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FUTURE EXPANSION AND PROSPECTS OF TURKISH DEFENSE INDUSTRY*

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Received 25 March 2022; accepted 10 May 2022; published 30 June 2022

Abstract. The global military industry, like the Turkish military industry, has undergone and is undergoing a major transformation in the 21st century. The faster and faster coming-out of new technologies and economic ecosystems are transforming the military industry as well while the latter used to make slow responses and changes otherwise. New players and companies are emerging and expected to become increasingly important. In this changing environment, the Turkish military industry needs to produce tools and systems that meet the requirements of them: to be technologically of high quality, to be competitive in terms of prices, and to have security of supply in the event of a crisis. A changing global field and security environment, where the interdependence of national economies is increasing, make increasingly difficult to meet these three expectations simultaneously.

Keywords: Turkey; defense industry; security and defense policy; geopolitics; military force projection; drones

Reference to this paper should be made as follows: Besenyő, J., András Málnássy, A. 2022. Future expansion and prospects of Turkish defense industry. *Insights into Regional Development*, 4(2), 10-21. [https://doi.org/10.9770/IRD.2021.4.2\(1\)](https://doi.org/10.9770/IRD.2021.4.2(1))

JEL Classifications: F50, F51, F52

1. Introduction

The Turkish defense industry has a significant historical background. There is a long-standing position in the Turkish approach to security and support for the development and maintenance of a robust defense industry. Until recently, Turkey was not a major arms producer and exporter (Cannon, 2021). However, in the 2010 decade, the battlefield successes of Turkish-made drones helped the Turkish defense industry and companies make significant sales (Bakir, 2021). In addition, sales of Turkish armored vehicles manufactured by Turkish companies have boomed, with Kenya, Tunisia and several West African states placing large orders for Turkey. The increase in sales can also be interpreted as the success of Turkish weapons in the battlefields in Syria, Libya and the Caucasus (Bağcı and Kurç, 2017).

* The research was partly financed by, Óbuda University (Hungary), and University of Pécs (Hungary)

This study attempts to present a slice of the process of how Turkey has become a factor in the world of highly lucrative arms production and sales. The first part presents the role of the defense industry in Turkish security and defense policy. The second presents the development of the Turkish military industry and its geopolitical aspects in recent decades. The third deals with the primary markets for Turkish military products and the development of Turkish drone capabilities. The study concludes with the potential of strengthening Hungarian-Turkish defense relations.

2. Theoretical background

In the contemporary world security enhancement has become precondition of sustainable development including military development as well (Chehabeddine and Tvaronavičienė, 2020); various security facts and views are being continuously revealed and analyzed in scientific literature (e.g. Limba et al. 2017; Mikhaylov et al. 2018; Tvaronavičienė 2018; Lisin et al. 2018). International Security Studies (ISS), also known as Security Studies, is among the most respected theoretical frameworks for security today, arguably surpassing even the popularity of the neorealist school, or ‘national security’ based classical realist schools, particularly in the UK and in much of continental Europe (Besenyő, 2019).

The security approaches developed by Buzan and the Copenhagen School have appeared in a number of studies, the most important of which is *Security: A New Framework for Analysis* (Buzan et al. 1998). Based on an analysis of the new security challenges, it proposes to broaden the concept of security and distinguish five sectors (sector theory). In addition to the military (including defense industry), this new concept of security includes the political, economic, societal, and environmental sectors. A significant advance in the theory is the recognition that, according to the authors, the security sectors can only be separated in theory, but in practice, they are closely interconnected, and the processes taking place in them interact with each other. In the theory, however, in addition to sectoral relationships, it is also necessary to examine the levels of each sector (level theory). Security issues in each sector can be attached to four levels: global, inter-regional (interaction between a region and its neighbouring regions), intra-regional (state-to-state relations), and sub-state levels (domestically within the states of the region). Security problems in the economic and environmental sectors tend to occur primarily on a global scale. At the same time, security problems in the military, political, and societal sectors typically occur at the regional level.

Security has always been an important goal for states. Historical experience shows that protecting the territory of communities and the boundaries of the territory was a vital interest in survival. In this context, the main tools of security are the military force and the defense industry. According to Barry Buzan, military force and the economic potential needed for the purpose formed the basis of power, and as to the basics of the theory of international relations, the security of states is built on these factors (Buzan, 1991).

Turkey as a middle power has a strategic role in current international relations. In Regional Security Complex Theory (RSCT), Turkey is an insulator state, as it is situated at the intersection of three different regional security complexes (RSCs): Europe (including the sub-complex of the Balkans); the Middle East (including the sub-complexes of the Levant, the Gulf, and Maghreb); and the former Soviet Union (including the Baltic; Belarus, Ukraine, and Moldova; the Caucasus; and Central Asia) (Kazan, 2003, p. 90–91). Even though Turkey is a part of all three RSCs as an active participant, according to the Copenhagen School, it is from the position of an ‘outsider’ (Barrinha, 2014, p. 166). The Regional Security Complex Theory also states that Turkey can only be promoted to a great or superpower status if it first becomes a regional power, and to this end, it needs to belong to an RSC. This means that the country would have to intensify its security relations with one of the RSCs around its borders, shifting its position from a peripheral security role to a central one especially in military terms (Barrinha, 2014). This paper examines to what extent Turkey can be considered a dominant international player in terms of military interdependence and to what extent it seeks to play such a role in its broader security region.

3. The role of the defense industry in Turkish security and defense policy

The defense industry in each state has essentially three comprehensive and mutually supportive roles, namely, the military, political, and economic ones. The military role is the main *raison d'être* of building a state's defense-industrial base. In the case of national armed forces, it means arming them with weapons systems and military equipment that will enable them to achieve the tactical, operational and strategic military objectives assigned to them in both peacetime and war. The development of military techniques involves a complex process and consists of several distinct stages, including research and development, the development of new technologies, end products, the production of platforms and systems, and the building of service and dismantling capabilities. Companies operating within the defense industry have a role to play in each step of the former process. As a result, these companies have a strategic role to play in maintaining and developing national military capabilities (Wiśniewski, 2015).

For Turkey, the military role of the defense industry is determined by three specific factors. First, it must support the Turkish Armed Forces, the 9th largest army in the world and the 2nd largest in NATO (The Military Balance 2021). Such a large army almost always generates significant demand for defense products, including precision weapons. Second, for more than half a century, Turkey has fought an arms race against Greece. Although relations between Turkey and Greece have improved significantly over the last two decades, their defense procurement programs are still significant and there is competition between the two countries in the military field as well (Dunne, Nikolaidou and Smith, 2005). Third, the current Turkish military doctrine of advanced defense and growing aspirations for regional power status prioritize force projection capabilities. According to Turkish defense doctrine, threats to national security must be stopped before they reach national borders. And this goal can be achieved with an advanced defense industry and military equipment (Karaosmanoglu and Kibaroglu, 2003).

In the case of the Turkish security environment, the MENA region is one of the most unstable regions in the world, and there are serious armed conflicts in Iraq and Syria in the immediate vicinity of Turkey. Iran's nuclear ambitions and broader regional policy objectives create a threatened security environment that requires the maintenance of effective military force and potential for other Member States. Taking all of the factors above into account, it seems clear that the demand for military functions in the Turkish defense industry is strong and will remain so for the foreseeable future. The political role of the defense industry primarily concerns the role of the state in international politics. Arms exports are not only a profitable business, but can also be used to exert political influence. Few states in the world are capable of developing and manufacturing the most sophisticated weapons systems. In the foreign and defense policy of a sovereign country, it seeks a level of independence to assemble and operate its own armed forces independently, without the constraints imposed by a foreign supplier. Exports of military equipment can strengthen political and military alliances and gain political influence in importing states. In the case of Turkey, the development of the defense industry is also seen as a kind of prestige (Defence and Security Policy of the Turkish Republic, 2011).

The ability of the defense industry to develop and manufacture advanced, high-tech weapons systems is a widely recognized symbol of technological and industrial capabilities as well as an attribute of superpower status. The Turkish government is clearly of the view that the development of a national defense industrial base could help lay the foundations for a more independent foreign policy. Thirdly, the defense industry is also an important sector of the national economy (Wiśniewski, 2015). The revenues provided by the defense industry and the employment created generate significant revenues for the economy (Andryeyeva et al. 2021). Companies operating in this sector typically generate significant profits, invest significant sums in the development of

advanced technologies, and employ a large number of skilled workers. They also contribute to economic growth, industrial and technological development and social well-being through all these channels (Ilchenko et al. 2021).

4. The development of the Turkish military industry and its geopolitical aspects in recent decades

Turkey has allocated significant resources to the development of its national defense industry over the past two decades. Progress has been made in the context of the *Turkey's Strategic Vision 2023 Project (TASAM)*, which has strengthened the existing military base and created more and more value-added industrial players, making it a world leader in many sectors, with significant export capacities in many cases. Turkey has set three main goals for the development of the military industry: to stimulate the economy; maintaining force capabilities and acquiring new capabilities; achieving military self-sufficiency by 2023 (Turkey's Strategic Vision 2023 Project, TASAM, 2012).

The Turkish military industry has a significant history, with continuous developments in the sector since the 1980s. The Presidency of Defense Industries (SSB) was set up in 1985 as an umbrella organization to represent state aid to the defense industry and coordinate procurement, and in 1987 the Turkish Armed Forces Foundation (TSKGV) was established, which has become a famous player in the sector for many decades (Demir, 2020). TSKGV has since owned a number of key public and private companies. In the midst of the particularly changing conditions of political life and the army, like many other developing countries, purchases have been made from traditional arms-exporting states, primarily the United States and Germany. In the first phase of the development of the defense industry, strong transatlantic and European military relations developed at the level of both political and defense industry actors (Côte Réal-Pinto, 2017).

According to the Stockholm International Peace Research Institute (SIPRI), Turkish arms exports increased by 170% between 2014 and 2018, an outstanding result among major arms-exporting states. Such an increase in exports also presupposes the development of the underlying military industry. Turkish companies were initially involved in the import of foreign weapons, mainly Western weapons as members of NATO, followed by the domestic assembly of individual components and then domestic production under foreign licenses, even for complete weapons. The successful and reliable assembly and supplier activities of the largest Turkish companies have paved the way for the quality development of defense capabilities. From the late 1990s onwards, there was a need to create as independent a Turkish defense industrial capacity as possible, mainly to reduce import dependence. This goal has been included in the official goals since the mid-2000s, with the emphasis on allocating adequate budgetary resources (TRT World, 2018).

One of the strongest segments of the Turkish military industry is land vehicles and weapons systems, and the armed forces and internal security forces use almost entirely domestic assets in this area. The customer base was initially represented by the Middle East and Southeast Asia, and was later joined by European NATO members. The development of the Turkish military industry in the 2010s became more tangible in new areas, especially in the aerospace and electronics industries, as well as artillery equipment. According to SIPRI, seven of the Turkish companies are now among the world's 100 largest players in the defense industry, compared to just one in 2010. Turkey has become the 14th largest arms exporter globally. More and more countries and customers are discovering the offerings of Turkish companies, Turkish industry can produce more and more equipment and weapons systems, and what is a significant step forward: these products also represent more and more domestic added value in areas previously dominated by Western companies (e.g. guided artillery shells, avionics). Turkey, for example, is participating in the US Lockheed Martin F-35 aircraft development program (TRT World, 2019). Key players of the Turkish defense industry are presented below in Table 1.

Table 1. Key players of the Turkish defense industry

Company/organization name	Scope of activity
ASELSAN	Primarily active in the integration and modernization of land weapons systems and in the field of C4ISR14.
TÜBİTAK	The Scientific and Technological Research Council of Turkey.
Baykar	Turkey's leading UAV and AI Company.
ANASAYFA - TUSAS	Turkish Aerospace Company.
FNSS Defense Systems	Major supplier of tracked and wheeled armored vehicles and weapon systems for the Turkish Armed Forces and Allied Armed Forces.
ROKETSAN	Develops unguided and guided artillery ammunition, missile systems and ballistic equipment.
HAVELSAN	Software, simulator development, system integration.
ASPILSAN and İşbir	Operating in the defense energy sector.
TUSAŞ	Aircraft industry.
BMC Otomotiv	Inland vehicles.
STM	Engineering, technology and consultancy.
MKEK	Ammunition manufacturing.
Kale, Sarsılmaz, YDS	Aircraft engine, small arms manufacturing, clothing and footwear.

Source: Compiled by the authors

The defense sector has been key in recent years, in political terms as well, serving as one of the pillars of the Erdoğan administration. This is especially true today, when the country's economic problems are at least partially masked by the positive economic performance of the defense sector. However, the trajectory outlined above does not appear to be continuing unbroken. As early as 2019, there were signs of a decline in arms exports (Nordic Monitor, 2020). The reasons for this are quite complex. Above all, import dependence is a limiting factor. Although the Turkish defense sector has made significant progress in reducing its dependence on imports, it is not possible to implement fully domestic production of the increasingly complex weapons systems, which have recently come to the fore, in terms of the whole supply chain. For each such product, there is a sub-component, part, component that comes from a foreign supplier, in many cases from abroad.

In addition to export successes, a very important result is that Turkey has reduced its share of imports from around 70% to 30% (Gurini, 2020). In addition, the Turkish defense industry is said to belong to the relatively narrow group of countries capable of producing high-level reconnaissance and armed unmanned aerial vehicles. This fact has played a role in all major Turkish operations in recent years. Turkey's military industry has thus come a very long way in the last two or three decades and has now become a high-level and high-value-added sector that contributes significantly to the growth of the national economy. Its customers include both developing and developed states for almost all military forces (Kasapoglu, 2022).

5. Primary markets for Turkish military products

After Turkey joined NATO in 1952, the modernization of the members' forces and defense industry became a generally accepted aspect. In line with this purpose, Turkey has sought to reduce its dependence on foreign arms manufacturers by strengthening its domestic arms production. We can talk about two types of markets for the

products of Turkish military companies, one of which, as we have already mentioned, is the Turkish National Security Forces, which includes the police force and the army, and the other is the market of foreign states. The Turkish defense industry also provides technology transfer to many foreign countries. Kazakhstan, Saudi Arabia, Malaysia, the United Arab Emirates, Azerbaijan and Indonesia are considered to be the most important partners for Turkey in terms of military products produced by technology transfer and joint production (Turkish Defence & Aerospace, 2020).

Turkish companies have made significant progress in recent years in the production of drone, ship, military electronics and armored combat vehicle technologies. For these products, high technological features and competitive prices are the parameters that attract the attention of foreign buyers the most. In addition, of course, the quality of political relations can also affect cooperation, significantly increasing the competitive advantage of friendly countries. The most important markets for Turkish military products are Qatar, some African countries (e.g. Libya, Tunisia, etc.), Azerbaijan, Pakistan, the Turkish states of Central Asia and the Muslim countries of Southeast Asia (Bekdil, 2020).

Qatar is Turkey's most important partner in the Gulf region. Joint production agreements have been signed between the two countries in the field of arms production. Political and military cooperation is shown by the deployment of Turkish soldiers in Ankara by Qatar and the establishment of a military base (Vagneur-Jones and Kasapoglu, 2017). The North African region can be considered a traditional zone of influence in Turkey. Since the Justice and Development Party (AKP) came to power in 2003, North Africa has returned to the focus of Turkish geopolitics, with Ankara aiming to increase its influence in Morocco, Algeria, Tunisia and Libya as well. In the Libyan civil war, Turkish drones gained a tactical advantage over the Government of National Accord (GNA) on several occasions. The main purpose of Ankara's direct military intervention was, according to experts, to control access to the country's important raw materials and to control the sea borders of the eastern Mediterranean basin (Málnássy, 2020). It is also important for Turkey to limit and reduce the influence of Egypt and the United Arab Emirates in North Africa (Saddiki, 2020).

Turkey considers the countries of the African continent, including sub-Saharan Africa, a priority in the field of military industrial cooperation (Besenyő and Oláh, 2012). The most important markets are South Africa, Tunisia, Ghana, Nigeria, Chad, Libya, Egypt, Burkina Faso, Kenya, the Democratic Republic of Congo, Cameroon and Senegal (Besenyő, 2021). Azerbaijan is an important ally of Turkey in the Caucasus region. The two countries signed a Strategic Partnership Agreement and Mutual Assistance in 2010. In September 2020, an old historical, ethnic, ideological conflict dating back many decades has once again escalated into a direct armed conflict between the Azerbaijani and Armenian parties (Al-Youssef and Escher, 2021). Turkey rejoined the conflict on the Azerbaijani side, this time directly by selling military equipment to Azerbaijan. Kazakhstan is one of the most important partners in Turkey in Central Asia. The two countries are involved in joint production of both optical and radio electronic products in the field of military products (Kussainova, 2021).

6. Breakthrough Opportunities for the Turkish Military Industry - Development of Drone Capabilities (UAVs)

Anka-S and Bayraktar TB-2 are currently the best known drones in the Turkish military industry. Medium-altitude, long-flight (MALE) drones can stay in the air for up to 24 hours. Of the two constructions, the Anka is larger and heavier, but the smaller Bayraktar also has a wingspan of 12 meters, a length of 6.5 meters and a maximum take-off weight of 650 kilograms and 5-8 thousand meters, respectively. Both types completed their first mission in southeastern Turkey in 2016 against targets of the Kurdistan Workers' Party (PKK). Unmanned aerial vehicles were initially used primarily as part of Turkey's "fight against terrorism," along with southeastern Turkey in northern Iraq and Syria. However, Turkish drones soon appeared on the international market as well: in

2018, Qatar and then Ukraine signed an agreement to procure Turkish drones. With this, Turkey has caught up with the United States, Israel, China and Iran as an exporter of combat drones (Tapia, 2021).

During the year 2020, Turkish drones appeared in more and more battlefields. This effect brought some analysts to conceive the expression “Bayraktar diplomacy” (Borsari, 2021). In the Turkish *Spring Shield* operation in Idlib, Syria, in early March 2020, the drones played a key role and caused significant casualties in the ranks of the Assad regime (Hoenig, 2014). Regarding Libya, Turkish Bayraktars sent in support of the GNA made headlines by destroying a Russian-made Pancir-Sz1 air defense system in May (Delalande, 2019). In the Eastern Mediterranean and the Aegean, some of the patrols and reconnaissance tasks were taken over by Turkish drones, further bolstering the maritime border dispute off the coasts of Greece, Cyprus and Turkey. Finally, a significant number of Turkish combat drones also arrived in Azerbaijan, which contributed greatly to Baku’s military success in Karabakh (Kasapoglu, 2021).

The development of the Turkish military industry has gained momentum during the rule of AKP, which has been in power since 2002. While according to Turkish official data, 20% of the military equipment used by Turkey in the early 2000s came from domestic production by 2018. As the declared Turkish goal of creating a fully self-sufficient military industry for the domestic production of drones is also part of this trend. In the case of Bayraktar drones, for example, only 7% of the parts come from imports, the rest from domestic production. However, recent events have once again showed to the Turks that even this relatively small percentage can be a serious threat. During the Karabakh war, it became more widely known that Canada was supplying parts to Bayraktar (Daily Sabah, 2022).

In the past, Turkey has faced a Western arms embargo in a number of occasions. Most of the time, U.S. law has suspended certain agreements. The decision reassures the Turks that they must strive for the fullest possible independence if they want to advance their interests. According to Turkish official data, since 2014 the Turkish Armed Forces (TSK) had 86 Bayraktar TB-2s (Shay, 2019). There are several benefits to using drones in the battlefield. Perhaps the most important of these is cost-effectiveness, and here we need to think about both the market price of drones and the political costs. Although the Anka and Bayraktar drones are far from cheap constructions (the price of a Bayraktar TB-2 is estimated at around USD 5 million), they are still much cheaper than fighter jets; especially if the cost of training the fighter pilot is added. Thanks to the use of unmanned aerial vehicles, there is no need to risk the lives of soldiers in the battlefield, so decision-makers do not have to account for the casualties in front of their constituents (Tapia, 2021).

The use of drones also provides a kind of perceived or real denial. For example, it is not always possible to clearly identify the nationality of the operator (in this case, Turkish, Azerbaijani or Libyan) who controls the drones, thus making it easier to avoid possible prosecution, either domestically or internationally. The use of drones is considered by some to be an effective means of avoiding escalation, as shooting a drone, for example, is likely to elicit a milder response from the attacked party than if it had lost a fighter and the lives of its people. However, the the United Nations Institute for Disarmament Research (UNIDIR) warns that increased use of drones will increase the chances of accidental and unintended escalation (Woodhams and Borrie, 2018).

The Turkish drones were indeed remarkably effective, destroying many targets in the battlefields mentioned above. However, several other aspects are worth considering. First, the aircrafts are not valuable in themselves; in many cases, they are more of an executive role in an integrated system. Effective reconnaissance, a communication system, and electronic jamming (here we can highlight the Turkish Coral System) are all essential elements of a successful drone operation, as are well-trained personnel. However, drones are far from invulnerable. Turkey, for example, lost at least 20 drones in Syria (DefenseWorld, 2020) and more than 40 drones in Libya (Avia, 2020) in 2020. Neither the Bayraktar TB-2 nor the Anka-S has any active or passive defense against attack from either the ground or the air. In addition, the enemy’s effective electronic warfare can force

them to the ground. Experience to date has shown that Turkish combat drones were highly effective and wreaked havoc against opponents who were surprised by the large-scale use of drones and did not have effective air defense and strong electronic interference. It is therefore advisable for the forces of the 21st century to prepare for war against the drones (Woodhams, 2018).

Although most of the Anka-S and Bayraktar TB-2 drones have been heard in various studies, they are no longer the top products of the Turkish drone industry. In the next period, Bayraktar Akıncı and Anka-Aksungur, which are larger in size than their predecessors and can carry a greater payload, can be learned more and more widely. However, the Turkish military industry is also made with smaller assets. The Kargu-2 small, rotary-wing “kamikaze drone” is planned to be used in swarms, and the Alpagu construction, which can be used by individual fighters, may soon be in operation (Crino and Dreby, 2020).

7. Strengthening Hungarian-Turkish defense relations and future opportunities

With regard to Hungary, three directions of military industrial development can be distinguished, which are defined by the *Zrínyi 2026 Defense and Armed Forces Development Program* aimed at the development of the Hungarian military industry. One is when, building on the knowledge of the Hungarian industrial and service base, it strives to develop significant components, subsystems and software used in the military industry, which are at the forefront of the world and thus have a good chance of becoming the focus of global military companies and system integrators. In this case, although they are not end products, this is the easiest way to put a country on the world map of the military industry. The more successful companies that supply important system components to large players, the better the country's bargaining position when purchasing a platform or weapon system. In addition, the contribution to the development of the national economy is high, as the valuable research and development activity at the beginning of the supply chain takes place among domestic economic actors (Balogh, 2019).

Another possibility for the Hungarian national economy is to initiate military activities that offer a real opportunity to expand the domestic section of the supply chain as significantly as possible. In such cases, if the given activity was not previously found in the domestic economy, the solution may be to start the low value-added assembly process in Hungary. By reversing the resulting profit, knowledge accumulation and economic efficiency development can be achieved with a constantly evolving and expanding supplier network, a labor market background, and educational and research institutional cooperation (triple helix). This will allow a shift in the supply chain towards the production of key components, then towards innovation and development, and the gradual expansion of the range of related services.

The third opportunity for the development of the Hungarian military industry is knowledge transfer. In this case, we attract civilian or military knowledge and technology by attracting foreign direct investment to Hungary (which can be the foreign acquisition of a domestic company, a greenfield investment or the establishment of a joint venture) or the foreign acquisition of domestic economic operators (acquisition of a foreign company or establishment of a joint venture abroad) in the domestic economy, which enables the competitive production of some modern military product or component.

The last example is that the Hungarian Armed Forces also concluded a contract for the supply of two products of the Turkish company Nurol Makina within the framework of the Defense and Armed Forces Development Program. Ejder Yalçın - capable of transporting a maximum of 11 people - is standardized in Hungary under the name Gidrán - for the purchase of a total of 250 armored infantry vehicles and smaller NMS vehicles for up to 7 people - and for the assembly and further development of part of the ordered quantity in Kaposvár, Hungary - a decision has been made. The acquisition of the vehicles will be used in part to fulfill NATO's commitment to equip a sniper brigade after the regularization. In addition to the Turkish manufacturer, the German company

Rheinmetall will be involved in further development (VPK News, 2020). Hungary has also shown interest in purchasing the Bayraktar TB-2s (Brownsword, 2021).

For all three military industry development opportunities, successful cooperation between the defense sector and the civilian economy is of a great importance. To this end, it is essential that the defense sector understands the thinking of economic actors, the logic of the operation of the business sector. If this is not done, the cooperation of civil society actors may become uncertain, or if they do work together, the cooperation will have very limited results. It is no coincidence that in 2015 the U.S. announced its third 'offset' strategy to turn existing knowledge in the civilian sector (such as Silicon Valley startups) that was previously invisible or untapped into defense capabilities, increasing its declining technological advantage against its rivals. The Institute of Modernization of the Hungarian Armed Forces was established in Hungary for a similar purpose (Balogh, 2019).

Conclusions

Turkey has set itself the strategic goal of becoming fully self-sufficient in the military industry in just a few years. This is also the goal of the country not to be exposed to external assistance in an armed conflict in the field of military equipment. While Turkey clearly had to rely on foreign suppliers to meet its military needs in the first years of the 2000s and had significant imports from the military industry, Turkey is now moving closer to establishing a self-sufficient national military industry. Furthermore, Turkey can increasingly be described as a major military producer and exporter. Turkish-made military vehicles, drones, various devices, and weapons are already being used in many parts of the world, which also supports the country's geopolitical interests. And Turkish munitions and machines have been involved in several armed conflicts and have been successfully tested in several cases.

References

- Al-Youssef, M. and Escher, M. 2021. Kampfdrohnen: der Wettflug der Rüstungsindustrie zur Todesmaschine. *DerStandard* <https://www.derstandard.de/story/2000124570606/kampfdrohnen-der-wettflug-der-ruestungsindustrie-zurtodesmaschine>
- Andryeyeva, N., Nikishyna, O., Burkynskyi, B., Khumarova, N., Laiko, O. and Tiutiunyyk, H. 2021. Methodology of analysis of the influence of the economic policy of the state on the environment. *Insights into Regional Development*, 3(2), 198-212. [https://doi.org/10.9770/IRD.2021.3.2\(3\)](https://doi.org/10.9770/IRD.2021.3.2(3))
- Avia. 2020. Russian Pantsir-S air defense systems destroyed 25% of all Bayraktar TB-2 drones built by Turkey. https://avia.pro/news/rossiyskie-zrpk-pancir-s-sbili-v-livii-47-tureckih-dronov-bayraktar-tb2?utm_referrer=https%3A%2F%2Fzen.yandex.com
- Bağcı, H. and Kurç, C. 2017. Turkey's strategic choice: buy or make weapons? *Defence Studies*. 17(1), 38-62. <http://doi.org/10.1080/14702436.2016.1262742>
- Bakir, A. 2020. Turkey's Defense Industry in the Covid Age. *Newlines Institute for Strategy and Policy*. Terrain Analysis. <https://newlinesinstitute.org/turkey/turkeys-defense-industry-in-the-covid-age/>
- Bakir, A. 2021. Mapping The Rise of Turkey's Hard Power, Part 2: Domestic Industry. *Newlines Institute for Strategy and Policy*. Terrain Analysis. <https://newlinesinstitute.org/uncategorized/mapping-the-rise-of-turkeys-hard-power-part-2-domestic-industry/>
- Balogh, O. 2019. The Importance of the Zrínyi 2026 Defence and Military Development Program. *Vojenské rozhledy*, 28(3), 55-70. ISSN 1210-3292. www.vojenskerozhledy.cz
- Barrinha, A. 2014. The Ambitious Insulator: Revisiting Turkey's Position in Regional Security Complex Theory. *Mediterranean Politics*, 19(2), 165-182.

- Bekdil, B. E. 2020. Turkish industry prospers, but foreign relations are limiting its potential. *DefenseNews*. <https://www.defensenews.com/top-100/2020/08/17/turkish-industry-prospers-but-foreign-relations-are-limiting-its-potential/>
- Besenyő, J. and Oláh, P. 2012. One of the new competitors in Africa: Turkey. *AARMS*, 11(1), 135–148. http://real.mtak.hu/83768/1/real_OneofthenewcompetitorsinAfricaTurkey_2012_u.pdf
- Besenyő, J. 2019. Barry Buzan's Securitization Theory and the Case of Iraqi Kurdish Military Action against ISIS in 2014. *Journal of Security and Sustainability Issues*, 8(3), 285-306. [http://doi.org/10.9770/jssi.2019.8.3\(1\)](http://doi.org/10.9770/jssi.2019.8.3(1))
- Besenyő, J. 2021. Turkey's growing interest in the African continent. *JCEEAS – Journal of Central and Eastern European African Studies*, 1(1-2). <https://jceas.bdi.uni-obuda.hu/index.php/jceas/article/view/4/4>
- Borsari, F. 2021. Rabat's Secret Drones: Assessing Morocco's Quest for Advanced UAV Capabilities. *Italian Institute for International Political Studies (ISPI)*, <https://www.ispionline.it/en/publicazione/rabats-secret-drones-assessing-moroccos-quest-advanced-uav-capabilities-31207>.
- Brownsword, S. 2021. Turkey Driving Drone Proliferation in Its Quest for Market Supremacy. *Drone Wars*. <https://dronewars.net/2021/07/05/turkey-driving-drone-proliferation-in-its-quest-for-market-supremacy/>.
- Buzan, B., Waever, O. and De Wilde, J. 1998. *Security: A New Framework for Analysis*. Boulder, CO: Lynne Rienner.
- Buzan, B. 1991. *People, States and Fears*. Harvester Wheatsheaf, Hertfordshire.
- Buzan, B. and Hansen, L. 2009. *The Evolution of International Security Studies*. Cambridge University Press.
- Cannon, B. J. 2021. Turkey's defense industry and military sales in Sub-Saharan Africa: Trends, rationale, and results. *International Security and Terrorism*. <https://trendsresearch.org/insight/turkeys-defense-industry-and-military-sales-in-sub-saharan-africa-trends-rationale-and-results/>
- Chehabeddine, M. and Tvaronavičienė, M. 2020. Securing regional development. *Insights into Regional Development*, 2(1), 430-442. [https://doi.org/10.9770/IRD.2020.2.1\(3\)](https://doi.org/10.9770/IRD.2020.2.1(3))
- Corte Réal-Pinto, A. G. 2017. Une exception néolibérale? Le projet de turquification de l'armement. *Revue internationale de politique de développement*, 8. <https://doi.org/10.4000/poldev.2456>
- Crino, S. and Dreby, A. 2020. Turkey's Drone War in Syria – A Red Team View. *Small Wars Journal*. <https://smallwarsjournal.com/jrnl/art/turkeys-drone-war-syria-red-team-view>
- Daily Sabah. 2022. Turkish army receives new Bayraktar TB2s with local electro-optical system. <https://www.dailysabah.com/business/defense/turkish-army-receives-new-bayraktar-tb2s-with-local-electro-optical-system>
- Defence and Security Policy of the Turkish Republic 2011. in: CIDOB International Yearbook 2011, Barcelona. https://www.cidob.org/en/publications/publication_series/cidob_international_yearbook/cidob_international_yearbook_2011_country_profile_turkey
- DefenseWorld. 2020. Libyan War Claimed 25 Large military Drones in 2020. https://www.defenseworld.net/news/27332/Libyan_War_Claimed_25_Large_military_Drones_in_2020#.YiX8-WjMIuV
- Delalande, A. 2019. How Libya's skies became battleground for UAE-Turkey proxy war, *Middleeasteye*. <https://www.middleeasteye.net/news/how-libyas-skies-became-battleground-uae-turkey-proxy-war>
- Demir, I. 2020. Transformation of the Turkish Defense Industry: The Story and Rationale of the Great Rise. *Insight Turkey* 2020. 22(3), 17-40. <https://www.insightturkey.com/file/1273/transformation-of-the-turkish-defense-industry-the-story-and-rationale-of-the-great-rise>
- Dunne, J. P., Nikolaidou, E. and Smith, R. P. 2005. Is there an Arms Race between Greece and Turkey? *Peace Economics, Peace Science and Public Policy*, 11(2). <https://doi.org/0.2202/1554-8597.1086>
- Fysh, M. C. and Bindemann, M. 2018. Person Identification from Drones by Humans: Insights from Cognitive Psychology. *Drones*, 2(4), 32. <https://doi.org/10.3390/drones2040032>

- Gurini, F. 2020. Turkey's unpromising defense industry. *Carnegie Endowment for International Peace*, <https://carnegieendowment.org/sada/82936>
- Ilchenko, O., Brusakova, O., Burchenko, Y., Yaroshenko, A. and Bagan, Y. 2021. The role of a defence industry in the system of national security: a case study. *Entrepreneurship and Sustainability Issues*, 8(3), 438-454. [https://doi.org/10.9770/jesi.2021.8.3\(28\)](https://doi.org/10.9770/jesi.2021.8.3(28))
- Hoenig, M. 2014. Hezbollah and the Use of Drones as a Weapon of Terrorism, *Public Interest Report*, 67(2). <https://uploads.fas.org/2014/06/Hezbollah-Drones-Spring-2014.pdf>
- Karaosmanoglu, A. L. and Kibaroglu, M. 2003. *Defense Reform in Turkey, in: Post-Cold War Defense Reform: Lessons Learned in Europe and the United States*, New York. 1-30.
- Kasapoglu, C. 2022. Techno-Geopolitics and the Turkish Way of Drone Warfare. *Issue Brief*. Atlantic Council. https://www.atlanticcouncil.org/wp-content/uploads/2022/03/Techno-Geopolitics_and_the_Turkish_Way_of_Drone_Warfare.pdf
- Kasapoglu, C. 2021. Hard Fighting in the Caucasus: The Azerbaijani Armed Forces' Combat Performance and Military Strategy in -the 2020 Nagorno-Karabakh War. *SAM Papers*. 18. <http://sam.gov.tr/pdf/sam-papers/SAM-Papers-No.-18.pdf>
- Kazan, I. 2003. *Regionalisation of Security and Securitisation of a Region*. Copenhagen: University of Copenhagen Press.
- Kussainova, M. 2021. Turkey, Kazakhstan to boost defense industry cooperation. *Anadolu Agency*. <https://www.aa.com.tr/en/turkey/turkey-kazakhstan-to-boost-defense-industry-cooperation/2134550>
- Limba, T., Agafonov, K., Paukštė, L., Damkus, M. and Plėta, T., 2017. Peculiarities of cyber security management in the process of internet voting implementation. *Entrepreneurship and Sustainability Issues*, 5(2), 368-402. [http://doi.org/10.9770/jesi.2017.5.2\(15\)](http://doi.org/10.9770/jesi.2017.5.2(15))
- Lisin, E., Kurdiukova, G., Ketoeva, N. and Katina, J. 2018. Sustainability issues of territorial power systems in market conditions. *Entrepreneurship and Sustainability Issues*, 6(2), 1041-1052. [http://doi.org/10.9770/jesi.2018.6.2\(38\)](http://doi.org/10.9770/jesi.2018.6.2(38))
- Málnásky, A. 2020. Change of Direction in Turkey's Africa Policy. What is Behind the Turkish Intervention in Libya? *Strategic Impact*, 74, 74-84. <https://www.ceeol.com/search/article-detail?id=884889>
- Mikhaylov, A. S., Mikhaylova, A. A. and Savchina, O. V. 2018. Innovation security of cross-border innovative milieus. *Entrepreneurship and Sustainability Issues*, 6(2), 754-766. [http://doi.org/10.9770/jesi.2018.6.2\(19\)](http://doi.org/10.9770/jesi.2018.6.2(19))
- Morgan, F. E. et al. 2008. Dangerous Thresholds: Managing Escalation in the 21st Century, *RAND Corporation*, 20-28, <https://www.rand.org/pubs/monographs/MG614.html>.
- Nordic Monitor. 2020. Turkey records significant drop in defense industry exports in January-August 2020. <https://nordicmonitor.com/2020/09/turkey-records-significant-drop-in-defence-industry-exports-in-january-august-2020/>
- Saddiki, S. 2020. The New Turkish Presence in North Africa: Ambitions and Challenges. *Konrad Adenauer Stiftung, Med Dialogie Series*, 33. <https://www.kas.de/documents/282499/282548/The+New+Turkish+Pres%20ence+in+North+Africa.pdf/1ef5bc1d-f900-a9b5-6fb0-619c94ec37b1?ver%20sion=1.0&t=1607419637085>
- Shay, S. 2019. The Important Role of Turkish Drones in the Libyan War. *Israel Defense*. <https://www.israeldefense.co.il/en/node/39539>
- Tapia, F. S. 2021. The Turkish defence industry. First-class strategic asset. Analysis Paper. *Instituto Espanol de Estudios Estrategicos*. https://www.ieee.es/Galerias/fichero/docs_analisis/2021/DIEEEA06_2021_FELSAN_IndustriaTurca_ENG.pdf
- The Military Balance 2021. Routledge, Taylor & Francis, 11-304. ISBN: 9781032012278
- TRT World. 2018. Turkey tops the international weapon export rating. <https://www.trtworld.com/turkey/turkey-tops-the-international-weapon-export-rating-24880>
- TRT World. 2019. Turkey among top 100 in global arms industry. <https://www.trtworld.com/turkey/turkey-among-top-100-in-global-arms-industry-22395>
- Turkey's Strategic Vision 2023 Project. TASAM, 2012. <http://www.tsv2023.org/index.php/en/>

Turkish Defence & Aerospace. 2020. How Turkey became one of the world's leading manufacturers of weapons systems. *Defense News*. <https://www.defensenews.com/native/turkish-defence-aerospace/2020/07/21/how-turkey-became-one-of-the-worlds-leading-manufacturers-of-weapons-systems/>

Tvaronavičienė, M. 2018. Towards internationally tuned approach towards critical infrastructure protection. *Journal of Security and Sustainability Issues*, 8(2), 143-150. [https://doi.org/10.9770/jssi.2018.8.2\(2\)](https://doi.org/10.9770/jssi.2018.8.2(2))

Vagneur-Jones, A. and Kasapoglu, C. 2017. Bridging the Gulf: Turkey's forward base in Qatar. *Foundation for Strategic Research*, 16. <https://www.frstrategie.org/en/publications/notes/bridging-gulf-turkeys-forward-base-qatar-2017>

VPK News. 2020. Hungary buys Turkish armored vehicles Ejder Yalçın. https://vpk.name/en/474002_hungary-buys-turkish-armored-vehicles-ejder-yaln.html

Wiśniewski, R. 2015. Military-Industrial aspects of Turkish defence policy. *Rocznik Integracji Europejskiej*, 9, 215-228. <https://doi.org/10.14746/rie.2015.9.14>

Woodhams, G. and Borrie, J. 2018. Armed UAVs in conflict escalation and inter-State crisis. *UNIDIR Resources*. <https://www.unidir.org/files/publications/pdfs/armed-uav-in-conflict-escalation-and-inter-state-crisis-en-747.pdf>

Woodhams, G. 2018. Weapons of Choice: The Expanding Development, Transfer and Use of Armed UAVs, *UNIDIR*, pp 14-15. <http://unidir.ch/files/publications/pdfs/weapons-of-choice-the-expanding-development-transfer-and-useof-armed-uavs-en-723.pdf>

Zegart, A. 2018. Cheap Fights, Credible Threats: The Future of Armed Drones and Coercion. *The Journal of Strategic Studies*, 6-46. <https://doi.org/10.1080/01402390.2018.1439747>

Funding: *The research was partly financed by, Óbuda University (Hungary), and University of Pécs (Hungary)*

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