COMMENTARY

Transformation of the Turkish Defense Industry: The Story and Rationale of the Great Rise

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ABSTRACT *Tracing the evolution of the Turkish defense industry through five major periods of development, this article draws attention to crucial turning points such as the Cyprus crisis of 1974, the establishment of SAGEB in 1985, the ongoing fight against terrorism, the restructuring of the Turkish political system and the steadfast commitment of the AK Party governments under President Erdoğan to invest in Turkey's indigenous defense industry. Since the early 2000s, the Turkish defense industry has shifted from a procurement model largely dependent on foreign imports to a far more self-reliant model with a strong research and development foundation and a growing number of exports. Thanks to the commitment, determination and resilience of Turkey's engineers, technicians, workers and companies, the Turkish defense industry has transformed into a multi-billion-dollar industry characterized by technological depth and global effectiveness.*

Keywords: Presidency of Turkish Defense Industry (SSB), Turkish Armed Forces, NATO, security, defense

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Introduction

The Turkish defense industry has a strong historical background in essence. Within the framework of this background, the positions and policies to build and sustain a robust defense industry have always continued from past to present and preserved their existence, even though they were interrupted at times, even when they were pushed back visibly and even when they remained just a dream. Similarly, the history of the Turkish defense industry has witnessed myriads of breakthroughs, attempts and never-ending persistence at the individual level even if these efforts faltered in continuity at times.

Today, as of August 2020, the Turkish defense industry shines out as an extremely significant example in terms of the history of the Republic, the understanding of the concept of the defense industry and its relations with other fields, and of the future of the defense concept.

In this context, we will scrutinize the transformation of the Turkish defense industry in terms of its objective goals. The defense industry experience of emerging countries, such as Turkey, the process of presenting and demonstrating this experience through concrete projects and the political ethos represented by this process offer critical lessons for both leading countries on a global scale in this field and countries eager to rise in this field.

The first section of the article will present a brief summary of the historical background of the Turkish defense industry that we, as the Presidency of defense industry leans on and refers to in summarizing story of defense industry in Turkey.[1] The featured characteristics of the historical period of the Turkish defense industry until the establishment of the Defense Industry Development and Support Administration Office (*Savunma Sanayii Geliştirme ve Destekleme İdaresi Başkanlığı* - SAGEB) under the Ministry of National Defense in 1985, will be discussed in this section.

The second section analyzes the defense industry after 1985 in the context of the corporate transformation of the then Undersecretariat of the defense industry. The third and final section of the article will examine in detail the fundamental characteristics of the post-2017 period, i.e. the 5th period, the main factors of the transformation process, the current situation and future orientations. This section will include concrete data on the juncture at which the Turkish defense industry has arrived today.

The main argument advocated in this article is the necessity of addressing the recent rise of the Turkish defense industry in two different but interrelated periods. The first is the reflection in the Turkish defense industry of the great transformation in all dimensions since 2002, achieved under the leadership of the President of the Republic of Turkey, Recep Tayyip Erdoğan. Within this reflection, the infrastructure of procurement of needs, the transformation of the industry

and the formation of sound relations between technology and the defense industry in the field of defense have been built. Thus, opportunities have increased, capacity has expanded and the defense industry has been provided with the strong support of an extremely decisive and long-term projection.

The second period represents the transformation of the position and function of the Presidency of defense industry in bureaucratic mechanisms as well as government's expectations from the defense industry in addressing the needs of Turkish security forces and coping with threats and challenges to the security of Turkey. A universal and systematic process of transformation has been under way since 2014, in particular, and following the failed coup in 2016, the defense industry was first attached to the Turkish Presidency and then restructured as a 'Presidency of Defense Industry.' In this process, owing to the Presidential Government System, the Presidency of defense industries, as a structure, has come to the fore as one of the prime institutions at the core of the great transformation experienced in political, industrial and military-civilian policies, as well as defense strategy and defense technology in Turkey.

During this period, the defense industry recovered from being an isolated area, and transformed into one that acts in concert with global trends and, at the same time, concentrates on the national needs of our country. In the same period, the defense industry has managed to transform the concept of 'defense industry' into a full-fledged movement of industrial development and a national technology trend by cooperating across a broad spectrum with many other fields, from healthcare to energy and from youth to educational policies. As can be inferred from the data provided in detail in the following sections, the point we have reached as of 2020 is a concrete indication of this breakthrough.

The defense industry has been acknowledged as an essential part of the Republic's full-fledged movement toward industrialization and development

Historical Context and Background

Setting aside the previous histories, in the transition to the modern era, the experience gained in the Republic period mainly dates back to the rise of the Ottoman Empire. The key tools and materials of war were almost completely manufactured by using local resources; *Tophane-i Hümayûn* [the Imperial Cannon Foundry] formed the core of the Empire's defense industry and reached a capacity of molding 1,060 cannons and producing 360 kg of gunpowder

The airplane factory established by the Turkish Aviation Association in Ankara, in 1941, is considered the first major initiative of the Turkish aviation industry

per month. The Empire's capacity for manufacturing warships and the level of technology were far beyond those of the European countries. Rebuilding a naval fleet of 200 ships from scratch in a five-month period, following its total destruction in the Battle of Leponto, reveals the extent of the manufacturing capacity of the Ottoman shipyards. Undoubtedly, examples from the Ottoman experience in terms of land, air and sea are too rich and numerous to be contained within the scope of this article. Here, we will mainly focus on the experience of the Republic period, and address the main transformation points after 1985.

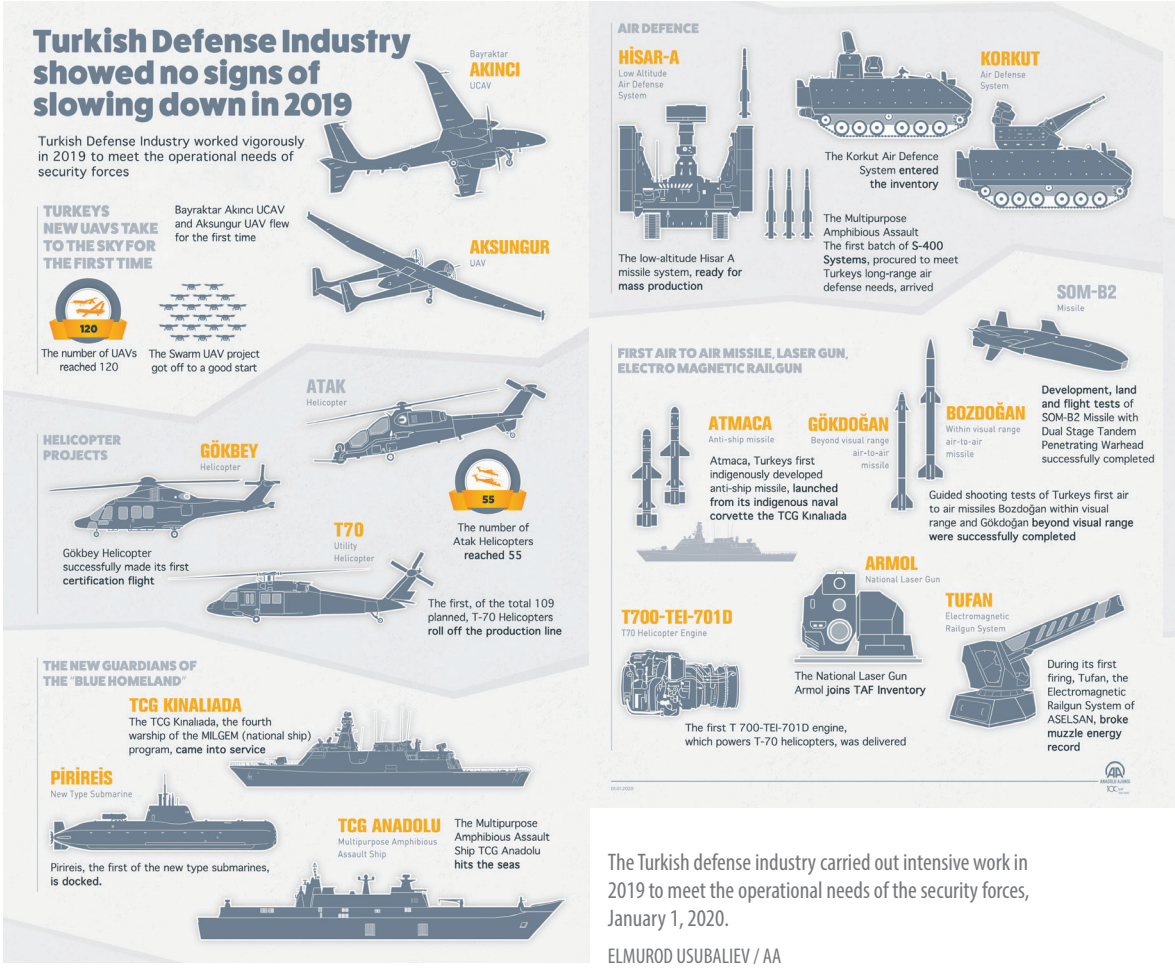
The history of the defense industry during the Republican period may be categorized in different ways. Our institutional approach is to divide the period that stretches from 1923 to the establishment of SAGEB in 1985 into three main historical blocks, where SAGEB represents the first corporate structure of the Presidency of defense industries under the Turkish Presidency. The periods before and after 1985 will be briefly explained in the same fashion, albeit with certain differences regarding categorization of historical blocs.[2]

The 1st Period: 1923-1939

Throughout the decline and then following the fall of the Ottoman Empire, the Turkish Defense Industry struggled to keep up with technological developments in Europe since the 18th century and lost its effectiveness and productivity to a great extent during World War I. For this reason, no significant infrastructure in this domain was inherited at the onset of the Republic period, and activities remained limited to a couple of manufacturing facilities during and after the War of Independence.

Nevertheless, the defense industry has been acknowledged as an essential part of the Republic's full-fledged movement toward industrialization and development. In this direction, state support for the development of the defense industry was projected in the first planning period. Despite economic and technological difficulties, investments to set the basis of the national defense industry were made in the early years of the Republic. Significant initiatives were embarked upon in the weaponry-ammunition and aviation sectors such as the establishment of the General Directorate of Military Factories in 1921, in particular.

In 1924, small weapons and cannon repair shops and cartridge factories were established in Ankara. In the same year, the *Gölcük* Naval Shipyard was set up for the maintenance of the *Yavuz* battle cruiser. With



The Turkish defense industry carried out intensive work in 2019 to meet the operational needs of the security forces, January 1, 2020.

ELMUROD USUBALIEV / AA

completely domestic investments, the foundations of Turkey's first and largest private sector defense industry factory were laid down in 1925 by Şakir Zümre in Haliç, İstanbul. The activities of the Turkish aviation industry were initiated through the establishment of *Tayyare ve Motor Türk A.Ş.* (Airplane and Motor Türk Co., or TamTAŞ) in 1926. In the 1930s, the *Nuri Killigil* pistol, mortar and ammunition production facilities in İstanbul were some of the first private firms producing weapons for the defense industry.

Symbolically, the first period of the history of the Turkish defense industry is believed to be ended in 1950 or in the context of years (official application made in 1950 and then becoming member on February 18, 1952) that Turkey became a member of NATO. Many different factors played a role in this, including the weakening of economic opportuni-

ties required to sustain investments and initiatives for the defense industry, and the concentration on domestic political consolidation with changing political priorities. But in fact, it may be assumed that Turkey entered the second period in the first half of the 1930s as far as the priority and importance given to the defense industry and the numbers and features of investments made in this domain are concerned. Still, at this point, 1939, the beginning of World War I, may be presumed as a real historical turning point. That will also provide us an opportunity to analyze the picture more reasonably.

Nuri Demirağ had attempted to set up an aircraft facility in 1936; the production of 24 NUD-36 training planes in 1940 and six NUD-38 passenger planes were outstanding successes of the period. The airplane factory established by the Turkish Aviation Association (*Türk Hava Kurumu* - THK) in Ankara, in 1941, is considered the first major initiative of the Turkish aviation industry. The factory started production in 1944, and produced scores of training aircraft, cargo planes and gliders. The first aircraft engine factory was set up in Ankara, in 1945.

Despite the initiatives to establish a national defense industry, the increase in foreign military aids concurrent with the outbreak of World War II, including donations and aid provided by the UK and the U.S. and Turkey's entry into NATO stalled the development of its newly emerging defense industry significantly. In this period, political preferences coming into play as part of Turkey's financial situation, security politics and threat analyses prevailed.

During the period of 1941-1944, the U.S. provided Turkey with combat materials worth $95 million within the frame of the Lend and Lease Law; in addition, the Military Aid Agreement signed between Turkey and the U.S. in 1945 pledged U.S. military aid to be provided during World War II. In the post-war period, as part of the Truman Doctrine and the Marshall Plan, U.S. aid furnished the Turkish military with modern weaponry; this increased Turkey's defense power and aimed to alleviate the negative impact of military expenditures on the country's economy.

The aid provided to Turkey greatly contributed to the deterrence power of the Turkish Armed Forces (TAF). However, ₺400 million allocated from the budget annually for the maintenance of these materials, although no money was paid for them to the U.S., affected the Turkish economy negatively.

The 2nd Period: 1939-1974

In this period, foreign aid and foreign procurement policy emerged as a preferred model in the Turkish defense industry within the framework of the country's financial situation, political balances and threat analyses.

Following the start of World War II, the donation of defense equipment surplus by the allied countries prevented the domestic manufacturing

of defense products; after World War II, efforts to develop the defense industry slowed down with the effect of increasing foreign aid. Due to the decrease in the domestic orders of the TAF, military factories lost their productivity and became a burden on the national budget.

For all these reasons, the military factories were transferred to the General Directorate of the Machinery and Chemical Industry Corporation (*Makina ve Kimya Endüstrisi Kurumu* - MKEK), which was established in 1950 as a state-owned enterprise. The THK-produced THK-5A small cargo aircraft and export of the ambulance version of the aircraft to Denmark was transferred to MKEK, and the factory was converted to a textile factory in 1968.

Alongside the indirect negative impact of military aid on the development of indigenous defense industry, a provision of the military aid agreement stated that the materials provided as part of the military aid 'cannot be used beyond their intended purpose' and this provision set great obstacles in the path of Turkey's efforts to protect its national interests.

Efforts to develop the weapons, means and tools needed by the TAF were reinforced on the agenda with the establishment of the research and development department in 1954 under the Ministry of National Defense. The 2nd Five-Year Development Plan (1968-1972) emphasized, under the heading of "other expenditures," the rapidly increasing national defense expenditures, and brought national defense infrastructure investments to the agenda for the first time.

It should be taken into account that the historical transformation after 1985 corresponds to a rich process with ups and downs that cannot be compacted into a single period

Efforts to develop the defense industry increased again with the establishment of the Department of Technical Services under the Ministry of National Defense in 1970. The same emphasis and themes were included in the 3rd Five-Year Development Plan (1973-1977). This plan, for the first time, systematically stressed the importance of industrialization in the field of national defense and stated that a systematic connection would be established between providing, in sufficient measure, the tools and equipment required by the national defense services and national industrialization efforts.

The 3rd Period: 1974-1985

During the Cyprus crisis in 1974, the need to use defense equipment acquired from Turkey's allies arose. However, the obstacles set by the U.S. and some of the other allies clearly revealed the drawbacks of absolute dependence on other countries in meeting defense needs.

In the 1980s 'meeting the needs of the TAF' naturally became the main determinant and defense industry products were not offered to foreign markets and had not turned into an effective instrument in foreign policy

The situation set the basis for determining policies necessary for the formation of an infrastructure for a modern defense industry in Turkey. Initial steps were taken in this direction via licensed production. The production of G-3 and G-4 rifles by MKEK, with licenses purchased from Germany, is a concrete example of this policy.

The foremost result of this period was the rise of national public consciousness about the need for indigenous and national defense systems as a result of the Cyprus Peace Operation. Such awareness helped Turkey take rapid steps, and state institutions responded to calls in this direction positively. The actual steps taken after 1970 have been the subject of many discussions in terms of capacity, resources and abilities; however, they are extremely valuable initiatives and have historic importance.

Both the national awareness that arose in this period and the national reaction to the arms embargo imposed against Turkey because of the Cyprus Peace Operation grew stronger with the establishment of Air, Naval and Land Forces Foundations in 1970, 1972, and 1974, respectively. Among the priority areas, defense enterprises such as Turkish Aerospace (TUSAŞ-1973), ASELSAN (1975), later on ASPİLSAN (1981) and HAVELSAN (1982) were established with state funds. It should be noted that there was a certain degree of continuity in the steps taken in the context of institutional structures, and that new corporate structures, companies and joint ventures came to the fore from time to time in areas where needs were recognized.

In this direction, the General Directorate of Defense Equipment Enterprises was established in 1983. The Directorate was a state-owned legal entity autonomous in its activities and its objectives were to meet all the needs of and fully equip the TAF by producing and rapidly modernizing all kinds of ammunition, combat weapons and tools, equipment, machinery, devices and systems, spare parts, raw materials, pharmaceuticals and pharmaceutical raw materials necessary for production, maintenance and repair; and to perform and supply major renovation works.

Despite these developments, however, it was understood that the available resources and supply policies would not be sufficient to close the TAF's defense equipment deficit, which had been accumulating and growing since the 1950s. The 5th Five-Year Development Plan (1985-1989)

highlighted that this need must be met, and underlined the focus on investments for the development of the defense industry.

The 4th Period: Post-1985 Era

The year 1985 corresponds to a turning point and the beginning of a new era for the Turkish defense industry. In between the heavy burden of the recent past, the longing for the days when the nation had a strong domestic and national industry, and the demands and political preferences for the establishment of a strong industrial infrastructure that includes defense, SAGEB was established in 1985, under Law No. 3238, for the development of the defense industry and the modernization of the TAF.

From the mid-1970s until 1985, the fulfillment of the needs of the defense industry, including its supply needs, the modernization and reorganization of the TAF, and the coordination of the General Staff and Force Commands with relevant public institutions to this end were carried out under the responsibility of the Department of Technical Services, Research and Development in the Ministry of National Defense. Thus, in 1985, a major transformation occurred with the establishment of SAGEB.

The main pathways, committees and councils that determine the entire course of the industry such as the Defense Industry Executive Committee, the Defense Industry High Coordination Council, the Defense Industry Support Fund and the use of a flexible budget were established in the founding law of SAGEB. This structure aims at the development of a modern defense industry and the modernization of the TAF, and constitutes the core organization of current Turkish Presidency of Defense Industries. Its institutional position was first transformed into an undersecretariat in 1989 and then to a presidency in 2018.

SAGEB and the SSM (the Undersecretariat for Defense Industry) subsequently witnessed many stages in the context of their internal historical process. In a way, the history of SAGEB and then SSM may be considered the history of the Turkish defense industry after 1980. In this context, it should be taken into account that the historical transformation after 1985 corresponds to a rich process with ups and downs that cannot be compacted into a single period.

In this respect, in order to understand the transformation of the sector, it is important to divide the story after 1985 into two main periods: 1985-2017 and 2017 onward. Directly affiliating the Presidency of Defense Industries with the Turkish Presidency necessitates its being categorized as a separate and new period in the Turkish defense industry by considering many different factors, including the structural interventions after the failed coup on July 15, 2016 and the events of this period, the central role given to the defense industry in the Development Plan of 2014, the projects on the Presidency's agenda, the Presidency's relations with the industry and different fields such as

The domestically produced T-129 *ATAK* helicopter, which took part in the "Olive Branch Operation" of the Turkish Armed Forces (TSK), in Kilis, March 11, 2018.
RAUF MALTAŞ / AA

human resources, the Presidency's focus areas and the initiated new projects.

It should be noted that SAGEB, as the core organization of The Presidency of Defense Industries (*Savunma Sanayii Başkanlığı* – SSB), was established in 1985 under the Ministry of National Defense, but was restructured as the Undersecretariat of the Defense Industry (SSM) in 1989. In the framework of the founding Law No: 3238, SAGEB shall undertake in Turkey the production, as much and as economically as possible, of any kinds of weapons, means and tools needed by the TAF.

Law No. 3238 is a critical turning point in terms of introducing a completely new understanding of the defense industry, as well as an extremely flexible and fast operating system. Within the framework of this policy, the aim is to glean the utmost benefit from the infrastructure of the domestic industry, direct and encourage new advanced technology investments, encourage foreign capital contributions, promote research and development activities, and thus to produce all necessary weapons, vehicles and supplies in Turkey as much as possible.

This policy envisages the formation of a national defense industrial infrastructure and the establishment of a defense industry that is open to the private sector, considers export potential, easily adapts to new technologies, allows balanced cooperation, aims to gain self-renewal capability with technological developments, and rescues Turkey from continuously being a buyer country seeking products from other countries, es-

pecially NATO countries. In this period, a relatively clearer road map was drawn for the defense industry with the Turkish defense industry Policy and Strategy Principles document in 1988, which was put into effect closer to the 2000s.

Themes such as the emphasis on exports and international competition, adaptation to new technologies, making the most of existing opportunities, and producing for civilian purposes began to be stressed more strongly. In terms of the history of the Turkish defense industry, Law No. 3238 and the Policy Document enabled, especially between 1990 and 2000, the approach of procurement to be changed from ready purchase to joint production.

In this period, projects such as the Armored Combat Vehicle, Small Cargo Aircraft, Beginner Trainer Aircraft, and Cougar Helicopter came to the fore. After 2000, there was a tendency toward a partial design approach in main platforms. Obviously, the steps taken during these periods are important and valuable. In spite of the critical steps taken, however, the change made in the work flow of projects, and the private companies or official institutional structures that were gradually established, the framework promised by documents, laws, etc. remained only requests, desired targets and mechanism recommendations, particularly until the mid-2000s. The achievement of an overall, substantial and comprehensive structural transformation failed due to different factors such as Turkey's financial situation, political preferences and defense industry policies.

Even if the formation of a domestic and national defense industry had always been emphasized, the insistence of then Prime Minister Erdoğan made it possible to take concrete steps in this direction and to carry out the process on strategic ground despite all odds

The memory of the embargo that had remained alive and strong since the mid-1970s led to a breakthrough in the defense industry in the 1980s. In this period, 'meeting the needs of the TAF' naturally became the main determinant and defense industry products were not offered to foreign markets and had not turned into an effective instrument in foreign policy. The great contraction in domestic purchases with the economic crisis in 2001 induced an inclination toward foreign markets, but again, this effort did not turn into a full-blown act.

In this period, the most critical intervention in terms of the transformation of the defense industry was the set of decisions taken at the Defense Industry Executive Committee (SSİK) meeting in May 2004. It was

The post-1985 period that we categorize as the 4th period positively contributed to the development of a unique defense industry culture within Turkey's defense industry structure

chaired by then Prime Minister Recep Tayyip Erdoğan and attended by the Minister of National Defense Vecdi Gönül. The meeting ended with the following decisions: the cancellation of 'unmanned aerial vehicles, attack tactical reconnaissance helicopter and modern tank' projects, the formation of new procurement models based on 'maximum use of national resources and domestic production and original design,' in meeting the needs of the TAF and transition from a threat-based procurement model to a talent-based procurement model. Owing to this determination, Turkey accomplished MİLGEM (the national warship program) and launched new national initiatives such as *ATAK* (the national attack helicopter project) and *Altay* (the national battle tank project).

Even if the formation of a domestic and national defense industry had always been emphasized, the insistence of Prime Minister Erdoğan made it possible to take concrete steps in this direction and to carry out the process on strategic ground despite all odds. In the same period, Turkey took important steps to gain the support of all segments of the public for foreign sales. As for defense system supplies, main domestic contractors were delegated. Feasibility studies were conducted to determine the feasibility of the projects in terms of performance, time and resources in advance, prevent the waste of time and resources, eliminate risks stemming from inability to meet the needs and make a feasible budget.

In the 9th Development Plan (2007-2013) published in 2006, in order to meet the needs of the defense industry in a secure and stable manner through national means, the main objectives were been identified as: developing production within a structure that is competitive, self-sufficient, flexible and integrated with the country's industry; actively participating in international cooperation activities in the areas of joint production, design and research and development; and, to that end, establishing the necessary infrastructure and gaining technological and managerial know-how. Similar themes are referred elsewhere such as The Defense Industry Select Commission Report (2007-2013) stated the main sectoral vision as "Addressing national defense and security needs by developing effective domestic solutions and achieving a defense industry infrastructure that possesses international competitiveness."

In this period, emphasis was placed on the transformation of the supply system, the support of defense industry exports and the development of

defense industry cooperation efforts. The same emphasis may be seen in the Strategy Plans of the period.

In the direction of its mission to systematically meet the needs of the TAF and public institutions, to determine and implement strategy and methods for the development of the defense industry, the Presidency aimed to become an expert supply institution providing unique domestic technological solutions to meet the strategic defense and security needs of the country and guide a competitive defense industry that is integrated with the international market. In the period between 2007 and 2012 in particular, the transformation of the country's economy in terms of both a comprehensive foreign policy vision and practices and finance, and the industrial development initiatives were all substantially reflected in the defense industry as well.

Turkey's socioeconomic transformation between 2002-2012 was directly reflected in the main trends in the defense industry; unique design programs were initiated for the purpose of producing critical technologies and optimizing design capabilities to the fullest extent possible under the responsibility of the main contractors in the country. In this period and within this framework, the Strategic Plans consistently emphasized the mission to make Turkey superior in defense and security technologies and to direct industrialization, technology and supply programs that would sustain the development of Turkey's defense and security capabilities. In this direction, the Presidency aimed to lower Turkey's dependency on overseas sellers by putting these programs into effect. These programs were intended to gain experience in defense and security technologies, develop indigenous platforms and systems to bring about technological superiority and prepare the TAF for the combat environment of the future.

The post-1985 period that we categorize as the 4th period positively contributed to the development of a unique defense industry culture within Turkey's defense industry structure, the transformation of supply models, budget-use flexibility, project processes, the management of workflow and the formation of an autonomous and expert institution. In this period, projects in many areas and under many different headings were launched; although a few of them failed, the overall effect was a successful performance for a country at Turkey's level.

Indeed, myriads of turning points and successes in the defense industry in this period came to the fore as a reflection of an overall change and transformation in Turkey. A powerful dynamism throughout the sector stands out compared to previous periods due to an institutional structure directly responsible for defense supply (a tradition continuing since 1985), flexibility in budget-use and the strong political support provided by the Erdoğan governments. In the framework of this dynamism, domestic development models such as

joint production, production under license and production-based engineering and design gradually came forward to replace foreign acquisitions and ready-made procurements as the dominant supply model. These changes established a prolific ground for the infrastructure of a robust defense industry.

The 5th Period: 2017 and Beyond

The Presidency of defense industries under the Turkish Presidency today was set on the road as SAGEB in 1985 and restructured as an Undersecretariat under the Ministry of National Defense in 1989. From 1989 to 2017, the Undersecretariat of the Defense Industry (SSM) performed activities under the Ministry, but it was affiliated with the Presidency of the Republic in December 2017 and then renamed the Presidency of Defense Industries (SSB) ratified by Executive Order No. 696, titled "The Executive Order on Making Some Regulations under the State of Emergency."

This procedural change is extremely critical in terms of the direct affiliation of the decision-making mechanism of the structure to the top executive office of the country. This corresponds to a first-ever procedural implementation in the history of the SSM in terms of showing the importance given to the defense industry in decision-making processes.

The process of direct affiliation with the decision mechanism is relevant to the point that the defense industry has reached, as well as its desired objectives, the policies and the transformation of the defense industry, changes in the methods used in the fight against threat factors and changes in Turkey's government model.

As mentioned above, the embargo trauma that negatively affected the Turkish defense industry and its concrete consequences led to the establishment of a self-sufficient defense industry. In this context, rapidly launching initiatives, setting up procedural infrastructure, forming an autonomous institution of supply expertise and gradually establishing foundational companies came to the fore in the following years. As of the late 1990s until the mid-2010s, themes including strategic plans, declared objectives, sectoral policy analyses, the emphasis on a self-reliant defense industry and on the importance of exports defined in the reports of the SSB, SASAD, SSI, etc., were frequently visited. Concrete steps taken at this point and internal achievements helped the sector reach a certain point by the mid-2010s. In the following period, the Turkish defense industry gained momentum in many areas, faced its existing deficiencies and problems and solved them and followed a unique trend of gaining strength, rising and expanding.

In this period, two critical events and processes enabled the defense industry to move to a quite different point in the Turkish economy, defense policy, the Turkish bureaucracy and the Turkish defense industry. The first development was the comprehen-

sive transformation of the concept of counter-terrorism, which came to the agenda as an important topic in defense policies and procurement processes, especially since the mid-1980s. The second was the coup attempt on July 15, 2016, which directly affected all dynamics in Turkish politics, as well as the structures of the TAF and the Turkish bureaucracy.

Another issue that needs to be discussed within the same framework is the method of fighting against threat of terrorism. Although there have been several cross-border operations since the late 1980's, the manner of conducting anti-terrorism operations was substantially domestic. Since 2016, however, these operations transformed from being predominantly domestic one to operations abroad—particularly in Syria and Iraq.

As of August 2016, three major operations have been carried out against terrorist organizations such as ISIS and the PKK/PYD in Syria. The model of operations changed into a model that included direct fortifications on the ground and evolved into a comprehensive policy of precaution and intervention in the field. This situation, apart from the political dimensions of these processes, essentially reflected the transformation of defense policies, Turkey's rising self-confidence in the defense industry (such as the capacity of not to be affected by a possible embargo at a structural level), increase in the opportunities and capabilities of the defense industry and the further strengthening of the SSM's place in bureaucratic mechanisms.

The protection of civilians and soldiers in the fight against terrorism, ISIS and PKK in particular, and increasing the impact of terrorist operations have been very effective in raising awareness to strengthen the domestic and national defense industry

The desired goals for the defense industry were expressed even more sharply than before in the 10th Development Plan (2014-2018). The Plan calls for a competitive structure for the defense industry; it states that Turkey's defense system and logistics need to be met in an integrated and sustainable way by the country's domestic industry based on indigenous design, civilian use of appropriate technologies, increase in the domestic ratio and the share allocated for Research and Development as well as supporting networks and cluster structures in specific areas of the defense industry.

The changing political context, the priority given to the defense industry, the increase in the opportunities and capabilities, and the increase in the number of projects, especially after 2015, enabled the SSM to set sharper

In terms of quality, the concept of technological depth and global effectiveness, a concept that encompasses interactions not just at the institutional and sectoral levels, but also in a wider area, has been adopted

and larger targets in the 2017-2021 Strategic Plan.

The Strategic Plan identifies the objectives and targets of the SSM to 'manage by providing an integral approach to ensure the sustainability of the defense industry by developing the capabilities of our country to increase its power in defense and security areas' in order to make 'Turkey a global player in the defense and security domain with indigenous design and advanced technology capabilities.'

The special emphasis on a holistic approach stands as a summary of the more comprehensive conceptual positioning of the defense industry both in the sector and outside the sector by going one step beyond being a traditional 'mere military procurement entity' while maintaining its characteristic as an institution of expertise.

As the next section explores in detail, this period corresponds to a new era on the structural level in its all sub-headings, including bureaucratic mechanisms, the number of projects and targets, its place in industrial policies, number of employees, sector size, export capacity, integrated defense vision or relationship with non-military sectors and technology concept. Hence, the new period, in this framework must be described as the fifth period in the history of the Turkish defense industry. At this point, focusing on the background and the political-historical context that gave rise to the fifth period is important for understanding this period.

Background and Features of the 5th Period

As has been stated, along with the embargoes we were subjected to during the Cyprus Peace Operation in 1974, the strategic value and importance of the defense industry has been an issue frequently mentioned, especially since that date. The numerous steps taken, regulations made, and support given to the defense industry have been meaningful and have yielded fruits mainly in this context before the 2000s.

Later, in the same framework, the protection of civilians and soldiers in the fight against terrorism, ISIS and PKK in particular, and increasing the impact of terrorist operations has been another important factor. Such elements and problems have been very effective in raising awareness to strengthen the domestic and national defense industry. However, it took time to bring this awareness from a defensive perspective to a stra-

Tanks and armored vehicles of the Turkish and Azerbaijani Army take part in joint military exercises in Baku, Azerbaijan on August 1, 2020.

TURKISH DEFENSE MINISTRY / HANDOUT / AA

tegic ground despite all its contributions and steps taken, before 2000 in particular.

The first founding moves in the effort to create the strategic ground was the decisions taken at the Defense Industry Executive Committee meeting in May 2004, as summarized in the previous section. The background of the movement of domestic-national defense industry has gained a strong and strategic framework with preference for new supply models and their central function in meeting the needs of the TAF.

The second turning point can be contextualized in the framework of several developments such as the military operations held in Syria after the failed coup attempt in Turkey, the military-political and economic aspects of these operations in terms of defense industry and the developments in the Mediterranean. Although each and every one of these themes refers to a broad spectrum with its historic and political dynamics, from the view of defense industry, it points out a clear need to enhance Turkish defense industry, and to lay the ground for a closer relationship between Turkish foreign policy, the defense industry and military needs.

Without having a national and indigenous, robust and active infrastructure for the defense industry and a product portfolio, Turkey will face difficulty to protect its interests, be quite affected by embargoes and narrow its maneuverability. Precisely for this reason, even if there is no direct relationship with these developments, threat dynamics and elements to which Turkey is exposed in the region, especially from 2014 onwards,

necessitated a thorough transformation in the defense industry. The periods the historical details of which are given above have emerged exactly in this context.

The domestic and national defense industry has been seen as a strategic and indispensable need and obligation, all necessary supports have been given, investments have been made, projects have been accelerated; as a result, the industry has actively taken the ground in case of a threat. At this point, we may say that the development of the defense industry in Turkey is, before else, regarded as an imperative strategic domain to protect Turkey's interest in our region. Even if the defense industry investments and products have a direct impact on the economy and an increasing influence, the main priority is to create the capacity to protect Turkey's interests, remove threats, and that is a strategic priority. This is exactly the situation that President Erdoğan describes as "taking the matter into our own hands" if no action is taken despite all diplomatic efforts.

At this point, another dynamic that affects the defense industry and the investments is, without doubt, international alliances we are a member of. NATO stands out as a primary example here. Turkey has always given importance and valued the NATO Alliance as a strategic preference and a military positioning. While Turkey makes a tremendous contribution to NATO, NATO also contributes to the determination of military standards, supply processes and the formation of an institutional tradition. Similarly, cooperation and exchange of experience in the field of defense are of paramount importance for the Turkish defense industry. In this respect, we, as the Turkish defense industry, obviously see NATO-Turkey relations as a strategic value with critical importance.

However, it is a fact that our defense industry was considerably handicapped due to our membership in NATO until the period of awareness in 1974, in particular, as far as the domestic and indigenous characteristics of the defense industry are concerned. To position the domestic and national defense industry as a strategic imperative, in this context, is a subject that cannot be ignored.

On the other hand, in the broad dynamic and complex spectrum of incidents in its region, particularly in Syria and Iraq, Turkey faces threats. NATO, for many reasons, has declined to provide active support to Turkey to eliminate the threats or directly contribute to its security. Lack of support and the absence of concrete support against threats has thus come into view as a critical factor.

Through this angle, developing a robust, indigenous and national defense industry for Turkey indispensably serves to respond to security issues and meet Turkey's needs. The use of largely domestic and national weapons, ammunitions, etc. in Operations Euphrates Shield, Olive Branch, and Peace Spring prevented the operations from being negatively

affected by an embargo, proved our defense industry's level of success and enabled Turkey to have a defense industry with proven experience on the ground.

By the same token, the other noteworthy matter, the details of which are given above, is Turkey's undertaking of a comprehensive bureaucratic and industrial transformation process after thwarting the July 15 coup attempt in 2016, as well as the institution's change of position within the Turkish bureaucratic structure by being directly affiliated with the Turkish Presidency in 2017. Thanks to this, a direct contact with the decision-making mechanism provided serious relief in terms of both the rapid implementation of the decisions made and the political support.

Overall, after the first four periods of Turkish defense industry, transformation in the defense policies, changes in the procurement policies, transformation of Turkish bureaucracy, new dynamics in the foreign policy of Turkey, restructuring of Presidency of Turkish defense industry and alongside these transformations, new forms of relationship built by the SSB with different sectors such as health, energy, and communication, the changing quality and quantity of defense projects and several others features lay the ground for a new period in Turkey for defense industry. These processes *en masse* mark the beginning of a new period in the Turkish defense industry and brought about a period that can be categorized as the Rise of Turkish defense industry, as may be seen through the data presented in the next section.

Turkey's defense projects were carried out in 2002 with a budget of approximately $5.5 billion. Today, as of 2020 the project volume reached $60 billion with an increase of approximately 11 times. Considering the projects still in the bidding process, it is predicted that a figure of over $75 billion will soon be reached

Characteristics of the 5th Period

In terms of institutional positioning, the Undersecretariat of Defense Industry that was directly affiliated with the President of Turkey in 2017 has undergone another change in 2018. With Decree Law No. 703 on "Amending Certain Laws and Decree Laws for Compliance with the Constitutional Amendments" dated July 9, 2018, the Undersecretariat was restructured as the Presidency of Defense Industry. Its establishment, duties, powers and responsibilities were arranged and updated with Decree Law No. 7, titled "Presidential Decree on the Presidency of Defense Industry" dated July 15, 2018.

These efforts, which we have only summarized, have transformed both the SSB and the defense industry eco-system in accordance with the principle of "global effectiveness and technological depth" that comprises the 5th period

Changes in the qualifications that determine the scope, content and framework of the activities of the Presidency also mark a change in the founding theme that confirmed Turkey's entry into a new era. Both in the sector in general and in the Undersecretariat in particular, the founding themes of the activities of the previous periods were confined to ready-made purchasing, joint production, the domestic development model (production under license, engineering and design-based production); in the new era, the concept of technological depth and global effectiveness has become the founding theme.

The emergence of new founding theme is confirmed by the defense industry Summit held December 12-13, 2018 and hosted by President Erdoğan. The main theme was technological depth and global effectiveness in the framework of "Global Power Turkey." The 2018 summit represents a critical turning point as it hosted many figures of the public and of the defense industry sector, which is a relatively isolated area of specialty. The summit brought together different segments of the defense industry for two days. With steering figures from the Land, Air, Navy, Cyber, and, Space sectors in attendance, speeches on financing, human resources, renovation, and technology-innovation-production are a critical indicator of the concentration points of the sector. On the first day of the summit, over 2,000 people, 200 of them foreigners, attended the meetings and more than 500 institutions and organizations followed the Summit. The summit focused on youth on the second day and set a significant example in terms of representation. Over 2,000 students from more than 100 universities participated in the summit. This represents the efforts of the sector to leave Turkey's period of isolation period behind.

The theme of technological depth and global effectiveness is, to an extent, related to the transformation of the positioning of the Presidency of defense industry. Thanks to this transformation, the Presidency, beyond being an autonomous procurement institution, has turned into a coordinator and guardian institution of defense industry and industry in general at the structural level. The institution has been granted a central function and role in the context of both the defense industry sector and the general transformation of the country.

In addition to functions such as determining the nature of needs in the

field of defense in a wider framework and identifying and addressing new areas of need instead of being solely a military and isolated procurement agency, the coordinator or guardian institution feature, which we describe as the new central function, points to more than one role: executive, regulator/standard-setter, standard-implementer, educator, awareness-raiser, etc. In general terms, the features that determine the status of the institution can be summarized as the main carrier institution/executive-director process manager in all relevant dimensions.

In terms of quality, the concept of technological depth and global effectiveness, a concept that encompasses interactions not just at the institutional and sectoral levels, but also in a wider area, has been adopted. This concept expresses a perspective that includes the institutional experiences of the SSB, its affiliates and stakeholders, all components of the defense industry sector, all relevant ministries and institutions, universities, the media, the general public, the youth population and the external sphere (stakeholders, customers etc.).

In terms of the positioning of the institution, the new theme means moving away from being an isolated island. This theme preaches rise and expansion of technology, a directive that is compatible with the general state of the country in terms of the need for 'indigenous defense industry.' For the very same reason, this period can be described as the fifth period as far as its structural features are concerned; the 'great rise of the Turkish defense industry' corresponds to this period.

Turkey's Technological Depth and Global Effectiveness: Facts at a Glance

- The $1 billion of defense and aviation turnover of 2002 has reached $11 billion per year as of the time of this writing.
- Defense and aviation exports that were only $248 million in 2002, exceeded $3 billion in 2019.
- Over the same period, the number of Turkish defense companies has increased from 56 to 1,500 today. The total number of personnel working in the sector has reached approximately 75,000.
- While only 66 defense projects were carried out in 2002, today the number of projects has increased more than 10 times and approaches 700.
- Approximately 350 new projects were initiated between 2015 and 2020.
- Turkey's defense projects were carried out in 2002 with a budget of approximately $5.5 billion. Today, as of 2020 the project volume reached $60 billion with an increase of approximately 11 times. Considering the projects still in the bidding process, it is predicted that a figure of over $75 billion will soon be reached.
- In the same period, such strong support was provided to research and development that it has become an autonomous field on its own. In 2002, research and development expenditure was nearly $50 million,

which was next to nothing, and as of today it has reached approximately $1.5 billion.

- Seven Turkish firms are currently on the list of the world's largest defense companies, up from only two firms four years ago.
- Export-oriented approaches have grown stronger in this period and targets began to be clarified in terms of both exports and general trends of the sector. These goals include:
  - Increasing comprehensive coordination initiatives to achieve the desired levels of exports;
  - Increasing product variety;
  - Accelerating the production of country-specific solutions;
  - Expanding the defense eco-system in order to reach sufficient production capacity to respond to external demands;
  - Increasing the export of value-added subsystems and components in addition to the platform exports that are subject to state-to-state sales;
  - Setting tangible bars/levels such as increasing Turkey's export target to $10.2 billion for 2023, raising 10 Turkish companies to the top 100 list and reaching an export target of $50 billion with a fully independent defense industry in the long term.

In the last five years, several programs that transform and deepen the scope of the defense industry have been initiated to change the nature of the relationship between the defense sector and the Presidency. Rather than limiting defense with military field; technology-oriented, industry-based, human resources and long-time oriented approaches that require collaboration with more than one field has been taken. These programs and initiatives are summarized below:

- *YETEN (Talent Inventory):* A program in which the human resources, inventory, product line and infrastructure of existing companies, institutions and organizations in the sector are gathered in a single center; all kinds of analysis and evaluation can be made and automation in decision-support systems can be achieved.
- *EYDEP (Industrial Competence Assessment and Support Program):* The program evaluates firms according to certain criteria, tallies the inventory and examines the industrial competence of the entire sector. EYDEP and YETEN foresee providing guiding support to companies as needed after their evaluations. EYDEP and YETEN stand out together as important initiatives that allow the presentation of both the current situation and the possible future projection of the entire sector on a data basis.
- *Visionary Youth:* Aims to increase defense awareness and defense literacy. Visionary Youth seeks to attract the attention of young people to the defense sector and organize direct face-to-face meetings with youth. The program intends to develop joint programs in cooperation with think tanks and universities on defense literacy programs.
- *Defense Industry Academy:* The Academy aims to evaluate the existing academic opportunities in all

fields directly or indirectly related to the defense industry, determine training needs and organize training programs.
- In-house training, sectoral training, collaborations with vocational high schools, collaborations with universities, supporting Master's and Doctorate programs.
- Developing specific projects for main areas such as Health, Energy, Transportation.
- Extending given boundaries of the sector, and deepening specialization in focus studies such as the formation of *Cyber Security Clusters*.

Overall, when we consider all of the aforementioned topics and phases, the critical factors in the rise of the Turkish defense industry may be summarized under six headings:

- The leadership factor, crystallizing in the political leadership of President Erdoğan;
- A comprehensive holistic approach, in which working with many fields including health, communication and education rather than a logic of procurement limited to the military field is essential;
- A research and development-oriented procurement model whose vision extends beyond urgent needs;
- An organic approach that establishes defense procurement through close contact with the industrial field;
- A technology-oriented perspective based on technological production;

The perseverance and determination, against all odds, of our engineers, technicians, companies, human resources and of our nation itself, whom I call the devoted souls bejeweled with national consciousness

- Sectoral leadership achieved through being at the center of bureaucratic mechanisms.

These efforts, which we have only summarized, have transformed both the SSB and the defense industry eco-system in accordance with the principle of "global effectiveness and technological depth" that comprises the 5th period. This period has been a critical turning point in the history of the Republic, which will celebrate its 100th year in 2023. It is a period where the centuries-old goals of the Turkish defense industry have been realized. But here, as someone who monitors these processes closely, I must also express that I believe that a 7th factor is at the center of the whole transformation process as the prime element. This factor is the perseverance and determination, against all odds, of our engineers, technicians, companies, human resources and of our nation itself, whom I call the devoted souls bejeweled with national consciousness. Today, if the Turkish defense industry has gained great momentum, the main factor behind it is

that state of determination and commitment that I hail as the 7th factor.

Endnotes

1. See www.ssb.gov.tr for more information. The way I discuss historical background and categorize different historical eras in this article is slightly modified version of the summary provided on the website.

2. For instance, in the traditional institutional approach the first three historical blocs are categorized as following 1923-1950 as the first, 1950-1974 as the second, and 1974-1985 as the third bloc or historical periods. Then post-1985 era is summarized into two major eras as 1985-2006 and 2006 up until today. Here, in this article, taking into major historical turning moments into consideration, I suggest to categorize these blocs as following 1923-1939 as the first, 1939-1974 as the second, 1974-1985 as the third historical periods. Such a reading I believe provides a more accurate analysis of historical background of defense industry in Turkey and offers a fair reading of post-1985 era. For more information see, www.ssb.gov.tr.