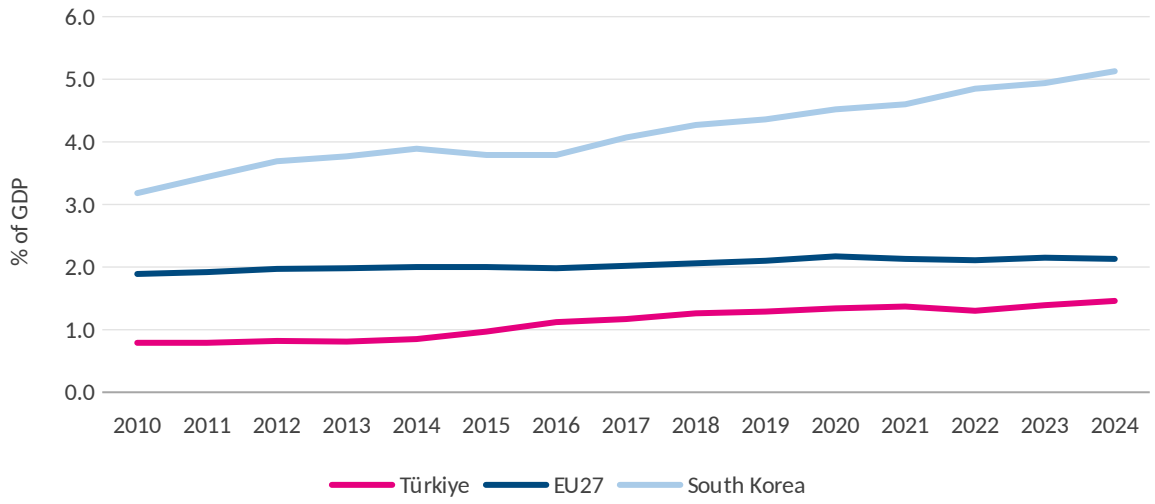
Source: OpenAlex (2026), queried on 26 September 2026; calculations for this report. Journal articles and reviews by primary topic, all years pooled. AI is the OpenAlex subfield Artificial Intelligence; autonomous systems are seven topics on autonomous vehicles, robots, UAVs and underwater vehicles; quantum covers two topics on quantum computing and quantum information. The fields overlap in part.

These shares are modest for a country that is associated to Horizon Europe and has a customs union with the EU. The European Innovation Scoreboard 2026 ranks Türkiye 37th among the EU member states and neighbouring countries on international scientific co-publications, with a score of 16.6% of the EU average, and finds public-private co-publications "very low, at just 19.2% of the EU average" (European Commission, 2026d). The weak link between science and industry is relevant for defence cooperation, because most defence innovation takes place in firms.

5.5 Research capacity: Türkiye, the EU and South Korea

Türkiye has almost doubled its research intensity since 2010, although the series has a break in 2016. Gross domestic expenditure on R&D rose from 0.79% of GDP in 2010 to 1.46% in 2024 (OECD, 2026). Firms carried out 64.8% of this spending (TÜİK, 2025). The EU, at 2.13% in 2024, and South Korea, at 5.13%, are still far ahead (Figure 5.3).

Figure 5.3. Gross domestic expenditure on R&D as a share of GDP, Türkiye, the EU and South Korea, 2010–2024



Source: OECD (2026). EU values are OECD estimates; the South Korean value for 2024 is provisional; break in the series for Türkiye in 2016. Eurostat (2026d) gives an estimate of 2.24% for the EU in 2024.

For defence research the data are thinner, above all on the Turkish side. EU member states spent EUR 17 billion at 2025 prices on defence R&D in 2025, or 4.0% of their defence expenditure, according to partly estimated data of the European Defence Agency (European Defence Agency, 2026a). The Presidency of Defense Industries (SSB) left information on the Defence Industry Support Fund out of the cost sections of its 2024 activity report for reasons of confidentiality (SSB, 2025). In Eurostat's series on government budget allocations for R&D, the defence share for Türkiye fell from 10.94% in 2022 to 4.52% in 2023, 3.98% in 2024 and a provisional 3.56% in 2025 (Eurostat, 2026h). The fall in 2023 was not only relative. The defence allocation dropped from TRY 5.9 billion in 2022 to TRY 4.5 billion in 2023 at current prices, while total government allocations for R&D rose by 83% (Eurostat, 2026h; OECD, 2026). It recovered to TRY 7.1 billion in 2024 and a provisional TRY 8.4 billion in 2025, which is still well below the 2022 level once inflation is taken into account. Neither data set marks the break in 2023 with a flag or note, so it is not clear whether total spending on defence research in Türkiye also fell or where Turkish capacity lies.

5.6 After 2027: the proposals for FP10 and the European Competitiveness Fund

The Commission's proposal for the next research framework programme (FP10) no longer contains the exclusive focus on civil applications and states that "the programme may support dual-use actions" (European Commission, 2025e). Defence research would move to a new European Competitiveness Fund, which would replace the European Defence Fund (European Commission, 2025f). The proposal allows candidate countries to associate with the Fund. For the defence part, however, the association agreement would have to specify how eligibility conditions are adapted. It would also have to lay down measures to protect "the security and defence interests of the European Union and of the Member States" (European Commission, 2025f). Under the proposed research programme, the scope of association of each third country would take account of risks to public order and security, including research security. Third countries could be excluded from parts of the programme, but EEA members and acceding, candidate and potential candidate countries would be exempt from this rule (European Commission, 2025e). These proposals are still under negotiation. They would give defence research

cooperation with a candidate country a legal basis, but the cooperation would depend on political decisions.

5.7 Knowledge security and export control

To show what current rules allow, this section takes as an example a research triangle between universities and firms in Istanbul, Milan and Eindhoven, three centres of engineering research in countries with different approaches to research security. On the Turkish side, the institutions for such cooperation already exist. Six Turkish research universities formed an alliance in 2015 to increase their role in the European Research Area (Boğaziçi University, 2015). Middle East Technical University (METU) runs a researcher training programme for the defence industry with the support of the SSB (METU, 2026). Politecnico di Milano requires the opinion of its ethics committee for research in non-EU countries and for all research that may have dual use (Politecnico di Milano, 2026). In April 2025 the Dutch government put to public consultation a bill on screening researchers who work with sensitive knowledge, including artificial intelligence, quantum and "other technology with potential military applications". The target date for its entry into force is mid-2027 (Government of the Netherlands, 2025).

EU export control law sets the outer limit. An authorisation is needed for the export of listed dual-use items, and export includes the electronic or oral transmission of technology (European Parliament and Council, 2021d). Türkiye is not among the destinations of the general EU authorisation EU001, which covers countries such as Japan, Norway, the United Kingdom and the United States (European Parliament and Council, 2021d). Exporters to Türkiye therefore cannot use this broad authorisation, and the other EU general authorisations that include Türkiye cover only certain items or purposes (European Parliament and Council, 2021d). The controls do not apply to "basic scientific research" (European Parliament and Council, 2021d). The Commission's guidance uses technology readiness levels, a scale from 1 to 9 that measures how close a technology is to use. It explains that research at levels 1 and 2 is generally basic research, while research above level 4 is not (European Commission, 2021). A research triangle is therefore feasible for basic research in artificial intelligence, autonomy and quantum technologies. Joint work may need licences as it moves towards application, and it could lead to joint applied work under a future framework.

5.8 Summary

Türkiye is fully associated to Horizon Europe and its participation has grown, but its share of funding is well below that of Israel, Norway and the United Kingdom. Some sensitive topics that are open to South Korea, Israel or Canada are closed to it. The proposals for after 2027 could allow dual-use and defence research with candidate countries under conditions. Until then, the most practical steps are higher Turkish participation in open calls and links between universities at the stage of basic research (low technology readiness levels). Türkiye can also seek a published reason for each topic closed to it.

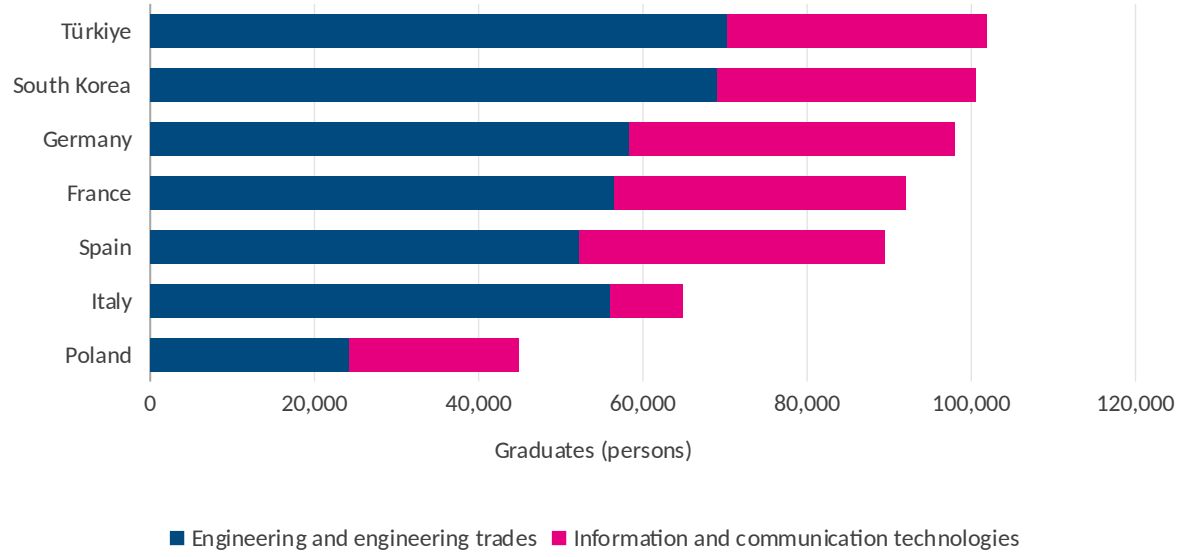
6. Pillar IV: Human Capital

Defence industries in Europe and in Türkiye draw on the same groups of skilled people: engineers, software specialists and technicians. This chapter provides the basis for the Blue Bridge framework in Annex A.

6.1 The talent base

Counting short-cycle programmes, Türkiye produces more graduates in engineering and in information and communication technologies (ICT) than any EU member state. In 2024, 101,929 people graduated in these fields at tertiary level in Türkiye, compared with 97,909 in Germany and 92,026 in France, according to Eurostat data (Figure 6.1). The Turkish number is equal to 17.5% of the EU total, but 46% of these graduates completed short-cycle programmes, which are below bachelor's level. At bachelor's, master's and doctoral level the number was 55,012. According to the OECD, 20% of Turkish bachelor's graduates studied a field of science, technology, engineering or mathematics (STEM), against an OECD average of 23% and 32% in South Korea (OECD, 2025b, 2025a).

Figure 6.1. Tertiary graduates in engineering and ICT, Türkiye, large EU producers and South Korea, 2024



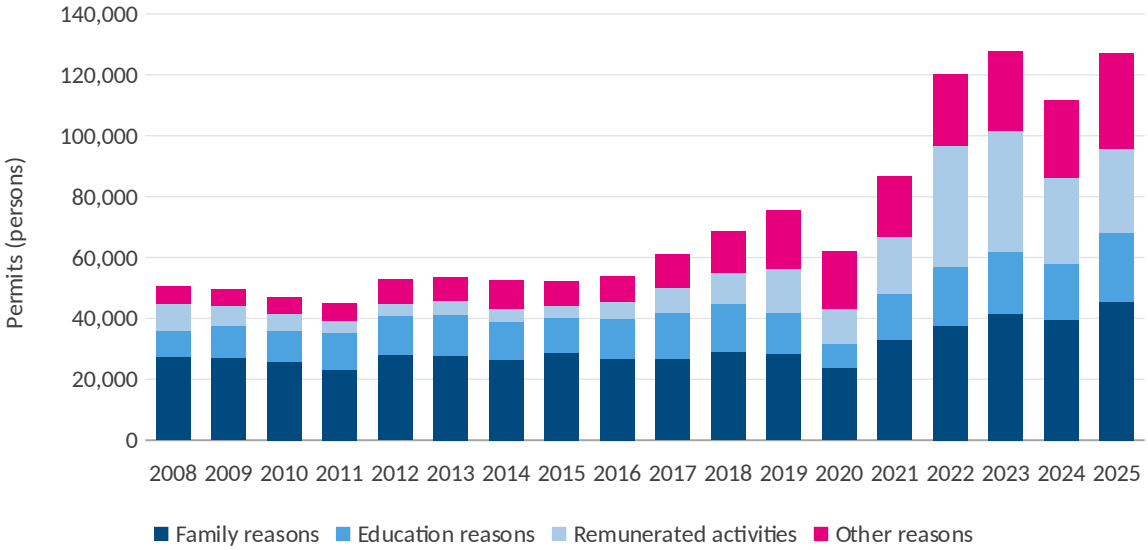
Source: Eurostat (2026e); OECD (2025c) for South Korea; calculations for this report. Number of graduates, ISCED levels 5 to 8 (short-cycle tertiary to doctoral). Engineering is ISCED-F 071 and ICT is ISCED-F 06. Short-cycle graduates are 46% of the Turkish total.

Data of the Council of Higher Education (YÖK) give a longer view. Bachelor's, master's and doctoral graduates in engineering and ICT together rose from 35,011 in 2014–2015 to a peak of 62,252 in 2020–2021 and stood at 58,248 in 2024–2025 (YÖK, 2026). Graduates in the field that includes aircraft and ships rose from 2,119 to 3,451 (YÖK, 2026). The regulation on the EU Talent Pool lists industrial, mechanical, electrical and several software occupations among Union-wide shortage occupations (European Parliament and Council, 2026).

6.2 Movement of skilled Turkish nationals to the EU

First residence permits issued to Turkish citizens in the EU more than doubled, from 53,836 in 2016 to 127,171 in 2025 (Figure 6.2). Permits for employment grew fastest, from 5,295 to 27,352, and their share rose from 9.8% to 21.5%. Family reasons remain the largest category, with 35.7% of first permits in 2025 (Eurostat, 2026i). Germany is the main destination, with 39.1% of first permits to Turkish citizens in 2025 (Eurostat, 2026b). Among the main countries of origin, Türkiye had the largest increase in migration flows of all types to Germany in 2023 (OECD, 2025d).

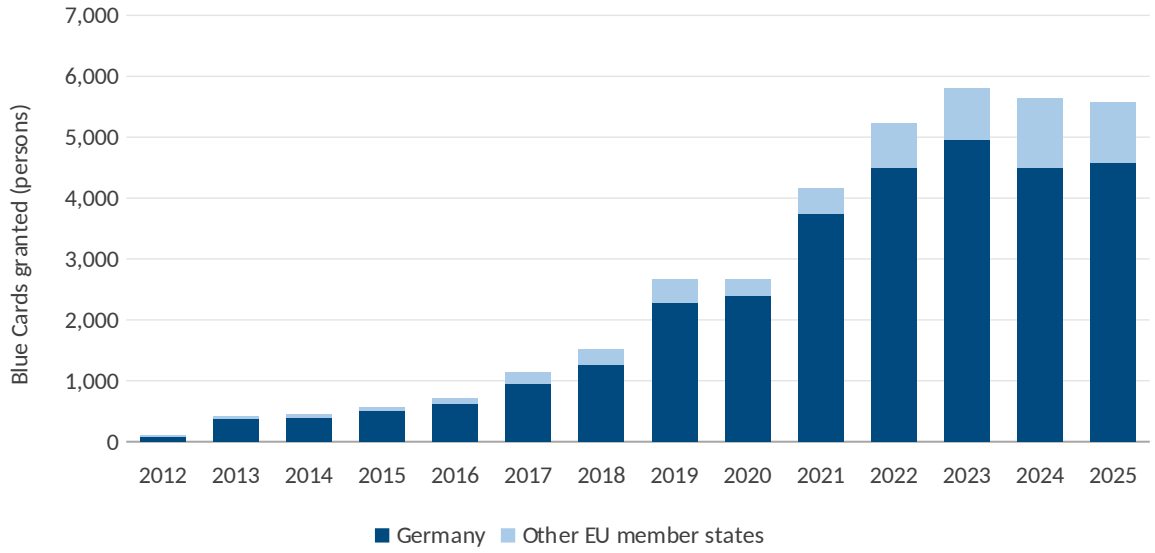
Figure 6.2. First residence permits issued to Turkish citizens in the EU, by reason, 2008–2025



Source: Eurostat (2026b); calculations for this report. Persons, EU27. 2008–2012 are the sum of the member states that reported (Croatia from 2013; Luxembourg reported no employment or other-reason figures for 2008).

In 2024, Turkish citizens received 5,645 EU Blue Cards for highly qualified workers, 7.2% of the total, and were the third-largest nationality after India and Russia (Eurostat, 2025). Germany issues about four fifths of the Blue Cards given to Turkish citizens. The number granted there grew more than tenfold between 2013 and 2023, although the German series has a break in 2019 (Figure 6.3). Among new arrivals in Germany in 2024, Turkish citizens were first for the national residence title for skilled workers with an academic degree and second for the Blue Card (BAMF, 2025). In 2025, 758 Turkish researchers and 3,904 highly skilled workers under national schemes received first permits in the EU (Eurostat, 2026c).

Figure 6.3. EU Blue Cards granted to Turkish citizens, Germany and other EU member states, 2012–2025



Source: Eurostat (2026f); calculations for this report. Persons subject to a decision to grant an EU Blue Card; sum of the member states with data (some small states missing before 2020). Break in the German series in 2019. Data for 2025 are incomplete, because six member states had not reported.

The data do not show how many of these people are engineers or work in defence. Germany reports no occupation for Blue Cards (Eurostat, 2026f), and its register of foreigners does not record the sector of employment (BAMF, 2025). Of the 5,645 EU Blue Cards, only 690 have a reported occupation, and in 250 of these the holder is a science and engineering or ICT professional (Eurostat, 2026f). Of all persons who first received a Blue Card in Germany between 2012 and 2017, 83% still lived there five years later, according to the Federal Statistical Office of Germany (Destatis, 2023). A qualitative study interviewed 37 highly skilled people who moved from Türkiye to the Netherlands after 2016. They named five main motives: restricted democratic rights, eroded legal protection, pressure on secular lifestyles, conservative shifts in education and gender-based insecurity. All seven engineers in this small, non-random sample had worked in Türkiye's defence industry (Ceylan and Bilecen, 2026).

6.3 Legal channels for work on both sides

There is no free movement of workers between Türkiye and the EU. The Court of Justice of the European Union (CJEU) has held that the Association rules leave member states free to regulate the entry of Turkish nationals and their first employment (CJEU, 2000). The Association Council, the joint body of the EU and Türkiye under the Ankara Agreement, adopted Decision No 1/80 in 1980. Once a Turkish worker is legally employed, this decision gives progressive rights in that member state, including free access to any paid employment after four years (EEC-Turkey Association Council, 1980). Under the same decision, nationals of member states who are duly registered as belonging to the labour force in Türkiye enjoy the corresponding rights there under the same conditions (EEC-Turkey Association Council, 1980). The Additional Protocol to the Ankara Agreement contains a standstill clause, under which the parties may not introduce new restrictions on the freedom of establishment and the freedom to provide services (CJEU, 2009). This clause protects Turkish firms that send staff to provide services in a member state against new visa requirements (CJEU, 2009), but it does not in itself create new rights (CJEU, 2000, 2013).

EU directives provide the practical channels. The Blue Card allows short business visits in other member states and a move to a second member state after 12 months. It also allows long absences from the EU without loss of long-term status, and its recitals refer to circular migration (European Parliament and Council, 2021a). The Researchers Directive allows public and private research organisations to host a researcher. It supports mobility between member states and, after the research, allows a stay of at least nine months to look for work or start a business (European Parliament and Council, 2016). The directive on intra-corporate transfers covers managers and specialists seconded within a company group for up to three years (European Parliament and Council, 2014). In Germany, at least, these mobility provisions seem to be used little, since in 2024 it issued only 29 first mobility certificates for researchers and five for short-term mobility of intra-corporate transferees (BAMF, 2025).

Work on defence projects adds a security layer. In Türkiye, every person who needs access to classified defence information must hold a personnel security certificate, and visits by foreigners to classified areas need prior permission (Republic of Türkiye, 2004b). A personnel security certificate can be requested only for Turkish citizens (Ministry of National Defence (MSB), 2026). As an exception, since 2021, the Defence Industry Security Regulation has allowed holders of the Mavi Kart, a card issued under Article 28 of the Turkish Citizenship Law, to receive a personnel security certificate if their employer declares them critical personnel. The certificate is valid for up to five years and needs the approval of the Minister of National Defence (Republic of Türkiye, 2010). Under the same regulation, firms with foreign partners or with foreign nationals on the board can receive a national facility clearance only at the restricted level (Milli Hizmete Özel). For such firms, the procedure for a clearance at the secret level (Milli Gizli) can start only after the Minister approves it. Where these partners or board members are from NATO member states and the persons concerned hold a suitable personnel security certificate from their own country, the firm can also receive a NATO facility clearance (Republic of Türkiye, 2010). This matters for joint ventures with firms from EU member states in NATO. On the EU side, SAFE, EDIP and the European Defence Fund admit a firm that is established in the EU but controlled from outside the EU only after investment screening or with guarantees approved by its host state. The guarantees must show that the staff involved hold a national security clearance issued by a member state or, under EDIP and the European Defence Fund, by an associated country where appropriate (Council of the EU, 2025; European Parliament and Council, 2025, 2021c). Under Horizon Europe, research carried out outside the Union that uses or generates classified information needs a security agreement between the EU and the third country (European Parliament and Council, 2021b). Until an EU–Türkiye security of information agreement exists, a talent scheme between Türkiye and the EU can therefore operate at scale only in unclassified work (Chapter 4).

Among Türkiye's own instruments for attracting skilled people, the Turquoise Card gives foreigners a right to work without a time limit after a transition period of three years (Republic of Türkiye, 2016). The decision takes into account education, professional experience, contribution to science and technology, and the effect of the person's activity or investment on the economy and employment (Republic of Türkiye, 2016). For scientists and researchers, the scoring criteria include work in important posts in strategic sectors such as ICT, defence, mining and energy (Republic of Türkiye, 2017).

6.4 What is known about circulation schemes

In the literature on brain circulation, Saxenian describes engineers and entrepreneurs who transfer know-how between regions (Saxenian, 2005). This literature also sets conditions: the home country

must be able to absorb returning talent, and political leaders must be willing to work with returnees (Saxenian, 2005; OECD, 2008). OECD (2008) found that few policies in this area had been evaluated. Of six schemes that combine academic and industrial work, support return or attract researchers from abroad, the French and Danish ones have published results (Table 6.1).

Table 6.1. Schemes for the circulation of researchers and engineers, and evidence on their results

Scheme	Mechanism	Rule on location or nationality	Evidence of results
CIFRE, France (ANRT, 2024; Ministry of Higher Education and Research of France, 2023)	Firm employs a doctoral candidate for up to 36 months; public grant; defence variant exists	Employer and laboratory in France (a foreign university can join through an international joint doctorate, or cotutelle); no nationality condition	Ministry figures: 91% employed within a year; over 70% work in the private sector
Industrial PhD, Denmark (Innovation Fund Denmark, 2025; Danish Agency for Science, Technology and Innovation, 2011)	Firm employs the candidate; public funding of up to 50% of salary	Firm in Denmark; university may be abroad	Controlled study (data to 2006): 7–10% higher wages for graduates; host firms with more patenting and faster growth of gross profit and employment; no robust effect on productivity
MSCA Industrial Doctorates, EU (European Commission, 2025c)	Joint academic and industrial supervision; at least 50% of time in industry	Both partners may be in an associated country such as Türkiye	n.a.
TÜBİTAK 2232-A, Türkiye (TÜBİTAK, 2025)	Fellowship of 24–36 months at a university or firm with an R&D centre; three months a year abroad allowed	Researchers who lived and worked abroad; no nationality condition in the call	n.a.
CoCirculation3, Türkiye and EU (TÜBİTAK, 2026a)	24-month fellowships, plus an optional 12 months in a non-academic organisation, co-funded under MSCA	Any nationality; proposals aligned with the European Green Deal	n.a.
Brain Pool Plus, South Korea (National Research Foundation of Korea, 2024)	Korean institutions employ researchers from abroad for up to ten years	Researchers based abroad, Korean or foreign; no nationality condition in the call	n.a.

Sources: as shown in each row. n.a.: not available.

Models that link a doctoral candidate to a firm have the strongest evidence. The Danish evaluation found that Industrial PhD graduates earn about 7–10% more than regular PhD graduates and comparable university graduates, after controls for their background. A comparison of host firms with a control group of highly similar firms found more patenting and faster growth of gross profit and employment (Danish Agency for Science, Technology and Innovation, 2011). The existing Turkish and EU schemes are all civil and have no published results on return or careers (Table 6.1). For a scheme in the defence and dual-use sector, evaluation would need to be part of the design from the start.

6.5 Summary

Türkiye has a large pool of engineering and ICT graduates, and skilled Turkish nationals already use EU channels, above all the Blue Card in Germany. EU and Turkish law offer channels for work on both sides.

The data for Germany suggest that the mobility provisions are used little, and security rules limit these channels to unclassified work for now. The Blue Bridge framework in Annex A builds on them with industrial doctorates and rotation fellowships that use existing directives, involve firms on both sides and are evaluated from the start.

7. Political Strategy: A Partner Group

The previous chapters showed that the main barriers to Türkiye–EU defence industrial cooperation are legal and political. Section 3.3 also found industrial limits in complex products, but these limits do not stop cooperation where Turkish firms are strong. Section 7.1 shows where in EU procedures a single member state can stop cooperation with Türkiye, and the rest of the chapter proposes a partner group of four member states and asks what it can do. The term "partner group" is used because "coalition of the willing" already refers to the group of states that support Ukraine, in which Türkiye takes part (European Commission, 2025g).

7.1 Where a single member state can block cooperation

The main EU channels for defence cooperation with a candidate country need a unanimous decision. Projects under Permanent Structured Cooperation (PESCO) can invite a third country only if all project members agree, and the Council then decides (Council of the EU, 2020). An agreement under Article 17 of the Security Action for Europe (SAFE) Regulation needs Council decisions on its signature and conclusion, as the agreement with Canada shows (Council of the EU, 2026a). Because Türkiye is a candidate country, its request to take part in SAFE needs the support of all member states, according to the International Institute for Strategic Studies (Section 4.5). The European Defence Industry Programme (EDIP) adds a test of "good neighbourly relations" for the participation of firms controlled from outside the EU (European Parliament and Council, 2025). SAFE allows no component from a third country that "contravenes the security and defence interests of the Union and its Member States" (Council of the EU, 2025). In PESCO and SAFE, each member state has a veto. The EDIP and SAFE conditions give those that oppose Turkish participation a legal argument as well.

The positions of the objecting states are known mainly from research institutes. According to the International Crisis Group, Greece and the Republic of Cyprus argue that Türkiye should not benefit from EU funds or take part in security initiatives while it disputes the sovereignty of a member state (International Crisis Group, 2026). The German Institute for International and Security Affairs (SWP) reports that France, together with Greece and Cyprus, blocked the financing of Turkish drones and artillery shells for Ukraine in 2024, and that Paris increasingly sees Ankara as a strategic competitor (SWP, 2025). The Crisis Group also records a French concern about replacing dependence on Washington with reliance on "the defence industry of another non-EU power" (International Crisis Group, 2026).

Even if all member states agreed, Türkiye could not join a PESCO project today, because it lacks the security of information agreement that the PESCO rules require (Section 2.5).

7.2 Choosing the partner states

This report selects Poland, Romania, Italy and Spain as possible partners on two criteria based on published evidence. Each has a documented industrial link with Turkish firms at the level of a contract or a joint venture. None of them is on record as opposing Turkish participation in European defence cooperation, and independent research assesses relations with them positively. The IISS considers relations with Italy, Poland, Romania, Spain and the United Kingdom promising, while relations with

France and Germany are “likely to remain fraught” (IISS, 2024). SWP places Poland, Spain and Italy among the states with relatively cooperative relations with Türkiye (SWP, 2025).

The partner group rests on industrial links rather than on a shared threat perception, and its members have different profiles (Table 7.1). Poland and Romania are buyers on NATO’s eastern flank. According to SIPRI, which uses a different definition from NATO, Poland had the highest military burden (military expenditure as a share of GDP) among NATO members in 2025 (SIPRI, 2026c). Both countries bought Bayraktar TB2 drones, and Romania now has a Turkish-owned armoured vehicle plant (Ministry of National Defence of Poland, 2021; Ministry of National Defence of Romania, 2024; Otokar, 2026). Italy and Spain, the southern industrial partners, supply a large part of Türkiye’s arms imports, and their companies co-produce with Turkish firms (SIPRI, 2026b; Leonardo, 2025; Airbus, 2025). Spain’s priorities are also broader than military security. Of the funds in its 2025 plan to reach 2% of GDP, 31.16% go to telecommunications and cybersecurity and 16.73% to emergencies and natural disasters, and the plan states that Spain will not encourage or join an arms build-up (Government of Spain, 2025).

Table 7.1. Profiles of the four partner states and Türkiye

Indicator	Poland	Romania	Italy	Spain	Türkiye
Core defence expenditure, % of GDP, 2025 / 2026 (estimates)	4.25 / 4.68	2.19 / 2.43	2.09 / 2.10	2.00 / 2.00	2.33 / 2.85
Real change in core defence expenditure, 2014–2026 (%, 2026 estimated)	284.0	149.2	108.2	183.0	239.8
Equipment share of core defence expenditure, 2026 (%, estimate)	55.9	37.8	24.5	34.0	30.1
Main suppliers of major arms, 2021–2025 (% of imports)	South Korea 47, United States 44	United States 48, Norway 17	United States 93	United States 49, Switzerland 25	Germany 31, Spain 29, Italy 19
Documented industrial links with Turkish firms	TB2 purchase (2021)	TB2 purchase (2023); Otokar plant at Mediaș (2026)	LBA Systems joint venture (2025); Piaggio acquisition (2025)	Hürjet contract (2025); Navantia support for TCG Anadolu	Not applicable

Sources: NATO (2026a) for rows 1–3 (rows 1 and 2 at 2021 prices; figures for 2025 and 2026 are estimates; Spain’s equipment share was 44.0% in 2025); SIPRI (2026b) for row 4; Ministry of National Defence of Poland (2021), Ministry of National Defence of Romania (2024), Otokar (2026), Leonardo (2025), Baykar (2025b), Airbus (2025) and Navantia (2026) for row 5.

The four states should not, however, be expected to act as Türkiye’s advocates. SWP notes that even Spain and Italy do not see Türkiye as a priority partner and are cautious about advocating its closer integration into European defence structures (SWP, 2025). The IISS observes that Poland continues to prioritise American, South Korean and British suppliers for its major purchases (IISS, 2024). According to the Crisis Group, Ankara in turn is cautious about initiatives that could enhance Romania’s role in the Black Sea (International Crisis Group, 2026).

Germany is not a member of the partner group, and the IISS groups it with France as a difficult relationship (IISS, 2024). Yet Germany was Türkiye’s largest supplier of major arms in 2021–2025 (Chapter 3), and in January 2026 its defence minister stated support for Türkiye’s request to join the framework agreement for joint procurement under the European Sky Shield Initiative (Federal Ministry

of Defence (BMVg), 2026). During the negotiations on the April 2024 Council conclusions, according to the Crisis Group, Germany and the Netherlands tried to prevent the Republic of Cyprus from blocking deeper engagement with Türkiye (International Crisis Group, 2026). The IISS reports that Estonia and Germany also opposed, without success, the Greek and Cypriot vetoes on SAFE talks with Türkiye (IISS, 2025a).

7.3 What a partner group can do

A partner group cannot remove a veto in the Council, but it can act in three areas where unanimity is not needed. The most direct is the role of the host state. A company established in a member state but controlled from Türkiye needs guarantees or screening by that state before it can take part in SAFE, EDIP or the European Defence Fund (Chapter 4). Italy and Romania already host such companies (Leonardo, 2025; Otokar, 2026), and the partner states can make their procedures for these guarantees clear and predictable. Bilateral procurement and co-production, such as the Hürjet contract with Spain and the COBRA II contract with Romania (Airbus, 2025; Otokar, 2026), do not require EU instruments at all. Nor do the small-group formats outside EU law in which Türkiye already takes part, such as the European Sky Shield Initiative (ESSI) (International Crisis Group, 2026) and the demining initiative with Romania and Bulgaria (European Commission, 2025g).

ESSI, started and coordinated by Germany, is an initiative for the joint procurement of ground-based air defence systems (Federal Ministry of Defence (BMVg), 2022b, 2023). The capabilities are to be integrated into NATO air defence, and each nation finances its own share (Federal Ministry of Defence (BMVg), 2022a). In February 2024 Türkiye and Greece signed a document on their participation in the letter of intent (Ministry of National Defence (MSB), 2024), which shows that a small-group format can include Türkiye where EU instruments cannot (Table 7.2). Its scope is limited, however, because ESSI is mainly a framework for the joint purchase of systems that already exist, and for ensuring their operation (Federal Ministry of Defence (BMVg), 2022a, 2026).

Table 7.2. Milestones of the European Sky Shield Initiative

Date	Event	Source
13 October 2022	15 states sign the letter of intent; the systems named are Patriot, IRIS-T SLM and Arrow 3	Federal Ministry of Defence (BMVg) (2022a, 2022b)
7 July 2023	Austria and Switzerland sign letters of intent to join; 19 states then take part	Federal Ministry of Defence (BMVg) (2023)
15 February 2024	Türkiye and Greece sign a document on their participation in the letter of intent, at a ceremony in Brussels hosted by Germany	Ministry of National Defence (MSB) (2024)
14 January 2026	Germany states support for Türkiye's request to join the framework agreement for joint procurement	Federal Ministry of Defence (BMVg) (2026)

Sources: as shown. The date for Türkiye and Greece is that of the news item by Ministry of National Defence (MSB) (2024). Published counts of current participants differ.

At the Ankara Summit in July 2026, NATO Allies committed to expand collective manufacturing capacity, to continue work to eliminate defence trade barriers among Allies and to use NATO's partnerships to "maximise defence industrial depth and cooperation" (NATO, 2026b). The partner group can use these commitments as a common reference and coordinate with the NATO Innovation Fund and DIANA, in which Türkiye and the four partner states all take part (Chapter 4).

7.4 Summary

Any single member state can block the main EU channels for cooperation with Türkiye, and according to research institutes Greece and Cyprus have done so, joined by France on at least one issue in 2024. A partner group of Poland, Romania, Italy and Spain cannot change this soon. It can work where unanimity is not needed, through clear host-state procedures for Turkish investment, bilateral co-production and formats such as ESSI and NATO's industrial agenda. Its members have their own priorities, and none of them is a natural advocate for Türkiye. Germany, although outside the group, can help, for example with Türkiye's request to join the ESSI framework agreement.

8. Roadmap and Recommendations

The roadmap in this chapter follows the three levels introduced in Chapter 2 and gives recommendations, actors and a time frame for each (Table 8.1).

8.1 Principles

The recommendations keep defence industrial cooperation apart from the accession process, as the German Institute for International and Security Affairs (SWP) also recommends (SWP, 2025). This does not make democracy and the rule of law less important. The European Parliament, which sees value in exploring cooperation with Türkiye in security and defence, asks Ankara to address its extremely low alignment with the Common Foreign and Security Policy, to remove obstacles to trust such as the S-400 system, and to address the grave state of democracy (European Parliament, 2026; Section 2.4). The larger steps in this roadmap depend on such trust.

The roadmap starts from what already works, Turkish investment in production inside the EU, and aims to make it more predictable. The enabling legal instruments come first. A security of information agreement and an arrangement with the European Defence Agency (EDA) are smaller steps than an agreement under the Security Action for Europe (SAFE) Regulation or participation in a Permanent Structured Cooperation (PESCO) project. The larger steps build on them, as Recommendation 9 explains. Every step should also be based on data and evaluated, and the evidence gaps shown in this report should be closed as the work proceeds.

8.2 Level 1: companies and investment

Recommendation 1. Turkish firms should give priority to joint ventures and subsidiaries located in EU member states. Under current rules, only in this way can Turkish-controlled firms become contractors or recipients of funding under SAFE, the European Defence Industry Programme (EDIP) and the European Defence Fund, subject to guarantees or screening by the host state (Council of the EU, 2025; European Parliament and Council, 2025, 2021c). Trade data suggest that such ventures can add most in ammunition, explosives and less complex platforms, and as suppliers of parts to European prime contractors. In complex products such as lasers and optical parts, radar and small jet engines, Turkish firms are more likely to succeed as partners of European firms than as competitors (Section 3.3). LBA Systems in Italy and Otokar in Romania are examples of such ventures (Chapter 3). Firms should prepare for the host-state procedures from the start, with transparent ownership structures, security arrangements for classified information and clear rules on intellectual property.

Recommendation 2. Thrace should be developed as a supplier corridor and a test and integration area, not as a free-zone production site for EU-funded programmes. Production in a Turkish zone would stay outside EU funding and count as non-EU content (Chapter 3). Thrace can still host component suppliers within the 35% ceiling on non-EU components (Council of the EU, 2025; European Parliament and Council, 2025) and test and integration work for joint ventures located in the EU. Joint trials by Leonardo and Baykar at Baykar's flight and test centre in Çorlu in May 2026 show that such work is possible (Baykar, 2026). Any plan for plants that produce explosives and powders must take account of the limited water resources and the seismic risk in the region (Trakya Development Agency

(TRAKYAKA), 2024). As a first step, the Trakya Development Agency and interested firms could list the component suppliers and test services in the region that these joint ventures can use.

Recommendation 3. Turkish start-ups and investors should make fuller use of the NATO Innovation Fund (NIF) and the Defence Innovation Accelerator for the North Atlantic (DIANA). Türkiye takes part in both, but only three Turkish companies were selected for the DIANA cohort of 2026 (Chapter 4). To prepare Turkish dual-use start-ups for these channels and connect them with European investors and prime contractors, Annex B proposes an Investor Matchmaking Series.

Recommendation 4. The Presidency of Defense Industries (SSB) and the Turkish Statistical Institute (TÜİK) should publish better data. Without such data, partners cannot assess Turkish capacity. The priorities are the size and portfolio of the SSB's venture capital fund (SSB, 2026b), an explanation of the fall in the defence share of government R&D budget allocations after 2022 (Eurostat, 2026h) and data on production capacity in powders and explosives. For co-production projects, the share of value created in each country should also be published.

8.3 Level 2: bilateral and small-group cooperation

Recommendation 5. The partner states should make their host-state procedures clear. They verify or approve the guarantees, or carry out the investment screening, that a Turkish-controlled company on their territory needs to take part in EU programmes (Council of the EU, 2025; European Parliament and Council, 2025, 2021c). Clear, published procedures would reduce uncertainty for investors without changing EU rules.

Recommendation 6. Türkiye and the partner states should agree bilateral frameworks for co-production. Bilateral procurement and co-production, already the main form of cooperation, need no EU instruments. Frameworks could cover industrial participation, security of supply for components and cooperation on export licensing. NATO's commitment at the Ankara Summit to work on eliminating defence trade barriers among Allies provides a shared reference (NATO, 2026b).

Recommendation 7. Germany and the other participants in the European Sky Shield Initiative (ESSI) should decide on Türkiye's request to join its framework agreement for joint procurement. Türkiye and Greece signed a document on their participation in the ESSI letter of intent in February 2024 (Ministry of National Defence (MSB), 2024), and Germany supported Türkiye's request to join the framework agreement in January 2026 (Federal Ministry of Defence (BMVg), 2026). A positive decision would test the partner group approach in practice.

Recommendation 8. Türkiye and interested member states should launch the Blue Bridge talent initiative for unclassified work. The framework in Annex A uses existing EU directives, Decision No 1/80 and Turkish law, and focuses on industrial doctorates and rotation between firms and universities in dual-use fields. It is limited to unclassified work because the security rules on both sides do not allow classified work at scale until a security of information agreement exists (Chapter 6).

8.4 Level 3: EU instruments

Recommendation 9. The EU and Türkiye should open negotiations on a security of information agreement. Such an agreement is the most important single step, because it is a legal condition for PESCO participation (Council of the EU, 2020) and Canada's SAFE agreement relies on the one that Canada signed with the EU in 2017 (EU and Canada, 2026). Türkiye has no such agreement today

(European Commission, 2025g). Japan and South Korea, which also have none, have committed in their Security and Defence Partnerships to explore one (EU and Japan, 2024; EU and Republic of Korea, 2024). The EU and Türkiye could make the same commitment as a first step and then open formal negotiations. The agreement would also prepare the ground for an agreement under SAFE Article 17 on the model of Canada. Such a SAFE agreement remains possible in law (Council of the EU, 2025; EU and Canada, 2026), but the short SAFE timetable and the need for unanimity make it a medium-term objective (IISS, 2025a).

Recommendation 10. The European Defence Agency and Türkiye should explore an administrative arrangement with a narrow initial scope. Concluded under the authority of the member states, an administrative arrangement is a precondition for taking part in EDA projects, and the EDA has such arrangements with Norway, Switzerland, Serbia, Ukraine and the US Department of Defense (European Defence Agency, 2026b). The US arrangement shows that the initial scope can be limited: it covers dialogue on topics such as supply chains, military mobility and standardisation, but excludes capability development, research and technology, and the exchange of export-controlled information (European Defence Agency, 2023). Such an arrangement would give both sides a formal channel of dialogue at low risk.

Recommendation 11. The EU and Türkiye should restore political dialogue, including meetings of the Association Council. Meetings of the Association Council remain suspended in line with the Council's conclusions of 2019 (European Commission, 2025g). The 2023 Joint Communication recommended resuming them, together with the high-level political dialogue at ministerial level (European Commission and High Representative, 2023). Informal consultations on security and defence resumed in June 2025 after a four-year pause (European Commission, 2025g) and could be made regular within a year. Resuming the Association Council meetings depends on the Council and is a task for the next one to three years. Once it meets again, the Association Council could adopt a recommendation on exchanges of young workers under Article 40 of the Additional Protocol, as Annex A proposes.

Recommendation 12. The EU should publish the conditions under which entities from Türkiye can take part in restricted Horizon Europe topics, and Türkiye should prepare to meet them. The association agreement allows the Commission to ask for assurances on investment screening and exports before admitting Turkish entities to strategic actions (EU and Türkiye, 2022). A clear list of what Türkiye would need to do to be admitted to topics such as those in Table 5.1 would give it concrete tasks instead of an exclusion without stated reasons.

Recommendation 13. The negotiations on the post-2027 instruments should define a route for candidate countries. The proposed European Competitiveness Fund allows candidate countries to associate, but its defence part would require adapted eligibility conditions and measures to protect security and defence interests (European Commission, 2025f). The partner states should use these negotiations to define the conditions in advance, and Türkiye should state early which conditions it can meet.

Recommendation 14. Türkiye should align with the EU Common Position on arms exports and with EU positions in multilateral export control arrangements. Türkiye is not among the third countries that have officially aligned with the EU Common Position on arms exports (Council of the EU, 2026b), and according to the Commission it did not align with the EU position on certain multilateral export control arrangements (European Commission, 2025g). Alignment would address one of the concerns of

European partners about technology transfer and re-export and make licensing for co-production easier.

8.5 Roadmap

Table 8.1. Roadmap for Türkiye–EU defence industrial cooperation by level, actor and time

Level	Action	Main actors	Time
Companies and investment	Joint ventures and subsidiaries in EU member states (R1)	Turkish firms; European partners	Ongoing
	Thrace as supplier corridor and test area (R2)	Turkish government; Trakya Development Agency; firms	1–3 years
	Use of NIF and DIANA; Investor Matchmaking Series (R3)	Start-ups; investors; SSB; TÜBİTAK	0–12 months
	Publication of data on investment, R&D, capacity and co-production (R4)	SSB; TÜİK	0–12 months
Bilateral and small-group	Clear host-state procedures (R5)	Italy, Romania, Spain, Poland	0–12 months
	Bilateral co-production frameworks (R6)	Türkiye and partner states	1–3 years
	Decision on Türkiye's ESSI framework request (R7)	Germany; ESSI participants	0–12 months
	Blue Bridge talent initiative (R8)	Türkiye; interested member states; universities; firms	1–3 years
EU instruments	Talks on a security of information agreement, later a SAFE Article 17 agreement (R9)	Council; Türkiye	1–3 years; SAFE agreement 3 years or more
	EDA administrative arrangement with narrow scope (R10)	EDA Steering Board (member states); Türkiye	1–3 years
	Restored political dialogue: regular consultations, then the Association Council (R11)	Council; Commission; Türkiye	0–12 months (consultations); 1–3 years (Association Council)
	Published conditions for Horizon Europe topics (R12)	Commission; Türkiye	0–12 months
	Route for candidate countries in the post-2027 instruments (R13)	Council; Parliament; Commission; Türkiye	3 years or more
	Alignment with the EU Common Position on arms exports and other EU export control positions (R14)	Türkiye	1–3 years

Source: this report. R1 to R14 refer to the recommendations in this chapter.

The roadmap does not depend on a single decision. Firms and investors can act on Level 1 now, and Level 2 needs four or five member states rather than unanimity. Level 3 depends on the Council, where progress will be slow as long as the political obstacles described in Chapters 2 and 7 remain. Successful joint projects at the first two levels would still strengthen the case for the enabling instruments.

8.6 Conclusion

The evidence presented in this report suggests that the future of Türkiye–EU defence-industrial cooperation is unlikely to be determined either by a comprehensive political rapprochement or by a simple continuation of the status quo. The relationship is better understood as an evolving form of functional interdependence in which industrial cooperation can deepen despite persistent political disagreement, but only within the limits created by EU law, national security concerns and the broader political relationship between Türkiye and individual member states. Türkiye's defence industry has expanded rapidly over the past decade and has developed clear strengths in ammunition, explosives, selected platforms, unmanned systems and components, while Turkish firms have also begun to invest directly inside the European Union through joint ventures, acquisitions and production arrangements. At the same time, the evidence in this report shows that Türkiye remains less competitive in several complex product categories, including advanced optical systems, radar and small jet engines, and that much of its recent export growth in the European market has been concentrated in a relatively limited number of large deliveries. For this reason, Türkiye should not be understood as a substitute for established American, Korean or European suppliers of complex systems. Its most plausible role is instead as a complementary industrial actor capable of contributing additional capacity, selected inputs, lower- and medium-complexity platforms and production depth to a European defence market that is expanding faster than its existing industrial base can fully accommodate.

This distinction between substitution and complementarity is central to the broader argument of the report. The emerging European defence-industrial framework increasingly rewards production located inside the Union and places legal and financial constraints on firms and components originating outside it. As a result, the geographical location of production has become almost as significant as the nationality of ownership. Turkish-controlled firms located in Italy or Romania, for example, can operate within European production networks under conditions that are unavailable to firms producing exclusively in Türkiye, provided that they satisfy the requirements of the host member state on investment screening, ownership, security guarantees and the protection of classified information. This pattern suggests that the likely trajectory of cooperation is not one in which Türkiye remains an external supplier selling into the European market from outside, but one in which Turkish firms become progressively embedded in the European defence-industrial ecosystem through local production, co-production, joint ventures and long-term supply relationships. The significance of this process extends beyond commercial access. Once production, employment, investment and supply chains are located inside member states, the politics of cooperation also changes, because host governments acquire a more direct economic and strategic interest in sustaining the relationship. This is one of the reasons why bilateral cooperation with states such as Italy, Romania and Spain may have greater short-term practical significance than an immediate attempt to achieve a comprehensive EU-level political agreement.

The principal constraints on deeper cooperation are therefore not uniform across all sectors. In areas where Turkish industrial capabilities already correspond to European demand, the most important obstacles are political and legal rather than purely industrial. Türkiye currently lacks several of the institutional instruments that underpin the European Union's deeper defence relationships with third countries, most importantly a security of information agreement, an administrative arrangement with the European Defence Agency and an agreement that would permit wider participation in selected EU

defence mechanisms. Without these arrangements, cooperation remains fragmented and dependent on individual contracts, individual member states and the specific legal form of each investment. At the same time, the absence of these instruments does not prevent cooperation altogether. Bilateral procurement, local production inside the EU, NATO mechanisms and small-group security formats remain available, which means that defence-industrial relations can continue to deepen below the threshold of full institutional integration. The central strategic question is therefore not whether cooperation is possible in the absence of political convergence, but how far functional integration can proceed before its further development becomes dependent on greater political trust and legal alignment.

Against this background, three broad pathways can be identified for the future development of Türkiye–EU defence-industrial relations. These pathways should not be read as predictions. Rather, they represent analytically distinct levels of integration that help clarify the political and institutional choices facing both sides. The first is a scenario of **minimal integration**, under which the existing pattern of cooperation continues without major new EU-level agreements. Bilateral procurement and co-production arrangements would remain the principal mechanisms of cooperation, while Turkish firms would expand their presence in the European market primarily through subsidiaries, joint ventures and acquisitions located inside member states. NATO instruments such as the NATO Innovation Fund and DIANA, together with small-group formats and national procurement frameworks, would continue to provide additional channels for collaboration. Under this scenario, Türkiye would remain outside the main EU defence-industrial instruments, and access to European opportunities would depend heavily on the decisions of host states. This model would allow cooperation to continue and even expand incrementally, but it would also preserve a high degree of fragmentation. Firms would face different national procedures, access would remain uneven, and political disputes at EU level would continue to limit predictability. In institutional terms, this would amount to deeper commercial and industrial interdependence without meaningful European-level integration.

A second pathway is **functional integration**, under which existing industrial ties are gradually supported by a more formal legal and institutional framework. The most important steps would include the conclusion of a security of information agreement between Türkiye and the European Union, the establishment of a narrowly defined administrative arrangement with the European Defence Agency and, where political conditions permit, access to selected European defence instruments or projects. Such a model would not imply that Türkiye had entered the European defence-industrial base on the same terms as an EU or EEA member, nor would it resolve the broader political disputes that continue to shape Türkiye–EU relations. It would, however, reduce uncertainty and create more predictable channels for cooperation in areas where the interests of both sides already overlap. This scenario is particularly important because it reflects the logic of the roadmap developed in this report. It builds on cooperation that is already taking place, accepts that the accession process and defence-industrial cooperation will continue to operate on separate political tracks and seeks to institutionalise only those areas in which legal and strategic conditions are sufficiently mature. Functional integration would therefore represent a form of selective institutionalisation rather than comprehensive political alignment. Its significance would lie precisely in the ability to deepen cooperation without requiring a prior resolution of the wider Türkiye–EU political relationship.

The third and most ambitious pathway is a **strategic industrial partnership**. Under this scenario, Türkiye would become substantially embedded within the broader European defence-industrial ecosystem through sustained co-production, deeper supply-chain integration, joint investment, research and innovation cooperation, mobility of skilled personnel and wider participation in European defence mechanisms. The relationship would move beyond a pattern centred on individual contracts and begin to acquire the characteristics of a durable industrial partnership in which Turkish and European firms plan production, investment and technological cooperation over a longer time horizon. Such a development could be particularly relevant in areas where Europe is seeking greater industrial resilience, including ammunition, air and missile defence, unmanned systems, aerospace, advanced components and selected dual-use technologies. However, this level of integration would require significantly greater political trust than the first two scenarios. It would depend on more consistent alignment on export controls, re-export practices, security of information, investment screening and the protection of sensitive technologies. It would also require broader support among EU member states and a willingness to treat Türkiye not simply as a third-country supplier but as a long-term industrial partner whose production contributes to European strategic depth. Importantly, even this scenario need not imply progress in Türkiye's accession process. A strategic industrial partnership could remain institutionally distinct from membership and would therefore represent a form of deep sectoral integration without political incorporation into the Union.

These three pathways demonstrate that the future of Türkiye–EU defence-industrial cooperation is likely to be cumulative rather than transformational. The relationship is unlikely to be reshaped by a single political agreement or a comprehensive grand bargain. More plausibly, cooperation will deepen through a sequence of practical steps in which commercial decisions, local investment and bilateral projects generate new institutional demands, while successful cooperation gradually reduces uncertainty and creates constituencies in favour of more predictable arrangements. This process also means that the direction of integration may be uneven. Some sectors and some member states may move faster than others, while areas involving sensitive technologies, classified information or high political salience may remain constrained for much longer. The resulting architecture is therefore likely to be differentiated, layered and incremental rather than uniform.

The policy implication is that neither side should treat defence-industrial cooperation as a substitute for the broader political relationship. The rule of law, foreign policy alignment, the Cyprus issue, export controls and other areas of disagreement will continue to shape the political ceiling of cooperation. At the same time, these disputes need not prevent all forms of industrial collaboration from developing below that ceiling. The practical task is to identify the areas in which cooperation is already legally possible, economically rational and strategically useful, and to build from those areas towards more formal arrangements where political conditions allow. In the short term, this means prioritising EU-based production, bilateral co-production and greater use of NATO innovation channels. In the medium term, a security of information agreement and an administrative arrangement with the European Defence Agency would provide the most important institutional bridge towards more predictable cooperation. Over the longer term, the central question will be whether the accumulation of successful industrial partnerships can create sufficient trust and mutual dependence for Türkiye to move from being an external supplier and selective investor to becoming a more deeply embedded partner within Europe's defence-industrial ecosystem.

The most plausible route is therefore neither rapid integration nor continued exclusion. It is a gradual process of industrial embedding in which complementarity precedes substitution, bilateral cooperation precedes broader institutionalisation, and successful projects create the political and economic incentives for deeper legal integration. In this sense, the future of Türkiye–EU defence-industrial relations will depend less on whether the two sides can reach a comprehensive political settlement than on whether they can convert existing pockets of cooperation into a progressively more structured form of functional integration.

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Annex A. Blue Bridge: Draft Legal and Institutional Framework

Blue Bridge is a proposed talent initiative between Türkiye and interested EU member states in dual-use engineering and research, based on the findings of Chapter 6. The draft framework in this annex uses legal channels that exist today, so it needs no new EU legislation and changes neither the rules on the free movement of persons nor the terms of accession.

A.1 Purpose and scope

Blue Bridge aims to create joint training paths for engineers and researchers between Turkish and European firms and universities and to allow temporary rotation of skilled staff in both directions. It should also make return to Türkiye a normal part of a career path. Its scope is civil and unclassified dual-use work in fields such as artificial intelligence, autonomy, advanced materials, electronics and aerospace engineering. Work that requires access to classified information stays outside the scheme and remains under national security rules until an EU–Türkiye security of information agreement exists. The initiative should start as a pilot with a limited number of participants and a built-in evaluation.

A.2 Legal channels

EU secondary law already allows most of what Blue Bridge needs for civil and unclassified work, and the Researchers Directive is the most flexible instrument, because private firms that carry out research can host researchers (Table A.1).

Table A.1. Legal instruments that can host the Blue Bridge initiative

Instrument	Relevant provisions	What it allows	Limits
EU Blue Card Directive (EU) 2021/1883 (European Parliament and Council, 2021a)	Arts 5, 18, 20, 21; recitals 51–52	Highly qualified employment; business visits of 90 days in any 180 days in other member states; move to a second member state after 12 months; long absences without loss of long-term status	Needs a work contract of at least six months and a salary threshold; refusal on public security grounds (Art. 7)
Researchers Directive (EU) 2016/801 (European Parliament and Council, 2016)	Arts 3(10), 7(6), 9, 10, 25, 28–29	Hosting agreement with a public or private research organisation, which member states may require to be approved; mobility between member states; at least nine months after the research to seek work or start a business	Hosting organisation must conclude a hosting agreement; refusal on public security grounds
Intra-corporate Transfer Directive 2014/66/EU (European Parliament and Council, 2014)	Arts 3, 5, 12, 21–22	Secondment within a company group for up to three years for managers and specialists	Only within an undertaking or a group of undertakings linked by control (Art. 3(l)); 3 to 12 months of prior employment in the group

Instrument	Relevant provisions	What it allows	Limits
EU Talent Pool Regulation (EU) 2026/1047 (European Parliament and Council, 2026)	Arts 2, 3, 12, 14 and Annex	Registration of jobseekers residing outside the EU; flag for bilateral arrangements; shortage list includes several engineering occupations	Participation of member states is voluntary; registration guarantees no visa or residence permit
Additional Protocol to the Ankara Agreement (EEC and Turkey, 1970)	Arts 40, 41(1)	Association Council may recommend exchanges of young workers; standstill protects Turkish firms that send staff to provide services	Association Council meetings suspended (European Commission, 2025g); standstill creates no new rights (CJEU, 2000, 2013)
Decision No 1/80 of the Association Council (EEC-Turkey Association Council, 1980)	Arts 6, 11, 13, 14	Progressive rights for Turkish workers after legal employment; the same rights for EU workers in Türkiye (Art. 11)	No right of entry or first employment (CJEU, 2000)
Horizon Europe association and MSCA (EU and Türkiye, 2022; European Commission, 2025c)	Association Agreement Arts 1–2, 5; MSCA Industrial Doctorates	Equal access to MSCA; joint academic and industrial supervision; both partners may be in Türkiye or the EU	Civil research only (European Parliament and Council, 2021b); MSCA mobility rule of no more than 12 of the previous 36 months in the country of the recruiting organisation (European Commission, 2025c)
Law No. 5202 and the Defence Industry Security Regulation (Republic of Türkiye, 2004b, 2010)	Law Arts 6, 10; Regulation Arts 19(1)(e), 20	Personnel clearance for Mavi Kart holders declared critical personnel, with ministerial approval; NATO facility clearance for firms whose foreign partners or board members come from NATO countries and hold a clearance from their own country	Firms with foreign partners or board members limited to restricted-level national clearance; secret level only after the Minister's approval; visits by foreigners need permission
Law No. 6735 and the Turquoise Card Regulation (Republic of Türkiye, 2016, 2017)	Law Art. 11; Regulation Arts 5, 11	Work right without time limit after a three-year transition for qualified foreigners; scoring criteria for scientists and researchers include posts in strategic sectors such as defence	Points-based decision by the ministry
EU defence programmes (Council of the EU, 2025; European Parliament and Council, 2025, 2021c)	SAFE Regulation Art. 16(6); EDIP Regulation Art. 9(6); European Defence Fund Regulation Art. 9(4)	Firms established in the EU but controlled from outside can take part in funded actions, subject to conditions that include guarantees approved by the host state	Staff need national security clearance issued by a member state (under EDIP and the European Defence Fund, also by an associated country where appropriate)

Sources: as shown in each row.

The Association law protects Turkish workers once they are employed, but it does not give a right to enter, so each stay needs a permit under a directive or national law. Defence work depends on national security clearance on both sides, although Türkiye offers a route for Mavi Kart holders declared critical personnel (Section A.3).

A.3 Components of the initiative

Component 1: Blue Bridge Industrial Doctorates. Doctoral candidates are jointly supervised by a university and a firm, one in Türkiye and one in an EU member state, and spend time in both countries. The model follows the Industrial Doctorates of the Marie Skłodowska-Curie Actions (MSCA), which

require at least half of the fellowship to be spent in the non-academic sector (European Commission, 2025c). A second model is the Danish Industrial PhD, in which the firm employs the candidate and public funding covers up to half of the salary (Innovation Fund Denmark, 2025). Funding can combine MSCA grants, programmes of the Scientific and Technological Research Council of Türkiye (TÜBİTAK) and contributions from the host firms. Under the MSCA mobility rule, a candidate recruited by an organisation in Türkiye must not have lived, worked or studied in Türkiye for more than 12 of the 36 months before recruitment (European Commission, 2025c). Candidates who live in Türkiye would therefore be recruited by the partner in the EU member state.

Component 2: Rotation fellowships for engineers and researchers. Engineers and researchers of Turkish and European firms and research organisations spend 6 to 24 months with a partner organisation on the other side. In the EU, the stay is covered by a hosting agreement under the Researchers Directive or, within a company group, by an intra-corporate transfer permit (European Parliament and Council, 2016, 2014). In Türkiye, European staff can use work permits under Law No. 6735 and, for highly qualified people, the Turquoise Card (Republic of Türkiye, 2016).

Component 3: Return track. Turkish researchers and engineers who hold EU long-term resident status as former Blue Card holders can return to Turkish firms or universities for up to 24 consecutive months without losing that status (European Parliament and Council, 2021a). TÜBİTAK's 2232-A programme already funds researchers who return, including at firms with R&D centres, and allows three months a year abroad (TÜBİTAK, 2025). Outside the scheme, participants who hold a Mavi Kart and later join a defence firm for classified work can use the route in the security regulation for card holders declared critical personnel (Republic of Türkiye, 2010).

Component 4: Matching. Member states that take part in the EU Talent Pool can notify Blue Bridge as a bilateral arrangement on the development and validation of skills in a third country, to the extent that training takes place in Türkiye (European Parliament and Council, 2026). Participants who received support under Blue Bridge can then show this in a flag on their Talent Pool profiles, which employers can search, although the flag is for information only and gives no right of entry or residence (European Parliament and Council, 2026). A joint online platform, run by the national agencies of the participating states, can list positions under the other components.

A.4 Institutional arrangements

Because the meetings of the Association Council remain suspended (European Commission, 2025g), the initiative should rest on bilateral memoranda of understanding between Türkiye and interested member states, starting with the partner group proposed in Chapter 7. The memoranda would name the lead agencies (for example TÜBİTAK on the Turkish side and the research and migration agencies of each member state), set the number of places and the funding, and commit the parties to fast processing of permits for selected participants. The EU–Türkiye Joint Research and Innovation Committee under the Horizon Europe association agreement can serve as a forum for coordination with EU programmes (EU and Türkiye, 2022). In the longer term, when the Association Council meets again, it could adopt a recommendation on exchanges under Article 40 of the Additional Protocol (EEC and Turkey, 1970).

A small steering committee of the participating agencies should select host organisations and fields, approve the rules on security and intellectual property, and oversee the evaluation. Firms that take

part should commit to co-fund positions, as host firms already do under TÜBİTAK 2232-A (TÜBİTAK, 2025).

A.5 Security and export control rules

All activities under Blue Bridge are unclassified. Host organisations must still check each project against EU and Turkish export control rules. Under the Commission guidance, research output at technology readiness levels 1 and 2 is generally treated as basic scientific research, which is exempt from the control of listed dual-use technology (European Commission, 2021). Output at levels 3 and 4 is assessed case by case, and output above level 4 is not treated as basic research. Such work may need a licence if it concerns listed technology, including technical assistance given orally or by electronic means (European Commission, 2021; European Parliament and Council, 2021d). Where a participant later needs access to classified information, the normal national procedures apply: in Türkiye, the personnel security certificate under Law No. 5202 (Republic of Türkiye, 2004b); in member states, their national clearance rules. An EU–Türkiye security of information agreement (Recommendation 9 in Chapter 8) would allow a second phase of the initiative to include selected classified work.

A.6 Evaluation

Because few circulation schemes have published results (Chapter 6), Blue Bridge should be evaluated from the start, with a baseline for each participant and follow-up of careers for at least five years. The main indicators are: the share of participants who work in Türkiye, in the EU or in both within five years; employment in firms and in defence-relevant fields; joint publications, patents and projects between the host organisations; and outcomes for host firms. Where possible, participants should be compared with a control group, as in the Danish evaluation, which compared Industrial PhD graduates with other graduates and host firms with highly similar firms (Danish Agency for Science, Technology and Innovation, 2011).

A.7 Steps

The initiative can start within two years. In the first year, Türkiye and two or three member states agree memoranda of understanding, select fields and host organisations, and use existing MSCA and TÜBİTAK calls for the first industrial doctorates. In the second year, the first rotation fellowships begin and the evaluation baseline is set. A review after three years would decide on extension to more member states and, if a security of information agreement exists by then, on the second phase with classified work described in Section A.5.

Annex B. Investor Matchmaking Series: Concept Note

B.1 Rationale

Türkiye has a large, state-led defence industry but few private dual-use start-ups (Chapter 4). European venture capital investment in deep tech start-ups in defence, security and resilience reached USD 8.7 billion in 2025 in current prices, and Türkiye does not appear in that report's European rankings (Dealroom and NATO Innovation Fund, 2026). Only three Turkish companies were selected for the 2026 cohort of the Defence Innovation Accelerator for the North Atlantic (DIANA), and just two deals on the most detailed open list of Turkish deals in 2025 are tagged as defence technology (NATO DIANA, 2026a; KPMG Türkiye and 212, 2026). EU equity and matchmaking tools for defence, such as the Defence Equity Facility and the matchmaking programme of the EU Defence Innovation Scheme (EUDIS Matchmaking), are open only to entities from the EU, Norway or, for EUDIS Matchmaking, Ukraine (European Commission, 2026b, 2026c). This leaves Turkish start-ups two channels, the NATO instruments and, for firms that set up a company in a member state, the EU instruments under the conditions described in Chapter 4. The Investor Matchmaking Series would prepare them for both and connect them with European investors and industry.

B.2 Objectives

- Raise the number and quality of Turkish applications to DIANA challenges and NATO Innovation Fund investment.
- Connect Turkish dual-use start-ups with European venture capital funds, including funds backed by the Defence Equity Facility and the NATO Innovation Fund.
- Connect Turkish start-ups and small and medium-sized enterprises (SMEs) with European prime contractors as suppliers, within the rules on non-EU content.
- Help start-ups that wish to set up in an EU member state to understand investment screening, guarantees and export control.
- Build a network of investors, firms and agencies in Türkiye and the partner states named in Chapter 7.

B.3 Participants

Each edition would bring together about 20 to 30 Turkish start-ups and SMEs that work on dual-use technologies at an early or growth stage. They would meet European and Turkish venture capital investors and prime contractors, and public agencies such as TÜBİTAK, the SSB and the innovation and investment agencies of the partner states. A jury of investors and industry representatives would select start-ups on the basis of technology, team and export control readiness. Only unclassified information would be shared.

B.4 Programme

The series combines formats that already exist in European and NATO programmes (Table B.1).

Table B.1. Structure of the Investor Matchmaking Series

Module	Existing model	Constraint to take into account	Adaptation for the series
1. Readiness bootcamp	EUDIS Business Accelerator: two cohorts a year of at least 20 companies, with bootcamps (European Commission, 2025b); DIANA accelerator programme (NATO DIANA, 2026b)	EUDIS Matchmaking open to entities from the EU, Norway and Ukraine only (European Commission, 2026c)	Bootcamp in Türkiye with the DIANA accelerator at ODTÜ Teknokent; preparation for DIANA challenge calls
2. Investor days	EIC VentureMatch and EIC Business Acceleration Services (European Innovation Council, 2026); EUDIS Matchmaking events (European Commission, 2026c)	EIC services limited to EIC awardees and similar groups (European Innovation Council, 2026)	Pitch sessions with European and Turkish funds in Istanbul and in a partner-state city
3. Prime and supply-chain brokerage	EDIP support for matchmaking events for SMEs (European Parliament and Council, 2025); TÜBİTAK 1503 brokerage event grants (TÜBİTAK, 2026b)	35% ceiling on non-EU components (Council of the EU, 2025; European Parliament and Council, 2025)	Meetings between prime contractors of the partner states and Turkish suppliers, focused on components and subsystems
4. Structuring clinic	SAFE, EDIP and European Defence Fund rules on control and guarantees (Council of the EU, 2025; European Parliament and Council, 2025, 2021c)	Joint control counts as control (European Commission, 2023)	Advice on setting up in a member state, investment screening, guarantees and export licences
5. Investor network and fund dialogue	DIANA Capital Network (NATO DIANA, 2026c); NIF fund-of-funds programme (NATO Innovation Fund, 2026a); EIF and Turkish Growth and Innovation Fund precedent (Startups.watch and Presidency Investment and Finance Office, 2026)	NIF invests in companies headquartered in its partner countries (NATO Innovation Fund, 2026a)	Dialogue between Turkish public co-investors and European funds on joint vehicles

Sources: as shown in each cell.

B.5 Rules and safeguards

Participating start-ups must confirm that their technologies and the information they share are not classified and that they comply with Turkish and EU export control rules. The organisers should screen participants against EU and national sanctions lists. The series should present itself as an independent platform that prepares companies to use EU and NATO programmes, not as one of those programmes.

B.6 Organisation and funding

A consortium of a Turkish partner, a European partner and a foundation could organise the series. Possible sources of funding include TÜBİTAK's grant programme for R&D brokerage events (TÜBİTAK, 2026b), contributions from participating investors and prime contractors, and support from foundations. Public co-investors in Türkiye, such as the Türkiye Development Fund, which by the end of 2025 had committed USD 34.5 million to ten venture capital funds and invested USD 40 million directly in 48 start-ups (Startups.watch and Presidency Investment and Finance Office, 2026), could take part as investors.

B.7 Timeline and indicators

A first edition could take place within 12 months, with the bootcamp in Türkiye and the investor day in Italy or Spain, followed by a second edition in Poland or Romania. Progress should be measured by the number of Turkish applications to DIANA and their success rate, investments by European funds in participating start-ups, supply contracts with European prime contractors, companies set up in member states, and the satisfaction of participants.

Annex C. Methods of the Trade Analysis

Data. The trade analysis uses the BACI database of CEPII (CEPII, 2026a, 2026b), which gives bilateral trade in goods at the six-digit level of the Harmonized System (HS), in USD thousand at current prices (FOB) and in tonnes. BACI is built from UN Comtrade by reconciling the declarations of exporters and importers (Gaulier and Zignago, 2010). The HS 2012 edition (2012–2024) is used for comparisons over time and the HS 2022 edition (2022–2024) for recent detail, including drones (heading 8806). HS 2012 values for 2022–2024 are converted from HS 2022 declarations, and in this conversion Türkiye's drone exports to Poland and Romania appear under aircraft of more than 15,000 kg (8802.40). For EU imports from Türkiye, BACI can differ strongly from Eurostat's Comext data (Eurostat, 2026a), which use only the declarations of member states. For ammunition (heading 9306) in 2024, for example, BACI gives about USD 461 million and Comext EUR 172 million. The gravity model draws on the CEPII Gravity database (CEPII, 2022) for population-weighted distance, contiguity, common official or primary language, a common coloniser after 1945 and trade agreements notified to the WTO, including customs unions (Conte et al., 2022). These data end in 2021, and the values for 2022–2024 repeat those of 2021.

Product set. The 49 ADR products of Section 3.3 are, in the HS 2012 edition: headings 3601–3603, 8802, 8803 and 8805; subheadings 8411.11, 8411.12, 8411.21, 8411.22, 8411.91, 8412.10, 8526.10, 8526.91, 8526.92, 8710.00, 8906.10, 9013.10, 9013.20, 9013.90, 9014.20 and 9014.90; and chapter 93 except 9303.10. In the HS 2022 edition, headings 8806 (drones) and 8807 (aircraft parts) replace heading 8803. Unless stated otherwise, values are pooled over three-year windows; the gravity model uses annual data, and the decomposition in Table 3.4 compares 2022 with 2024.

Comparative advantage and complexity. The RCA is the Balassa index (Hidalgo et al., 2007), computed relative to the countries in the sample. Complexity was computed for all 5,199 products and for the 155 to 162 countries with average exports of at least USD 1 billion a year, counting a country as an exporter of a product when its RCA is 1 or more (Hidalgo and Hausmann, 2009). The economic and product complexity indices are the standardised second eigenvectors of the method of reflections, which Hidalgo and Hausmann (2009) present in iterative form. Proximity between two products is the smaller of the two conditional probabilities of exporting one with an advantage given the other; the closeness (density) of a product to a country is the proximity-weighted share of the country's current advantages among the product's neighbours (Hidalgo et al., 2007).

EU import dependence. Imports of the 27 member states were split into imports from member states and from outside the EU; supplier shares refer to the latter. Products with EU imports below USD 5 million a year were left out.

Gravity model. Exports of ADR products, of a narrower defence set and of all goods between 159 countries in 2015–2024 were estimated by Poisson pseudo-maximum likelihood (Santos Silva and Tenreyro, 2006) with exporter-year and importer-year fixed effects, including zero flows and with standard errors clustered by pair (Yotov et al., 2016). Other variables are log distance, contiguity, common language, a common coloniser after 1945, a trade agreement, both countries in the EU (the 27 current member states in all years), and indicators for exports from Türkiye and from South Korea to the EU (also interacted with 2022–2024) and from the EU to Türkiye. The Türkiye-to-EU coefficient for ADR products is small and not significant (−0.09, change after 2022 +0.04); the Korean coefficient rises

by 1.02 after 2022 (significant at 10%), and by 1.49 for the narrower defence set (significant at 1%). The narrower defence set is chapter 93 except 9303.10, headings 3601–3603 and subheadings 8710.00, 8906.10, 8526.10, 9013.10 and 8805.21. The ratios in Table 3.2 come from the model without the Türkiye and Korea indicators. Unlike the practice recommended by Yotov et al. (2016), the model uses consecutive years without domestic flows or pair fixed effects, so it is a descriptive benchmark.

Other measures. The Grubel–Lloyd index is one minus the sum over products of absolute differences between exports and imports, divided by total trade. Parts are subheadings 8411.91, 8803.10, 8803.20, 8803.30, 8803.90, 8805.29, 9013.90, 9014.90, 9305.10, 9305.20, 9305.91, 9305.99 and 9306.29. Unit values are values divided by tonnes (HS 2022); they reflect the mix of products within each six-digit line as well as prices. Trade complementarity is one minus half the sum of absolute differences between the product shares of one country's exports and the other's imports. For the narrower defence set, Korea's index against EU imports rose from 0.52 to 0.61 between 2012–2014 and 2022–2024 and Türkiye's stayed at 0.52; for the full ADR set both rose. The decomposition in Table 3.4 splits the change in an exporter's share of world exports between 2022 and 2024 over cells defined by product and destination market. The competitive effect adds up the changes in the exporter's share of each cell, weighted by the cell's 2022 share of world trade. The structural effect adds up the changes in the cells' shares of world trade, weighted by the exporter's 2022 share of each cell, and the interaction effect adds up the products of the two changes. With s the exporter's share of a cell and w the cell's share of world trade, the change in the exporter's world share is $\Delta S = \Sigma\, w(2022)\cdot\Delta s + \Sigma\, s(2022)\cdot\Delta w + \Sigma\, \Delta s\cdot\Delta w$, summed over all cells. The product part of the structural effect is computed in the same way from product totals, and the market part is the remainder.

Benchmarking Defence

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