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Unmanned Aerial Vehicles in Türkiye's Defence and Foreign Policy

Abstract

In recent years, the Turkish defence industry has experienced a major revolution in Unmanned Aerial Vehicle (UAV) technology. Domestically produced Unmanned Aerial Vehicles (UAVs) are used in many areas, especially in reconnaissance, intelligence and military operations. This has made Türkiye gain international prestige.
This study examines the recent UAV revolution of the Turkish defence industry and its impact on Türkiye's current and future defence strategy. First of all, it provides a detailed account of Türkiye's determination to produce its unmanned aerial vehicles. Then, the first uses of UAVs and the role of this technology in the successful operations of the Turkish military are discussed. The impact of Turkish drones in different geographies such as Syria, Libya and the Karabakh War is analysed in a comprehensive and detailed manner. In conclusion, the revolutionary advances of the Turkish defence industry in UAV technology are summarised, which enhance the country's military capabilities and provide a significant competitive advantage in the international arena.

Keywords: unmanned aerial vehicle, defence industry, intelligence, military operations, foreign policy

Introduction

An Unmanned Aerial Vehicle (UAV) is a type of aircraft that does not have a human pilot, crew or passenger, carries only equipment (video camera, camera, laser scanning device, etc.) suitable for its purpose, and can perform its mission remotely and/or automatically. The professional use of UAVs for military, civilian (hobby and commercial) and scientific purposes is rapidly increasing in our country and all over the world, and therefore it is expected that this issue will be more on the agenda in

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the coming years.[2] According to NATO, UAVs can provide aerodynamic flight forces without a pilot, can carry lethal or non-lethal payloads and can be destroyed or reused after flight. UAVs are often used to carry payloads. UAVs can be launched manually or take off from airport runways, and can be controlled remotely or autonomously, depending on the concepts and needs of use on different platforms.[3] However, even though UAVs are characterised as "unmanned", they depend on the human factor in maintenance–repair, installation, pre-flight preparation, navigation and landing. UAV Systems may consist of different systems depending on the technology and infrastructure they are equipped with, but their most basic components consist of Ground Control Systems and the UAV itself.[4]

In addition, UAVs are defined as "drones" or "UAV/UAS (Unmanned Aerial Vehicle/Systems)" in the international literature, which in reality means the same thing, except for certain technical features. On the other hand, since the first versions of unmanned aerial vehicles, which were known as "drones" and did not have such high technical specifications as they do today, were generally used for military purposes and as weapons until today, and in this context, they have a negative image in the memory of societies, the names UAV/UAS (UAS) are mostly used in the civilian sector today. Technically, "drone" refers to an unmanned aerial or sea vehicle that can fly automatically, while "UAV" refers to an aircraft that can fly unmanned, has an engine, can be controlled and has no weapons.[5] As a result, all definitions such as "drone", "UAV/UAS", "RPAS" continue to be used synonymously, and there is no clear distinction between them.[6]

The study to shed light on Türkiye's UAV experience will proceed as follows: First, the industrial infrastructure that has enabled the development of Türkiye's UAV capability will be discussed. Then, it analyses Türkiye's developing UAV capability and the experience gained from this capability and the reflection of this experience on the battlefield. In addition, the foreign policy implications of this capacity are analysed. Finally, the use of Türkiye's UAV exports to achieve its foreign policy objectives will be discussed.

Historical development process of unmanned aerial vehicles

The history of unmanned aerial vehicles goes back a long way. On 22 August 1849, the Austrians sent 200 unmanned balloons with time fuse bombs to the city of Venice (Italy), which is considered to be the first use of drones in an air attack. In reality, some of these bombed balloons exploded over the targets, while others were blown back by the wind and exploded along Austrian lines. On the other hand, the use of

[2] Turkish Aeronautical Association s. a.
[3] Şahin 2022.
[4] Sever 2021: 1184–1185.
[5] Kahveci–Can 2017: 510.
[6] Kahveci–Can 2017: 513.

unmanned balloons for military purposes dates back to 1793 in the United States, and these balloons were used only for reconnaissance purposes in the Civil War.[7]

The first real UAV application suitable for today's use started in 1916 when Elmer Sperry demonstrated the gyro-stable flight of the "Curtiss" aircraft of the U.S. Navy. As a continuation of this application, the aircraft nicknamed "Keterring Bug", developed by Charles Kettering from the USA in 1918, had its controls pre-set and managed to dive over its target by dropping its wings when it was over the target. With this application, the first "autonomous" systems emerged in history. In 1920, the first flight controlled by radio waves was realised by Lawrence Sperry, son of Elmer Sperry.

The V-1 and V-2s used by Germany in its air attacks on England during the Second World War can be seen as a reflection of these systems in the 1940s as "pilotless airplanes". The V-1, which was built by Astronomy Professor Hermann Oberth and given names such as "winged bomb", "robot", "pilotless plane", "flying bomb", weighs 3.5 tons with two tons of explosive material and looks like a small propellerless plane with a length of 6.75 and a wingspan of about 3.5 meters. After the Allied capture of the airfields of Dieppe and Calais, Germany began the production of the V-2, known as the ancestor of the F-104 fighter jet, which was produced in 1954 and was recorded as the most advanced weapon of the war with this rocket.[8]

During the Korean War, it was evident that the U.S. continued its efforts in this field with an aircraft called "Lark", referred to as bullet plane, and immediately after the war with the B-61 type unmanned Matador bombers.[9] The best-planned introduction of UAVs into the active war environment, which was encountered again with the "Vietnam War", took place with Israel's air operations in the Beka'a Valley in 1982.[10] The operation, in which the U.S. closely monitored the development of UAVs and their impact on the battlefield, was the point where the critical threshold for UAVs was crossed. In this operation, the Israeli Air Force used drones to gather intelligence data on Syrian forces in the valley and, more importantly, as decoys against Syrian air defence systems.[11] After this operation, the importance of UAVs became evident and many countries, especially the United States, started to investing in them.

Since the 1980s, many countries have developed an interest in UAVs, which have been used in conflict zones in Bosnia-Herzegovina, Kosovo, Afghanistan, Iraq, Palestine, Lebanon, Yemen, Pakistan, Libya, Mali and Syria. Initially used only as reconnaissance and surveillance tools, UAVs have been weaponised over time and turned into a successful combat platform that can fulfil both tasks.[12]

The development process of UAVs is very similar to the development of aircraft. The first manned warplanes were used for reconnaissance and surveillance. Later on, aircraft were used for the manual or mechanical release of small bombs. Modern UAVs have also emerged as reconnaissance and surveillance platforms. Over time,

[7] Monash University s. a.
[8] Sadullah 1945: 2.
[9] Daver 1951: 2.
[10] Karaağaç 2016: 10.
[11] Jurilj 2016: 513.
[12] Karaağaç 2016: 23.

UAVs have also been armed and have become capable of carrying out armed attacks in addition to reconnaissance and surveillance missions.[13]

At this point, however, conventional fighter aircraft have a history of more than 110 years in the development process. Modern UAV development, however, is about 40 years old. Efforts continued rapidly for UAVs to reach a high payload carrying capability. At the same time, it is known that jet-propelled UAVs that exceed the speed of sound are under development. In addition, it is seen as inevitable that they will replace traditional combat aircraft in the 21st century.

Türkiye's unmanned aerial vehicle adventure

The Republic of Türkiye, like many developed countries, has been interested in UAV systems since the 1980s. Since there was no domestic UAV production capability during this period, the strategy was to procure UAVs from abroad. The first UAV system procured for this purpose was the Banshee system, a target aircraft system produced by Meggitt Company in 1989.[14] Although Türkiye was in the process of foreign procurement, it was also engaged in production-based activities.

In 1991, prototype studies were conducted at TAI, where F-16 aircraft are produced, as a UAV project, and according to the statements of the Undersecretariat for Defence Industries, the goals and developments within the scope of UAV projects, for which 350 million dollars was allocated in 1992, were reflected in the press as follows:

> "The aircraft, which will conduct day and night surveillance over our territorial waters and borders in the southeastern regions, will be controlled by the ground station and will send the information it receives to the command centre. The first prototype of the aircraft was realized by Türk Hava ve Uzay Sanayi A.Ş. It is stated that the project, in which the electronic parts are of great importance, could lead to significant export opportunities. Announcing that 28 foreign companies had received introductory briefings, the SSM said that proposals had not yet been requested."

In 1993, Türkiye purchased seven UAVs from the AAI Company of the USA for 10 million dollars, and the GNAT 750 purchased from AAI and the Falcon 600 purchased from General Atomics of Israel were deployed in the Southeast. In the same year, five Canadair CL-89 UAVs were donated by Germany. In 1994, the UAVs entered service with the Turkish Armed Forces, but were soon retired due to logistical problems and accidents. The most serious UAV initiative in the 20th century took place in 1995. In this year, six GNAT-750 UAVs manufactured by General Atomics were procured. In addition, two I-GNAT UAVs were purchased.[15]

Used for tactical surveillance and supporting missions, these UAVs remained in the inventory of the Land Forces Command until 2005.[16]

[13] Jurilj 2016: 517.
[14] Turkish Aeronautical Association s. a.
[15] Karaağaç 2016: 33.
[16] Düz 2020: 9.

However, since these projects were still under development, procurement from abroad continued in order to meet the urgent needs of the Turkish Armed Forces. Between 2007 and 2010, the Land Forces Command leased one Heron, one Searcher and one Dominator UAV from Israel. In addition to these leased UAVs, three more Aerostar UAVs were leased from Israel.[17]

The Land Forces Command was unable to effectively utilise these UAVs leased from Israel, and three of them were shot down. In addition to leasing UAVs to meet the urgent needs of the military, Türkiye also resorted to procurement. Heron UAVs from Israel and Predator UAVs from the United States participated in the tender for purchase. Although the Predator UAV had good technical specifications, Heron won the tender as Israel agreed to integrate the subsystems developed by Türkiye.[18]

Aselsan, Savronik and Milsoft companies from Türkiye participated in this project.[19] Although Israel accepted Türkiye's requests during the tender phase, it caused problems during the integration of the products of Turkish companies during the implementation phase. For this reason, the project was delayed and the Gaza War erupted between Israel and Palestine in 2008–2009 and Türkiye suspended the project in response to Israel's actions. These two events caused the project to drag on. In the end, 10 UAVs entered the inventory of the Turkish Air Force Command in 2010.

In 2010, the "Mavi Marmara" incident strained Turkish–Israeli relations, which negatively affected the shipment, maintenance and deployment of UAVs.[20] Türkiye's problems with the Herons continued even after they were purchased, with news reports in 2011 stating that two of the 10 Herons had become unusable and crashed, while three Herons were operating with spare engines due to engine failure.[21] Türkiye's problems with the Herons did not end there. The fact that the landing and take-off operators were Israeli and that the images obtained were also transferred to Israel caused disturbances on the Turkish side.[22] During this period, the cost of Herons to Türkiye amounted to 180 million dollars.[23]

In addition to Israeli UAVs, Türkiye has also shown interest in U.S. UAVs. Negotiations were held regarding the American RQ-1 Predator and MQ-9 Reaper UAVs, but these negotiations ended inconclusively when unarmed versions were offered. As a result, Türkiye was forced to purchase Israeli UAVs.

In 2008, another attempt was made regarding UAVs, but no results were obtained until 2014. In 2014, Türkiye made a request to the United States to obtain the approval of the U.S. Congress. Although it launched initiatives, the Congress did not approve the sale of UAVs. During this period, Türkiye's UAV projects, which were under development, entered a phase of maturity.

In 2016, Undersecretary for Defence Industries İsmail Demir stated that the U.S. stance had led Türkiye to build its own UAV systems and that Türkiye no longer

[17] Düz 2020: 9.
[18] Ateş 2021: 10.
[19] Karaağaç 2016: 33.
[20] Düz 2020: 9.
[21] Cumhuriyet 2011: 11.
[22] Aksan 2020.
[23] Akyürek et al. 2012: 16, 17.

needed "a U.S.-made UAV system".[24] It should also be noted that in 2013, Türk Hava Kurumu University Unmanned Aerial Vehicle Systems Application and Research Centre was established as an educational initiative in this regard.[25] In 2017, Cappadocia Vocational School Unmanned Aircraft Systems Application and Research Centre started its activities.[26]

Self-development of Türkiye

With the 2000s, Türkiye started to experience a bright process in the defence industry, and it is known that the problems were caused by the embargoes.[27] At this point, the arms embargoes imposed on Türkiye after the Cyprus Peace Operation in 1974 increased the state's desire to complete its deficiency in this field and accelerated the work. Especially the arms embargo with the U.S. led to the establishment of the current defence industry companies. Such as Aselsan, Havelsan, Roketsan.[28]

The defence industry, which develops itself more and more every day, has shaped its priority to meet the needs of the country. As a result, since the early 2000s, the Turkish Armed Forces has become one of the countries with the highest number of UAVs among NATO member states.

The country's most important targets to meet were keeping pace with the development in the arms industry, being self-sufficient, reducing dependence on other countries, and becoming independent and more powerful in foreign policy. Türkiye's defence industry has been motivated by the desire to develop, especially since 1974.[29]

It is known to have been formed during the Cyprus Peace Operation, but it is also known that Türkiye's desire to become a regional power was also effective in that process, in addition to military needs. Moreover, being able to produce weapons in the international arena was seen as a symbol of a growing and powerful state. Not content to be self-sufficient, Türkiye is aware that this situation is not economically advantageous and wants to advance not only militarily but also economically.[30]

However, with the impact of globalisation, political, military and cultural processes have been affected, albeit at different levels. In addition, despite the disadvantages of adapting to the developing world, Türkiye has not given up on its decision to develop its own arms industry and has supported companies to develop themselves.

Key players and institutions in the Turkish UAV industry

The stakeholders consist mainly of the Turkish defence industry companies directly rising from the feeling and drive of the defence industry detached from Türkiye's

[24] Çopur 2016.
[25] Official Gazette 2013: 58.
[26] Official Gazette 2017: 22.
[27] Bağcı–Kurç 2017: 40–53.
[28] Soyaltin-Colella–Demiryol 2023: 729.
[29] Kinsella 1998: 7–16.
[30] Rossiter–Cannon 2022: 211.

Western allies and integration politics; stretching from drones to beacon and electronic warfare technologies. The leading companies in this regard are Baykar and TUSAŞ, with contributions from other medium-scale companies. Tracing roots back to Typhoon gyrocopter projects under the ATA Development Table in Selçuk Bayraktar's and other engineers' leadership, the closed-door products were handed off to Baykar.[31]

The drones are solutions to many joint and asymmetric features of contemporary warfare and guerrilla warfare. Approximately more than a thousand systems combined by the Baykar and TUSAŞ companies were put to service within two lines: armed and reconnaissance/surveillance tasked.

Other companies are also actively engaged in the design, technology production and upgrading of these strategic systems prone to harassment and psychological operations. Besides, governmental institutions such as the Undersecretariat for Defence Industries and the Ministry of Interior of the General Directorate of Security are also in partnership and have an important role in the original R&D projects for drones. In addition to institutional-based R&D efforts on a problem-based or theoretical basis, Turkish universities have also started such a width of origin in the design of technological developments; from public–private partnerships to workshops and laboratories, research and advisory activities, ranging from sponsored projects to the environment; efforts to improve the technology and design of the drones.[32]

The first UAV solution offering stems from the Baykar company developed in a university setting. Remote control software, autopilot and ground control systems in collaboration with Turkish universities, are among Baykar's most important technological know-how assets in the global competition. Dr. Selçuk Bayraktar is at the same time among the authors of Türkiye's first national UAV engine. During this period, the original wings of the UAVs and their current ammunition are revised and examined with the foreign partner.

In the theses of some students, original wing designs are available today. Publications are growing day by day with new start-ups and R&D development companies operating in the field of aviation. Future scenario studies in Türkiye, consisting essentially of the same drone ecosystem, show that the high level of unity, harmony and rank between the relevant institutions and organisations contribute to the success of the industry.

Overall, one of the major factors in the progress of the Baykar firm is its strong relationship with both national and international players in the ecosystem. With the importance of this relationship for the determination of the success of a project, political science was chosen for the successful implementation of the project.

Turkish political science studies play a significant role in understanding and predicting the behaviour of different political actors and assessing the impact of political decisions on technological advancements in the defence industry. Understanding the intricacies of power dynamics, public opinion and policy-making processes is crucial for developing effective strategies and fostering collaboration between governmental institutions, defence companies and universities.

[31] Baykar Technologies s. a.
[32] Defence Turkey 2019.

By analysing historical and contemporary political trends, researchers and experts in political science provide valuable insights and recommendations for the development and enhancement of drone Technologies. Furthermore, interdisciplinary approaches that combine political science with engineering, computer science and other relevant fields contribute to comprehensive and innovative solutions. Through interdisciplinary research and discussion, scholars and practitioners work together to address the complex challenges and opportunities in the drone industry.[33]

As the field continues to evolve, political science will remain an indispensable tool for shaping policies, establishing international partnerships and promoting the sustainable growth of the Turkish defence industry.

Military and civil applications of Turkish UAVs

Military applications of Turkish UAVs, mostly the TB2 and ANKA series, are currently being used for essential missions in the military, such as surveillance, reconnaissance, target acquisition and combat operations, especially to eliminate terrorist threats. The versatility and effectiveness of these UAVs have proven instrumental in ensuring national security and protecting critical assets in various operational environments.

Operating out of ground stations, skilled operators expertly navigate these UAVs using state-of-the-art remote controllers. These remarkable aerial vehicles are equipped with cutting-edge technology, including high-resolution TV cameras mounted on board, enabling real-time video transmission for enhanced situational awareness and decision-making on the battlefield. However, the integration of UAV capabilities into the existing combat support and staffing systems has been a challenging task for Turkish operators.

While UAVs offer unprecedented advantages, they do not possess the same level of human intuition and familiarity with the operational theatre as regular military operators. Understanding the terrain, identifying potential threats, and effectively communicating and collaborating with ground forces require a comprehensive understanding of the mission and exceptional training.[34]

Furthermore, the presence of UAVs operated by both the Turkish and American military in the same region introduces complexities in the decision-making process due to a language barrier. To maintain operational effectiveness, it is crucial for the pilots and soldiers flying these UAVs to undergo rigorous training and continually enhance their skills.

By doing so, they contribute significantly to the overall success of missions and demonstrate the immense potential of UAVs in military operations.

Civil applications of Turkish UAVs have transcended their military origins and are now poised to revolutionise various civilian sectors. Their applications extend beyond the realms of warfare, encompassing a wide range of fields, including traffic monitoring, forest fire detection, environmental monitoring, precision agriculture and

[33] Savunma Sanayii Dergisi 2024.
[34] Nisser–Westin 2006: 3.

disaster management. With their capacity for swift and efficient aerial surveillance, UAVs offer invaluable support in monitoring traffic patterns, detecting congestion points and optimising transportation networks.

In addition, their ability to swiftly identify and monitor forest fires enables rapid response and mitigation efforts, protecting valuable natural resources and protecting human lives. By conducting extensive environmental monitoring from the air, UAVs aid in assessing ecological changes, ensuring sustainable development, and mitigating the impact of human activities on delicate ecosystems. In precision agriculture, these aerial vehicles have proven indispensable tools, facilitating crop monitoring, yield optimisation and resource management.

Additionally, with their agility and versatility, UAVs play a critical role in disaster management. By operating from disaster-stricken areas, they can transport essential supplies, conduct search and rescue operations and provide real-time situational updates to aid in decision-making. As researchers explore the vast potential of UAVs in these diverse applications, the ongoing environmental monitoring project serves as a testament to their adaptability and transformative capabilities.[35]

Through this project, UAVs will not only provide vital assistance in disaster areas but also pave the way for future advancements in various other fields. The increasing use of UAVs in civilian applications has sparked curiosity and interest among the general populace, who are eager to witness the myriad possibilities that unfold when this technology is harnessed beyond military domains.

In Türkiye, the Southeast Anatolia Region's unique terrain and favourable weather conditions offer promising grounds for agricultural activities with UAVs. Becoming a success story in UAV utilisation within this sector will undoubtedly attract attention and further investment from other industries, opening up new opportunities.

UAVs in key conflict zones

Karabakh

The long-standing Karabakh conflict resumed in 2020 ended on 9 November 2020 and Armenia was forced to partially withdraw from Karabakh. During the Karabakh war:

> "Another fact that stands out is that Armenian forces attacked many Azerbaijani settlements with rockets that were on the battlefield or launched from great distances from the battlefield, killing and injuring many civilians and looting many civilian settlements. Following Azerbaijan's military victory, the process of implementing the political agreement continued. In addition to the handover of settlements to Azerbaijan, negotiations on the return of millions of refugees IDPs to their homes continued."[36]

[35] Bushnaq et al. 2022.
[36] Dixon 2020.

During this period, Azerbaijan used Bayraktar TB2, which are known to be the most modern aircraft purchased by Azerbaijan from Türkiye. It is also known that the Bayraktar TB2, which played an important role in the Ukraine–Russia war, was also used by the Ukrainian air force. Bayraktar TB2s have received positive results from the moment they started to be used and have increased Türkiye's prestige in the international arena.[37]

The contribution of Turkish drones to the offensive power and even their effectiveness in interventions is being talked about in the international arena. When Azerbaijan used this power, Armenia's attacks were not effective and caused it to lose the war. In general, the use of Sihas has been successful because they hit critically important places such as armoured vehicles and weapons depots and caused significant damage. In addition, the UAVs, which succeeded in collapsing the Armenian defence system, contributed to Azerbaijan's progress and facilitated this process. Due to the effectiveness of the UAVs, Azerbaijan was prevented from suffering great losses and gained a significant advantage.[38]

The contributions and achievements of Turkish UAVs and unmanned combat aerial vehicles (UCAVs) were expressed by the Azerbaijani President Ilham Aliyev as follows. "Thanks to Bayraktar TB2 UAVs, the Armenian defense system worth over 1 billion dollars was damaged", he said, and Ilham Aliyev also awarded the Order of Karabakh to Baykar Defense Company, which produces UAVs and UCAVs that contributed to this victory.[39]

Syria

Syria is one of the close geographies where Türkiye's UAVs and UCAVs have been used successfully and effectively. In Syria, as is well known, supporters and opponents of the Assad regime are in constant conflict. Terrorist organisations have also been gaining strength in this conflict environment. Türkiye, not wanting to allow the formation of a brand new state in this region, has intervened militarily, namely in the north of Syria.[40]

While Turkish observation points were being set up in these areas, 34 Turkish soldiers were martyred by regime loyalists in Syria while they were operating on a Turkish observation point. In the statements made by the Turkish Government, the main reason for these operations was to put an end to the advances of the regime supporters and to ensure the safety of civilians trying to survive in the region. In addition, the Idlib region is a bit more complicated. Because of the presence of different actors in Idlib, Turkish security areas have been at risk.

In this process, UAVs and UCAVs have helped Türkiye to successfully carry out operations with minimal loss. In addition, Türkiye has been successful with UAVs and

[37] Rossiter–Cannon 2022: 217–218.
[38] Kasapoğlu 2023.
[39] Baykar Technologies s. a.
[40] Cagaptay–Outzen 2022: 57.

UCAVs in operations such as Operation Spring Shield and gained important experience in the fight against terrorism.

This is the first time Türkiye has used UAVs and UCAVs in such operations and has caused great economic and defence damage to the Syrian regime. It is a most important information that it destroyed the air defence system, which is estimated at 15 million dollars.[41]

The success of Turkish UAVs and UCAVs in the fight against terrorism and in important operations such as the Spring Shield has been reflected in the world press. The U.S. magazine *Forbes* provides extensive coverage and describes the damage it caused.[42] In addition to this, the French *Liberation* newspaper and the independent symbol of the French Liberation headlined the success of the Sikhs in the operations carried out in northwestern Syria.

Libya

In 2019, Türkiye sent 10 TB2 UAVS to Libya, demonstrating their support for the current government. Considering the geographical location of Türkiye and Libya, it is known that they are not very close to each other, with a distance of 1,200 kilometres between them. This distance has created challenges for the utilisation of unmanned aerial vehicles (UAVs).[43]

UAVs were mostly used in the conflict with the Libyan National Army. This army was under the command of Khalifa Haftar. In this process, Unmanned Aerial Vehicles (UAVs) played a pivotal role, particularly in the capture of Vatiye Air Base, which was of significant importance. However, upon initial deployment, UAVs failed to achieve the anticipated success, and numerous challenges were encountered.[44]

The reason was determined to be the distance between Türkiye and Libya. In fact, according to some allegations, the Libyan National Army used Chinese-made Wing Loong UAVs and caused great damage by destroying Bayraktar TB2 UAVs. Thereupon, UAV pilots were sent to Türkiye and received training. (In addition, more UAVs were requested from Türkiye, but the manufacturer Baykar Makine identified the problem with the UAVs. In this process, the problem was determined as the movement limit caused by the communication range.

Typically, UAVs capable of sustained flight for up to 24 hours can operate at a speed of 130 km/hours. However, due to the limitation of their operation range, they are typically confined to an average area of 200 km. This caused them to fly at low range and become targets. On the other hand, the communication range of the Chinese Wing Loong II is 1,500 kilometres and it is known that it can fly at a speed of 370 km and remain airborne for approximately 20 hours.

In response to this challenge, Baykar Makine implemented a solution involving the incorporation of supplementary radio antennas within the UAV range. Furthermore,

41 Yeni Şafak 2020.
42 Eugene 2020.
43 Rossiter–Cannon 2022: 216.
44 Canlı 2020.

Turkish Armed Forces personnel trained pilots from Libya and provided training against attack and in general. This process has led to positive processes for UAVs. It has been demonstrated that the combination of UAVs results in a heightened degree of destruction and lethality.

By 2020, Türkiye had augmented its support for Operation Peace Storm. Point-shot operations were carried out using drones known as electronic warfare. This process inflicted significant damage on Haftar and his military, resulting in the destruction of military equipment and ammunition, including tanks, military vehicles and air defence systems.

In addition, the drones, working in coordination with Turkish warships, helped to capture numerous locations. Consequently, the attacks of Haftar and his army were stopped. Despite the fact that the process has been bumpy, the drones have shown great success and brought countries such as France and Russia, which support Haftar and his army, to the table for the solution of the process.[45]

Conclusion

Türkiye, which was in trouble with embargoes, started to develop rapidly in the defence industry. In particular, it has achieved success in a way that was never expected of it. It has taken its place in the world market. Türkiye, which has made a name for itself every day with both UAVs and UCAVs, has helped to strengthen its position in foreign policy by having its achievements mentioned in the magazines and newspapers of other countries. According to the Stockholm Peace Institute report, Türkiye has managed to enter the top 12 arms exporters.

In addition, a song was written about the success of the TB2 in the Ukraine–Russia war. It started to be remembered as a hero. Furthermore, Türkiye's development in UAVs has contributed to its cooperation with other countries and improved its prestige. It is estimated that more than 20 countries currently utilise Turkish UAVs. These UAVs, which are undergoing continuous development, have the potential to contribute to Türkiye's economic, military and diplomatic advancement.

Moreover, the implementation of UAVs across diverse geographical regions and national contexts confers upon Türkiye a wealth of experiential knowledge. Türkiye is capable of testing the weapons of war it produces, calculating the possibilities, determining strategies accordingly, finding alternative solutions to problems that may arise, and being ready for any possible situation long before it happens. This dynamic has contributed to the emergence of Türkiye as an independent great power.

[45] Rossiter–Cannon 2022: 212.

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