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Research Report

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Turkey: An Emerging Global Arms Exporter

Growing Competitiveness and Strategic Recalibration of the Turkish Defence Industry

Jens Bastian

Over the past decade, Turkey's defence industry has undergone rapid development and its products have repeatedly proved their military capability. The Bayraktar-TB2 drone – a product of the Turkish manufacturer Baykar – is exported to numerous countries. In Ukraine, it is being used extensively against the Russian army. In Nagorno-Karabakh, it turned out to be a game changer in favour of Azerbaijan in the conflict with Armenia. And it has left its mark on the battlefields of Syria as well as in northern Iraq and Libya. But the TB2 drone is only the most visible sign of what is a new era for Turkey's defence policy. The innovation ecosystem that has emerged in the Turkish military-industrial complex is intended to position the country as a "tekno-nation". For Turkey's NATO partners, this recalibration presents strategic challenges for further cooperation with Ankara.

Turkey's defence and security policy is increasingly characterized by the goal of achieving autonomy. The country is striving to reduce its reliance on foreign partners in conceptual, technological and logistical terms as well as with regard to the manufacture of military hardware; in other words, Ankara is focusing on local production capacity while curtailing procurement from abroad. In order to achieve this policy objective, companies operating in the defence sector are being institutionally interconnected, local supply chain networks are expanding and relevant research capabilities are subject to coordination from the centre.

Armament projects such as the development of the unmanned TB2 drone system, the Atak helicopter, the Altay tank, the Anka-3 stealth drone and the KAAN stealth fighter jet all demonstrate that decision-makers in Ankara are pursuing three strategic defence and security priorities. The first such priority is to become increasingly independent of international providers. The second is to systematically promote and financially support technological innovation through cooperation with "teknoparks", start-ups and universities. And the third priority is to steadily increase Turkey's capacity to export various weapons systems. As the share of local manufacturing in



domestic production increases, the number of export restrictions decline.

Turkey's current armament policy is based on the main objective of developing and producing weapons systems under the trademark "Made in Turkey". However, such marketing slogans cannot disguise the discrepancies between the political and strategic decisions taken in Ankara and the execution capacity of companies involved in Turkey's military-industrial complex.

Armament projects in Turkey are developed and manufactured under contract from the state-owned Defence Industry Agency (SSB). The agency was established in 1985 with the mandate to provide substantial financial resources for investment in the modernization of the Turkish Armed Forces. Since those resources are not included in the annual budget of the Defence Ministry, they can be used as a special purpose fund. The SSB is registered as a holding company that reports directly to President Recep Tayyip Erdoğan; thus, it is subject to political directives. Export licences are issued by the foreign and defence ministries, while the Finance Ministry can formally veto individual projects funded from the SSB's budget.

Developing resilience in the military-industrial complex

The transformation of the Turkish armaments industry into a military-industrial complex focused on domestic production began several decades ago and is by no means associated exclusively with President Erdoğan. Sanctions and embargos imposed by Western governments, in particular US administrations, can be identified as trigger points for this transformative process. The political impulse to increase domestic manufacturing capabilities dates as far back as the mid-1970s.

Following Turkey's military intervention in Cyprus, the US Congress established an arms embargo that lasted from 1975 to 1978. There followed further restrictions on military exports imposed by other NATO

members – for example, Germany under then Chancellor Helmut Kohl in 1992. More recently, in late 2020, the US administration issued sanctions against the SSB in connection with Turkey's purchase of the Russian S-400 surface-to-air defence system. Above all, these measures had far-reaching implications for the Turkish Air Force as Turkish companies were excluded from participation in NATO's F-35 fighter aircraft programme.

The curtailment of cooperation between Turkey and NATO members forced Ankara to recalibrate its defence industry, not least by channelling both financial resources and political will towards upgrading domestic manufacturing capacity. Against the background of international sanctions policy, the resilience of the Turkish military-industrial complex became the order of the day. The strategic pivot was reflected in various reforms seeking to redesign the institutional architecture of Turkey's security and defence policy. A cornerstone of such efforts was the affiliation of the SSB to the office of the Presidency of the Republic in 2018. Another landmark change was relieving the agency of central budget obligations, giving it the leverage to fund specific armament projects. The SSB was thus authorized to nudge various sectors of the Turkish economy towards expanding the military-industrial complex.

The focus of the recalibration was to promote the military aviation industry – that is, developing and producing fighter jets, unmanned aerial vehicles (UAV) and helicopters. Since 2005, the Turkish Armed Forces Foundation (TSKGV) has owned 54.49 per cent of Turkish Aerospace Industries (TUSAŞ). The second-largest shareholder is the SSB with 45.45 per cent, while 0.06 per cent is owned by the Turkish Aeronautical Association (THK). As a result of this equity structure, the Turkish military is both investor and entrepreneur. The leading corporations in the defence sector are TUSAŞ, Baykar, Roketsan, STM and Aselsan, which, together, receive the majority of SSB procurement projects and make a significant contribution to gradually increasing

the share of local manufacturing. And this, in turn, has led to the expansion of domestic supply chains.

The transformation of the Turkish armaments industry has accelerated since 2015. Various indicators point to an investment surge – for example, the significant increase in employment in the sector and the concurrent rapid growth of annual defence expenditure. While the “unorthodox” monetary-policy and inflationary challenges of recent years adversely impacted various sectors of the Turkish economy, defence expenditure has been hardly affected by these internal headwinds.

Take the following trajectory: in 2001, defence spending in the central budget reached US\$7.22 billion. Almost two decades later, in 2019, that figure stood at US\$20.44 billion. Owing to the reallocation of funds during the pandemic, defence expenditures declined to US\$15.48 billion in 2021 and US\$10.64 billion in 2022. The following year they increased again to US\$16 billion and are projected to exceed US\$40 billion in 2024, which would be a record high and an annual increase of 150 per cent over 2023.

The increase in defence spending over the years has gone hand in hand with a growing share of domestic manufacturing capacity. According to government figures, Turkish manufactured components accounted for 80 per cent of total defence production in 2023. One year earlier, that share had been 73 per cent.

The stepping up local research and production capacities in the sector is reflected in the rapid increase in employment in the military-industrial complex. In 2016, a total of 35,502 people were employed in the sector. Three years later, their number had increased to 73,771; and at the end of 2022, there were 81,132 people working in the Turkish defence industry.

For companies active in the defence industry, there are no major challenges to recruiting specialized engineers, software developers and marketing experts who have graduated from Turkish universities or abroad. Over the past decade, the current ecosystem of talent development involving

military-industrial companies, innovation clusters and research institutes focused on military production has been systematically networked.

This all-encompassing approach is supported by numerous universities, six innovation clusters (one each in Istanbul, Bursa, Izmir and Eskişehir and two in Ankara) and various “teknoparks” with affiliated companies and start-ups working in the field of defence innovation. The architecture of this innovation ecosystem underscores two side effects of Turkey’s defence and security policy. First, the government narrative of Turkey as a “tekno-nation”. Frequent aerospace and technology fairs held across the country attract millions of visitors. Publicizing realized projects and highlighting the connectivity channels between innovation clusters and corporate execution in this way help frame “tekno fairs” as important civil-military events.

Second, these institutional linkages and their public promotion enable President Erdoğan and local weapons manufacturers to anchor the military-industrial complex as a mainstream component of Turkish society and the country’s economy. The symbolically powerful presentation of achievements in domestic manufacturing plays a major role here – as, for example, when Erdoğan himself inaugurated Turkey’s first aircraft carrier, the TCG Anadolu, in Istanbul in April 2023.

It must be stressed, however, that despite such achievements, Turkey’s expanding defence and security engagement continues to face bottlenecks that limit its ability to compete with countries such as the US, Russia and China. In other words, while autonomy in the manufacture of weapons systems and services is being pursued by industrial policymakers, Turkish producers are having to continue to rely on crucial hard- and software imports. This reliance applies, in particular, to semiconductors and microchips, which are procured from foreign technology companies. Moreover, it should also be borne in mind that the Turkish military-industrial complex lacks a critical mass of domestic energy sources,

which it is forced to import — above all, from Russia. In short, the political rhetoric of strategic autonomy continues to contrast with external dependencies at the corporate level.

Increasing export capacity

For Turkish weapons manufacturers to be profitable, it is essential that they are able to increase export capacity and access new markets. A decade ago, the total value of Turkish arms exports was US\$1.9 billion. In 2022 that figure rose to US\$4.4 billion and, one year later, a record US\$5.5 billion was achieved — a 27 per cent increase over the previous year.

This surge in export capacity is the result of new markets opening up around the world. The business models of companies such as Baykar, TAI, Roketsan, STM and Aselsan are increasingly based on the sale of products and services to countries that were closed to Turkey a decade ago. In particular, inroads have been made on the African continent, in Asia (including Taiwan) and, more recently, in the Gulf states.

The aforementioned companies have a global presence and comprehensive product portfolios in both civilian and military manufacturing. Their weapons systems have demonstrated battlefield proficiency in various conflict regions. Moreover, they are price competitive vis-à-vis other international providers and, for this reason, attract investor interest from a wide range of countries.

With few exceptions — one of which being Israel — the Turkish Defence Ministry does not pursue a restrictive arms export policy. Growing export volumes send a clear political signal that Turkey is capable of promoting its own defence and security interests through the delivery of sophisticated weapons systems to conflict regions and war zones. The expansion of Turkey's arms exports reflects President Erdoğan's determination to position Turkey as a middle power with both NATO membership obligations and the foreign policy objective

of closer relations with the Global South, including via military cooperation. Achieving this strategic objective hinges not least on the Turkish defence industry and its growing export capacity. A prime example of the success of this approach is the Bayraktar-TB2 unmanned military drone, which the Turkish company Baykar is selling in ever-growing numbers on international markets.

Drones as a door opener

Indeed, a key component of Turkey's military-industrial policymaking is the production and export of military drones. In 2022, for the first time ever, four Turkish companies — Baykar, Aselsan, TAI and Roketsan — were included among the top 100 largest international weapons manufacturers (the list is compiled annually by the International Peace Research Institute in Stockholm). Their combined revenues from total arms sales (both at home and abroad) amounted to US\$5.5 billion, an increase of 22 per cent over 2021.

The Istanbul-based drone manufacturer Baykar exemplifies this rapid growth of the defence industry. The company is now selling its military drone — the Bayraktar TB2 (“Standard Bearer” in English) — to 30 countries around the world. Baykar registered an increase in turnover of 94 per cent between 2021 and 2022 and was the largest weapons exporter in Turkey in 2023, with shipments abroad totalling US\$1.76 billion. By its own admission, it does not export drones to Israel. In fact, Selçuk Bayraktar, the chairman and chief technology officer of Baykar, has earmarked US\$10 million from company funds as humanitarian assistance to Gaza since October 2023.

A successor model to the Bayraktar TB2 — the TB3 drone — is currently being developed by Baykar and is said to be 100 per cent “Made in Turkey”. The various drone models have dual-use (civilian and military) capacity. For example, the TB2 is being used in Turkey for the identification of forest fires, monitoring earthquake regions (most

recently, in southeastern Turkey in February 2023) and tracking migrant routes through Turkey, Bulgaria and Greece.

At the same time, the TB2 drone has been deployed extensively for military purposes – in Syria, northern Iraq and Libya as well as providing material support for Azerbaijan during the war with Armenia. At the beginning of the Russian invasion of Ukraine in February 2022, Bayraktar drones played a key role in halting the advance of Russian tanks on Kyiv. NATO partners in central and southeastern Europe – namely, Albania, Romania and Poland – have ordered TB2 drones from Turkey and already received part of those orders. In January 2023, a contract was signed with Kuwait for TB2 drones totalling US\$370 million. And in July, Saudi Arabia reached a deal with Baykar for the Bayraktar Akinci drone valued in excess of US\$3 billion – the biggest defence contract in Turkey’s history. Further, the United Arab Emirates agreed to purchase up to 120 TB2 drones in 2022, while Egypt is the latest country to announce the acquisition of Turkish drones following Erdoğan’s visit to Cairo in February 2024.

In fact, Turkey is challenging China’s previously dominant position in Arab and Gulf states’ UAV market. With the TB2 drone, Turkey has managed to position itself among the top international arms exporters and thereby gained strategic leverage in various conflict regions. At the same time, Turkish companies have expanded their access to international markets. In 2023, more than 185 countries acquired military hardware and services from Turkey. International observers will not be surprised that President Erdoğan points to this expansion as evidence that the second century of the republic will be “the century of Turkey”. Such political framing also entails the geographical recalibration of the country’s strategic partnerships and the re-evaluation of its NATO obligations.

Cooperation with NATO partners

Cooperation with NATO partners continues to constitute a key element of Turkish defence and security policy. Even though the focus of Ankara’s armament policy is increasingly shifting towards domestic development and local manufacturing capacity, there are numerous defence and security projects based on joint ventures with NATO partners. NATO-INTEL-FS2 is one such project: the Turkish company STM is developing the entire software for NATO’s reconnaissance infrastructure.

Another joint project involving Turkey is the NATO Innovation Fund. This is the first multinational risk capital fund with global reach in the defence and security sector. Twenty-three NATO members are participating with a total capital injection of US\$1 billion. The fund, which is aimed at financing start-ups that focus on military research and application, provides Turkish companies with access to and cooperation platforms with start-ups in other NATO member countries.

Meanwhile, President Erdoğan’s visit to Berlin in November 2023 signalled a new development in Turkish-German defence cooperation. The Turkish president expressed his country’s desire to acquire 40 Eurofighter Typhoon jets. These military aircraft are manufactured by a four-country consortium composed of Germany, Italy, Spain and the United Kingdom. Both Madrid and London have given the green light to the sale, while approval is still pending from Rome and Berlin.

From the perspective of the Turkish Defence Ministry, approval of the purchase of the Eurofighter jets should be a matter of course given NATO solidarity towards a member state. However, the Turkish government is pursuing a two-pronged approach to procuring fighter jets from abroad. In 2021 it applied to Washington for the acquisition of 40 next-generation Lockheed Martin F-16 fighter jets and 79 modernization kits for its current stock of aircraft produced by this manufacturer.

That request was subsequently blocked by the US Congress. But after the Turkish parliament ratified Sweden's NATO accession in late January 2024, the State Department informed Congress that it would approve the US\$23 billion sale of the F-16s without delay. At the same time, it reassured members of Congress that the agreement with Ankara came with conditions attached, including the monitoring of Ankara's actions in the eastern Mediterranean, where, according to the State Department, incursions by Turkish military aircraft into Greek airspace would not be tolerated.

For its part, the German government faces a rather different set of challenges – namely, weighing domestic political considerations against NATO commitments. German arms exports reached a record €11.71 billion in 2023; however, the three-party coalition in Berlin approved arms exports to Turkey totalling just €1.22 billion. The export of weapons of war to Ankara is currently banned by the German government. Since January 2024, the Federal Office for Economic Affairs and Export Control has been simplifying administrative procedures for the clearance of German arms exports; but Turkey is not among the countries that will benefit from the accelerated process.

Turkey's cooperation with Russia and Ukraine

President Erdoğan's decision in 2019 to acquire the mobile S-400 surface-to-air defence system from Russia was not only a snub to Turkey's NATO partners; it also led to severe diplomatic ruptures, particularly with the administration of then US President Trump. Turkish companies involved in the development of the new generation F-35 fighter jet were removed from the project under US sanctions and thereby incurred considerable financial losses.

Turkey's cooperation with Russia goes beyond the sensitive military and defence area. Since 2022, Turkish-Russian cooperation in the energy sector has been stepped

up through significant increases in fossil fuel imports, while Rosatom recently completed the construction of the first nuclear reactor in Turkey. This broadening energy reliance on Russia is reflected in Ankara's refusal to adopt Western-led sanctions against Moscow following the Russian invasion of Ukraine.

The Turkish Defence Ministry, the SSB and auxiliary firms in the military-industrial complex are assiduously applying the lessons learned from the Russian invasion in Ukraine. On the one hand, manufacturing capacity is being rapidly increased in order to meet growing export demand for weapons systems. On the other hand, Turkish companies are prepared to expand their cooperation with Ukraine. Even before the Russian invasion, various agreements had been signed with Ukrainian counterparts – for example, in December 2020 regarding a joint venture to build an Ada-class corvette for the Ukrainian navy. Turkey has also provided Ukraine with marine power stations, which contribute to keeping electricity supplies up and running. The aero-engine parts for Turkey's Anka-3 stealth drone are provided by the Ukrainian manufacturer Ivchenko-Progress, while Baykar is building a factory near Kyiv that will manufacture either TB2 or TB3 drones.

Flexible alliances in defence policy

Engaging with both Russia and Ukraine in policy areas ranging from energy to weapons systems reflects the changing political reality – one in which Turkey is pursuing a strategy of multi-alignment. Ankara is currently forging a growing number of bilateral alliances in the area of arms exports to countries outside NATO that until recently were considered closed or inaccessible. The expanding cooperation networks are characterized by regional diversification. Turkey's objective is to make strategic use of arms exports – that is, to embrace countries with which other NATO members are reluctant to cooperate, such as Saudi Arabia, Taiwan and China.

Over the past decade, military might and outreach in defence diplomacy have informed Turkish foreign policy. Interventions in conflicts in Syria, northern Iraq and Libya testify to the former, while engagement with African countries such as Nigeria, Ethiopia and Rwanda underscore the latter. Both demonstrate the nexus between flexible multi-alignment with various countries, on the one hand, and a foreign policy outreach that includes military intervention and growing arms exports, on the other. Moreover, Turkey does not hesitate to sell its weapons to countries on the opposite sides of a military conflict. Nor are such arms supplies adversely impacted by regime changes in individual states.

The architecture of today's Turkish military-industrial complex reflects these strategic priorities. Civilian and military innovation capacities are increasingly interconnected. Companies operating in the sector are barely affected by economic events such as the multi-year depreciation of the national currency and the ongoing inflationary pressures impacting Turkish society. On the contrary, these firms have full order books and ample access to foreign currency amid growing international demand for their products. Besides, increasing annual turnovers and surging export capacities underscore how companies such as Baykar, TAI, Roketsan, STM and Aselsan have established flexible manufacturing capabilities and stable supply chains.

Challenges for NATO and the EU

Turkey's determination to establish itself as an internationally recognized manufacturer of armaments and a global exporter of sophisticated weapons systems poses challenges for its NATO partners. President Erdoğan's emphasis on the expansion of domestic manufacturing capacity, which is supported by leading defence industry actors, illustrates how resolutely Turkey is striving to enhance its strategic autonomy.

This approach extends to the development and production of ever-more sophis-

ticated weapons systems. Turkish companies are currently developing the country's first stealth fighter jet, the KAAN, which is planned to be built exclusively from domestic components. Serial production is intended to commence by 2028; if that happens, the Turkish Airforce will be in a position to gradually replace its legacy stock of American F-16s. Against this background, President Erdoğan's request to acquire the Eurofighter Typhoon can be viewed as seeking alternatives during the transition period. There is speculation that in the event of the German and/or Italian government not approving the Eurofighter sale, Ankara is looking at the acquisition of the Sino-Pakistani JF-17 Thunder fighter jet.

A window of opportunity opened for NATO members following Erdoğan's request to Chancellor Scholz during his visit to Berlin in late 2023 that Germany support the sale of the Eurofighter to Turkey. The four-country Eurofighter consortium has the leverage to identify possible conditionalities towards Ankara. In the foreseeable future, Turkey will continue to depend not only on the US for its air defence but also on its NATO partners in Europe. Meanwhile, there is an accelerating arms race between Turkey and Greece in the eastern Mediterranean. In 2022, the government of Prime Minister Mitsotakis agreed to purchase six Rafale fighter jets from France and 40 F-35 stealth fighter jets from the US. Such developments call into question the military superiority of the Turkish Air Force over its Greek counterpart.

Since 2021, Turkey has been seeking to participate in the EU's military mobility initiative PESCO (Permanent Structured Cooperation), which is aimed at expanding the union's Common Security and Defence Policy (CSDP). But Ankara continues to come up against political obstacles in its bid to broaden cooperation networks with the EU through PESCO. First, Turkey does not satisfy all the conditions for participation in PESCO projects. Second, there is considerable room for improvement in Turkey's involvement in the CSDP. According to the

European Commission's 2023 report on Turkey, the alignment rate of the country with the rules and regulations of the CSDP is just 10 per cent. And third, Ankara continues to veto the inclusion of EU member state Cyprus in any defence cooperation between the EU and NATO.

about sophisticated weapons systems. It also addresses geopolitical currents in the balance of power – both at the regional level (e.g., in the eastern Mediterranean) and the global level – that stem from new partnership alliances Ankara is forging in Africa, Central Asia and Europe.

Outlook

Turkey is refusing to march in lockstep with NATO and the EU, having declined to adopt sanctions against Moscow outside the UN framework. Today's redrawn geopolitical map includes middle powers – such as Turkey – that are demanding agency over specific outcomes. At the same time, these countries balk at being drawn into binary great-power rivalries. President Erdoğan is leveraging Turkey's geopolitical position by expanding the country's arms exports and broadening the range of countries it supplies. Demand for its weapons systems suggests Turkey is increasingly viewed as an important player on international weapons markets, reinforcing Ankara's strategic standing in global foreign and defence policy.

The possible sale of Eurofighter Typhoon jets to Turkey is more than just a commercial transaction. Indeed, it needs to be seen in the broader context of NATO interoperability – that is, keeping Turkey in alliance-led military-industrial systems. This implies both costs and risks. Turkey's continued participation in NATO is central to the security interests of the alliance. The transformation of the Turkish defence industry over the past two decades goes hand in hand with the redefinition of Ankara's geostrategic interests. And this gives Erdoğan political sway that goes beyond military might and institutional alignments.

The success of Turkey's drone exports and the debate over its procurement of F-16 aircraft and/or Eurofighter jets is not just

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