ARTICLE

Turkey's Burgeoning Defense Technological and Industrial Base and Expeditionary Military Policy

CAN KASAPOĞLU

Director of Defense Research, EDAM, Turkey

ORCID No: 0000-0001-7432-6247

ABSTRACT *As the incumbent Turkish administration strives to pursue more aspiring goals in foreign affairs, Turkeys military policy is fast developing in line with this vision. The nations defense technological and industrial base can now produce various conventional weaponry. Of these, without a doubt, Turkeys drone warfare assets have garnered the utmost attention among the international strategic community. In tandem, the Turkish Armed Forces (TAF) have gradually gained an expeditionary posture with forward deployments across a broad axis, ranging from the Horn of Africa to the Gulf and the Mediterranean. Turkeys proxy warfare capabilities have also registered an uptrend in this respect. Nevertheless, Ankara will have to deal with certain limitations in key segments, particularly 5th generation aircraft and strategic weapon systems which, together, represent a severe intra-war deterrence gap in Turkeys defense posture. The Turkish administration will have to address this specific shortfall given the problematic threat landscape at the nations Middle Eastern doorstep. This study covers two interrelated strategic topics regarding Turkeys national military capacity in the 21st century: its defense technological and industrial base (DTIB) and its military policy, both currently characterized by a burgeoning assertiveness.*

Keywords: Turkey, Military, Geopolitics, Syria, Libya, Hybrid Warfare, Drone Warfare

Insight Turkey 2020

Vol. 22 / No. 3 / pp. 115-130

Recieved Date: 20/07/2020 • **Accepted Date:** 03/09/2020 • **DOI:** 10.25253/99.2020223.08

Introduction: Turkey's Military Capacity in a Geopolitical Context

The intersection of Turkey's geography and political-military affairs has never been easy for the Turks to navigate. Turkey remains a NATO nation bordering, Iran, Iraq, Syria, the Mediterranean, the Black Sea, and the Caucasus. A few decades ago, Turkish governments had to deal with Hafez al-Assad of Syria and Saddam al-Hussein of Iraq as neighbors. Many flashpoints, ranging from the Azerbaijani-Armenian conflict to the hydrocarbon bonanza in the Eastern Mediterranean to the Syrian civil war revolve around Ankara's immediate doorstep. Geopolitically, this unfavorable positioning situates the nation at a crossroads of various armed conflicts, either happening or in the making. The country also faces various hybrid risks ranging from the Salafi extremist terrorist networks of ISIS and al-Qaeda to the ethno-separatist terrorism championed by the PKK and its PYD/YPG offshoots. Thus, the Turkish military has to ensure a high level of readiness to tackle national security threats across a broad spectrum.

In this endeavor, the Turkish administration faces some limitations. In terms of its economic capacity, Turkey is a textbook mid-size state. Furthermore, when it comes to generating defense technologies, the Turkish defense technological and industrial base (DTIB) has long been in the losing camp of the industrial age. Even at the beginning of the 2000s, the contribution of Turkey's indigenous defense industries to the Turkish Armed Forces' (TAF) warfighting arsenal remained below 20 percent. At the time of writing, this contribution marked an optimistic level of 65 percent. Yet when it comes to high-end and technology-driven arms, be it defensive strategic weapon systems, 5th generation aircraft, advanced submarines, airborne early warning and intelligence aircraft or state-of-the-art command, and control infrastructure for a generating a world-class network-centric warfare capacity, Turkey still needs foreign collaboration.

Ankara's arms interactions have never been immune to political fluctuations, especially concerning its traditional NATO allies. Turkey has had to weather a long list of disagreements with many of its Western weaponry suppliers, despite the fact that Turkey's C4ISR (command, control, computers, communications, intelligence, surveillance and reconnaissance) infrastructure is largely integrated with NATO architecture and connected with a web of data-links to the transatlantic network. This architecture cannot be altered easily given the hardship of dealing with high-tech systems and advanced algorithms.

Nonetheless, the Turkish military is fast becoming an expeditionary entity. The TAF's contemporary missions showcase Turkey's new defense policy which extends well beyond its national borders. At present, Turkish Unmanned Aerial Vehicles (UAVs) loiter in the Syrian airspace, the navy's combatants operate along the coasts of Libya, Turkey's military advisors in Tripoli train and equip

the Government of National Accord (GNA) formations, Turkish commando units run counter-terrorism campaigns in northern Iraq and Turkish officers train Qatari and Somali troops. Overall, these emerging dimensions are not only re-defining the armed forces' traditional role in Turkey's political-military agenda but also giving the country a new geopolitical outlook.

Ankara wants its warships to be not only defenders of its coastal waters, but assets of exercising geopolitical influence on the high seas

This article will analyze two main pillars of Turkey's national military capacity. First, the study focuses on presenting a comprehensive assessment of Turkey's military transformation in terms of its major concepts of operations and doctrinal order of battle. A thorough analysis of the Turkish defense technological and industrial base will follow. Finally, the study will present its findings and conclusion.

Doctrinal Order of Battle and More: Decoding Turkey's Military Transformation

Four pivots have shaped the Turkish military's immense change: the naval transformation toward a blue-water navy and the Blue Homeland (*Mavi Vatan*) concept, the army's expeditionary warfare concepts and doctrinal order of battle, the growing experience of the Turkish special forces and intelligence in proxy warfare and a rising forward-basing posture in Turkey's sphere of strategic interests.

Blue Homeland is one area in which the global strategic community can observe Turkey's new military-strategic thinking. The concept is centered on a trilateral basis. First, there is a pronounced power projection dimension. Ankara wants its warships to be not only defenders of its coastal waters, but assets of exercising geopolitical influence on the high seas. This paradigm is in line with the TAF's forward-basing posture across the Horn of Africa and the Gulf. The second Blue Homeland pillar involves Turkey's robust capability development efforts to equip the navy with state-of-the-art systems. At the time of writing, for example, President Erdoğan declared a '5 x 5' plan for naval modernization, namely five giant projects (the TCG Anadolu amphibious assault vessel followed by other mini-aircraft carriers, the TCG Ufuk signal and electronic intelligence vessel, Reis-class [Type 214] air-independent propulsion submarines, the second batch of MILGEM corvettes [I-class frigates] and a complete joint warfare C4ISR network) to be finalized or start entering into service within five years.[1] Third and finally, the navy, with its reloaded outlook, now plays a decisive role in energy geopolitics competition and gunboat diplomacy.

Officials work on a plane at the 2nd Air Supply and Maintenance Center Command in Kayseri, where maintenances of A400M, C-130, tanker aircrafts KC-135, and cargo planes CN-235 are carried out, to prepare the planes for Turkish Air Forces, March 4, 2020.

SERCAN KÜÇÜKŞAHİN / AA

The army has been transforming too. Turkey's land warfare capacity is striving to boost its foothold in expeditionary campaigns. The Turkish Army, in recent decades, has witnessed two major transformation epochs. Back in the 1990s, to tackle one of the most challenging low-intensity conflict threats posed to Turkey's national security, namely PKK terrorism, the Cold War era's bulky, division-based doctrinal order of battle, essentially built to halt massive Soviet Red Army units, was replaced with a flexible, brigade-dominant air-mobile one. To accomplish this transformation, Ankara procured attack helicopters, equipped army aviation with night-flight capabilities, established mountain-commando brigades and fostered the Special Operations Command.

Then, in the 2000s, the second epoch revolved around hybrid warfare challenges emanating from Syria. Terrorist groups at Turkey's doorstep, ISIS and the PKK, had gained tactical game-changer capabilities such as anti-tank guided missiles (ATGM) and advanced man-portable air defense systems (MANPADS), which can seriously threaten any conventional army. In response, in order to launch cross-border campaigns to address the hybrid warfare challenge, starting with Operation Euphrates Shield in 2016, Turkish military planners developed new concepts of operations (such as integrating drones with land-based fire support elements), Turkey's defense sector produced large numbers of mine-resistant and ambush protected (MRAP) combat vehicles (i.e. *Kirpi*/Hedgehog), Ankara equipped its armored platforms with remote weapon platforms and gunshot detection systems and, brightly, Turkey even procured Ukraine's Zaslon-L derivative active protection systems for better ar-

mor survivability during its ongoing campaign, Operation Olive Branch, which began in 2018.

As indicated earlier, apart from the doctrinal order of battle changes, in order to fully grasp Turkey's emerging land warfare capacity, one has to pay attention to the army's rising proxy warfare capabilities too. Turkey's experience in Syria with the then Free Syrian Army (FSA), now the Syrian National Army (SNA) marked a turning point in this respect.

Although they are outnumbered in the overall Syrian populace, the Turkmen forces have fought fiercely with high motivation and strong discipline alongside the TAF

Ankara's train and equip program is not a covert proxy warfare activity. The *Anadolu Agency*, Turkey's official news outlet, for example, has released stories showcasing the program's training drills.[2] During Operation Peace Spring, SNA formations were attached to Turkish combat units at the tactical level

Indeed, several groups among the SNA constituents have fought alongside the TAF in every expeditionary effort in Syria (Euphrates Shield, Olive Branch, and Peace Spring).[3] Back in October 2019, more than 40 factions took part in the SNA merger, promoting the Free Syrian Army experience to a whole new era. While some sources estimate the SNA's available manpower to be around 35,000,[4] especially following the merger, the armed opposition could mobilize up to 70,000 to 90,000 fighters when needed.[5] Although the SNA's ethnic composition remains Arab-heavy, there are also Turkmen and Kurdish factions. The dominant Arab component hails from almost all parts of Syria, including the south and the east.[6] While the SNA represents the Syrian opposition's demographic characteristic homogenously, its Turkic component is worthy of attention. Available estimates suggest some 10,000 to 15,000 Turkmen fighters fill the Turkey-backed armed opposition ranks.[7] Although they are outnumbered in the overall Syrian populace, the Turkmen forces have fought fiercely with high motivation and strong discipline alongside the TAF. Notably, during Operation Euphrates Shield's final assault in al-Bab, the Sultan Murad Division, a well-known Turkmen formation, captured the silos area in the south of the town. In doing so, the unit courageously placed itself in a multi-front engagement zone between the ISIS militants to the north and the Syrian Arab Army detachments approaching from Tadif in the southeast. From a military standpoint, this maneuver gave a crucial edge to the final Turkish assault in the decisive Aqil Mountain front, located in the western outskirts of al-Bab.[8]

As the Libyan expedition unfolded, the Turkish administration hinted at plans to more actively use its newly built proxy warfare capacity in other fronts. Some SNA fighters were transferred to the Libyan frontier in support of the

The Azerbaijani Armed Forces have been using some of the best Turkish land-based fire-support arms which are soon to be followed by drones. Over time, the defense industry will become a strategic sector for Turkey

GNA forces. As with the FSA and SNA activities, Turkey has not preferred a covert fashion in this move.[9]

Finally, Turkey's expeditionary military strategic posture has been robustly supported by broad forward-basing. The training base in Somalia, Turkey's forward-deployed corps located in Cyprus since its military intervention in 1974, the joint military base in Qatar, the Libyan contingent, as well as forward-operating bases in northern Iraq and Syria deserve attention in this respect.

Turkey's 'dronization' trend has also influenced its overseas basing posture. The Turkish military deployed surveillance drones to Geçitkale airfield, Cyprus, for the first time since the outset of its decades-long military presence on the island. Likewise, Turkey's unmanned aerial systems regularly operate in the Syrian, Iraqi, and Libyan skies.

Turkey's Growing Defense Technological and Industrial Base

In the 2000s, Ankara took a remarkable leap forward in its defense modernization efforts, while the Turkish military continued to field a robust war-fighting capacity. Notably, expeditionary campaigns in Syria, from the 2016 launch of Operation Euphrates Shield until today, have enabled Turkey's DTIB to showcase indigenous weaponry on the most dangerous hybrid battleground of the contemporary Middle East.

The uptrend in Turkish fire-power was not a coincidence. Back in 2004, the Executive Committee of Defense Industries, the top defense modernization and procurement decision-making body of the nation, canceled a number of acquisition projects worth some $11 billion. This was a crucial move given Turkey's defense budget. The bold decision primarily aimed to give a boost to indigenous industrial contributions' efforts to equip the TAF with high-end arms in conventional segments.[10] Since then, the Turkish DTIB's involvement in the country's defense portfolio has seen a noteworthy uptick. As of 2018, the Turkey's Presidency of Defense Industries was running 667 military modernization projects, up from a mere 84 in 2004.[11]

As the Turkish military combat tested its newly produced indigenous weapons, Turkey's arms sales saw a drastic increase. Between the years 2007 and

2011, Turkish defense exports grew by 75 percent. Back in 2002, for example, Turkish weaponry saw less than $250 million in exports. In 2006, defense exports reached $487 million, and in 2016, Turkey exported arms at a rate of $1.953 billion;[12] the figure rose to $2.188 billion in 2018.[13] In the meantime, indigenous production of arms jumped to 52 percent in 2011 from 42 percent in 2009.[14] Most notably, Turkey, at present, exports combat-proven advanced weaponry to important end-users. Turkish drones have already entered the Ukrainian, Gulf (Qatari), and North African (Tunisian) markets. The Azerbaijani Armed Forces have been using some of the best Turkish land-based fire-support arms which are soon to be followed by drones. Over time, the defense industry will become a strategic sector for Turkey.

The Underlying Geopolitical Calculus behind Turkey's Defense Modernization Plans: 'Dronization' and Robotic Warfare in Context

Available writings suggest that Ankara's primary military modernization drivers remain its counter-terrorism operations against the PKK and its offshoots, disputes with Greece, worsening tensions in the Eastern Mediterranean, the Syrian Civil War and its spillover at Turkey's doorstep, as well as Turkey's NATO obligations.[15] However, although these reports are accurate, the Turkish administration has bigger aims. In fact, Turkey's aspiring 'dronization' and the Turkish military's rising forward-basing posture have already revealed more assertive horizons.

Ankara is a textbook latecomer to the military industries' previous technological chapter. Simply put, Turkey will produce its main battle tank, the *Altay*, somewhat belatedly in the 2020s, despite the bitter fact that tanks have been fighting for about one hundred years. However, when it comes to unmanned aerial systems, the Turkish defense sector has become one of the champions of the medium and tactical combat drone segments on a global scale. Having seen this gap, Turkey is striving to surf on the waves of the forthcoming revolution in military affairs. By doing so, the current administration believes that those who were on the losing side of the previous paradigm could take advantage of the emerging conditions and bring about a drastic improvement in their capacities.[16] Specifically, Turkey's defense eco-system elites see drone warfare as sparking a techno-scientific breakthrough and are pursuing the new paradigm with eyes to its high geopolitical impact potential.

Case Study: Turkey's Drone Hunt for Pantsirs in Libya and Syria

Turkey's tactical and medium altitude/long endurance (MALE) drones, first and foremost the Bayraktar TB-2 and ANKA, have proven effective on the

Turkey's first national automated air weapon system *Alkar*, integrated into the multi-purpose armored vehicle BMC's Vuran, is the first national automatic mortar weapon system that can be integrated into different types of vehicles and fixed facilities, February 1, 2019.

ASELSAN / AA

challenging hybrid warfare battlefields of Syria and Libya. In particular, the Turkish drones' hunt for the Russian-manufactured Pantsir short-to-mid range air defenses in the hands of the Syrian Arab Army and Hafter's forces resonated highly with the global military strategic community.[17]

The Turkish drones' hunt for the Pantsirs in Syria and Libya showcased different dimensions of Turkey's unmanned aerial systems capacity. The Turkish military used two primary unmanned aerial systems in Operation Spring Shield (Spring 2020) against the Syrian Arab Army: the Bayraktar TB-2 and the ANKA-S. First and foremost, the indigenous design and production capability behind the unmanned platforms equipped the Turkish administration with *marge de manoeuvre* in the face of international pressure. It is important to note that in the past, Turkey's diligent efforts to acquire the MQ-1 Predator and MQ-9 Reaper drones had come to nothing due to the U.S. Congress' objections to the proposed procurement deals.[18]

The endurance of Turkey's medium-segment drones is noteworthy. Both the Bayraktar TB-2 and ANKA-S can fly for 24 hours, a good standard for the MALE class unmanned aerial systems. This feature enabled these platforms to enjoy a prolonged loitering time over target areas. Furthermore, the CONOPS in which Turkish defense planners commissioned their unmanned platforms attracted attention. Throughout the Syrian expeditions, the Turkish military initiated an innovative integration between tactical land-based fire support (artillery and multiple-launch rocket systems) and UAVs.

Despite the positives, however, Ankara has had to overcome a troublesome payload limitation. The Bayraktar TB-2 has a combat payload capacity of 55 kg,[19] while TUSAS' ANKA-S, the SATCOM (satellite communications) capable variant of the ANKA family, can carry a 200 kg maximum payload. Aware

of the shortcomings in the firepower intensity that these platforms could unleash at a time, Ankara addressed the issue with pinpoint accuracy. This was where Turkey's Roketsan came into play.

The integration between drone warfare and naval power signals a promising future for Turkey's joint warfare efforts

The Bayraktar TB-2 and ANKA now carry Roketsan-manufactured smart, high-precision munitions such as the MAM-L and MAM-C. While the MAM-C is a smaller smart bomb for a softer target-set, weighing 6.5 kg, the MAM-L, weighing 22 kg, has a range of 8 km, which can be extended to some 14 km with an inertial navigation system/global positioning system support and offers different warhead options including high-explosive, armor-piercing and thermobaric solutions.[20]

Although these capabilities brought some good precision fire-power into the battlefield, the hunt for Pantsirs was not easy. For one, the Russian SAM system had adequate engagement envelopes that could intercept Turkey's UAVs before they entered the hot zone. The baseline Pantsir system, representing the Soviet-Russian school of short-range air defenses, is centered on a versatile design philosophy that brings together different fires, mobility, and flexibility. A self-propelled Pantsir battery carries two 30 mm 2A38M anti-aircraft artillery and up to twelve 57E6 missiles with a maximum range of 20 km and a maximum altitude of 15 km, while the auto-cannons can engage within a 4 km range at a 3 km altitude.[21] A recent upgrade has extended the interceptor missiles' range up to 30 km and effective maximum altitude to 18 km.[22]

In order for the Turkish drones to penetrate the engagement envelops of the Pantsir SAM systems, Turkey introduced three major capabilities to protect the Bayraktar TB-2s and ANKA-S in their flights through the dangerous Syrian and Libyan skies.

The first counter-measure was electronic warfare (EW) against the air defense units of Bashar al-Assad of Syria[23] and Khalifa Hafter of Libya. In this respect, the KORAL remains the leading indigenous EW asset in Turkey's arsenal. Produced by ASELSAN, the system is primarily designed to take part in suppression of enemy air defenses (SEAD) missions thanks to an effective range of some 200 km.[24]

Second, drone warfare in the Syrian expedition highlighted manned and unmanned aircraft cooperation. The TAF's high-tech intelligence and strike complex, consisting of the Boeing 737 *Barış Kartalı* (Peace Eagle) airborne early warning and control aircraft, F-16 fighters and AMRAAM beyond visual range

Turkey's regional competitors enjoy robust offensive strategic weapons that can target critical national infrastructure, major population centers and high-value military facilities deep in Turkish territory

air-to-air missiles, detected and intercepted the Syrian Arab Air Force's Su-24s that were scrambled to down the Bayraktar TB-2 and ANKA drones. More importantly, the air force did so without entering Syrian airspace.[25]

Finally, in the Libyan expedition, the Turkish Navy's frigates –noting that the Turkish Navy had deployed about one quarter to one third of its entire frigate arsenal off the Libyan coasts– have been operating in coordination with drone warfare efforts.[26] The integration between drone warfare and naval power signals a promising future for Turkey's joint warfare efforts.

Turkish Horizons in Context: What Next?

From now on, Turkey's military policy will likely opt to capitalize on its momentum in producing more advanced, high-end technology systems, deepening its expeditionary posture and developing more effective hybrid warfare CONOPS. A careful look into Turkish defense planning documents would be telling in this respect. Noting the 2007-2011 period's successful outcomes, Turkey's subsequent defense modernization strategic plans (2012-2016 and 2017-2021) prioritized more ambitious projects. Finally, the 2018-2022 Defense Industry Official Strategy Paper *(Savunma Sanayii Sektörel Strateji Dokümanı)* set the bar high with the objective of "technology and sub-systems ownership to facilitate a sustainable defense industry."[27]

In line with these trends, the most up-to-date variant of Ankara's official defense modernization papers, the 2019-2023 strategic plan, focuses on a comprehensive technological transformation and the generation of elite human capital to facilitate Turkey's next generation techno-scientific breakthrough agenda.[28]

New weapon systems are anticipated to develop in accordance with the new strategy documents. From the makers of the Bayraktar TB-2, the *Akinci* (Raider), for example, will have a 1,350 ton combat payload augmented with advanced systems such as AESA (active electronically scanned array) radar and artificial intelligence (AI) assisted avionics.[29] Another UAV, TUSAS' Aksungur, will be a key asset in anti-submarine warfare with a sonobuoy pod and maritime patrol surveillance features.[30]

Of course, in order to accomplish its higher aims, what the Turkish defense eco-system needs is an elite workforce and educated brains. Landmark tech-

Tulpar Light Tank, produced by Otokar, was exhibited in Turkey at the 14th International Defense Industry Fair, April 25, 2020.
GÖKSEL YILDIRIM / AA

no-scientific events, first and foremost Teknofest[31] and Roboik,[32] continue to attract young minds into the defense sector. In addition, the Turkey's Presidency of Defense Industries has developed several research projects in cooperation with academic institutions. These efforts are important to build the necessary fusion to foster defense innovation. Nevertheless, brain drain is still a problem for Turkey's high-tech driven sectors that needs to be addressed.[33]

Two Critical Caveats re. Turkey's Military Posture: 5th Generation Aircraft and Intra-war Deterrence Gaps

Although Turkey's DTIB has a promising outlook in the 21st century, the Turkish administration still has to overcome two hurdles. First, there is the challenge of addressing the shortcoming in Turkey's capacity for intra-war deterrence –controlling the escalatory patterns within an ongoing conflict– a chronic problem of Ankara's defense posture for decades, in the face of ballistic missiles and weapons of mass destruction (WMD) proliferation in the Middle East. Second, Turkey's airpower still depends on 4th generation systems at a time when a number of nations are shifting to 5th generation aircraft.

Yet, given its current defense economics trends and level of technological know-how, the Turkish indigenous defense eco-system will remain in need of military-industrial cooperation with foreign actors

Turkey's regional competitors enjoy robust offensive strategic weapons that can target critical national infrastructure, major population centers and high-value military facilities deep in Turkish territory. The Syrian Arab Army, for example, has a notorious ballistic missile arsenal along with WMDs even after the –failed– chemical deal.[34] Damascus' strategic weapons capacity is backed by its dangerous cooperation with North Korea and Iran.[35]

Assad's offensive strategic weapons principally consist of SS-21 ballistic missiles, Scud variants and very lethal nerve agents VX and Sarin.[36] The regime still retains a certain portion of these assets. Furthermore, the Baath regime's missile forces have gained critical combat experience that one should not take lightly.[37]

The Turkish-Iranian military strategic balance is another dimension showcasing Ankara's problematic intra-war deterrence gap. Although Turkey has an edge over Iran in terms of conventional warfare capabilities, Tehran's large number of ballistic missiles could change the calculus. Iran's missile forces can hit anywhere in Turkey. Capitalizing on a wording nuance between UN Security Council Resolution 2231 (adopted in 2015, endorsing 'the nuclear deal' and calling upon Iran not to pursue any activity related to ballistic missiles capable of delivering nuclear weapons) and Resolution 1929 (adopted in 2010, which prohibits Iran from undertaking ballistic missile activities), the Iranian Revolutionary Guards Corps (IRGC) have continued test-launching ballistic missiles to date. In 2017, the IRGC launched a ballistic missile salvo from Iranian territory into the reported ISIS buildup in Deir ez-Zor in eastern Syria. The strike marked Tehran's first use of such weaponry in a real combat situation since the Iran-Iraq War.[38]

Ankara cannot address these threats solely by relying on its own ballistic missile program. In recent years, Turkey has concluded a noteworthy improvement when it comes the indigenous *Bora* ballistic missile system, with a range of 280 km and a 480 kg warhead with less than 50 meters circular error probable (CEP). Nonetheless, *Bora* is a tactical asset, not a strategic weapon system. Besides, Turkey has strong non-proliferation commitments as to biological, chemical and nuclear arms control regimes.[39]

A way out to mitigate the intra-war deterrence gap remains defensive strategic weapons, namely, high altitude and long range air and missile defenses. Yet,

in this segment, the only asset Turkey has is the S-400 strategic surface-to-air missile (SAM) system which has not been activated yet and could trigger the U.S. CAATSA (Countering America's Adversaries Through Sanctions Act) sanctions if declared operational.

It seems, in the foreseeable future, Turkey will keep needing NATO support in missile defense, such as the X-band radar in Kürecik and the U.S. Navy's Arleigh Burke-class destroyers in the Mediterranean, along with on-demand deployments at critical times. Moreover, Turkey's indigenous missile defense project has been run in cooperation with EUROSAM, another anchor to the Western defense eco-system in this segment.

When it comes to the 5th generation aircraft, Turkey also has a hardship. At the time of writing, some NATO nations such as Italy, the United Kingdom and the U.S. have already started welcoming 5th generation platforms into their arsenals. In the meantime, some others, such as Germany and France, have preferred temporarily flying with 4.5 generation aircraft (e.g. the Eurofighter Typhoon) in anticipation of a long jump to sixth generation airpower in the coming decades. However, Turkey's exclusion from the F-35 consortium as well as several technical hardships with the indigenous stealth fighter project, *Milli Muharip Uçak* (formerly the TF-X), have already limited the Turkish Air Force arsenal to 4th generation platforms. Moreover, the Turkish Navy's mini-aircraft carrier plan, centered on the amphibious assault vessel TCG Anadolu, remains stillborn in the absence of the F-35B short take-off/vertical landing variant option, which is the only option in the global weapons market at present.

Conclusion

Turkey's DTIB has reached a critical mass in many ways. The dronization trend comes into the forefront as the quantum leap of the nation's military modernization which has proven itself in Turkey's expeditionary campaigns in Syria. Yet, given its current defense economics trends and level of technological know-how, the Turkish indigenous defense eco-system will remain in need of military-industrial cooperation with foreign actors. The future trajectory of Turkey's 5th generation airpower, as well as long range and high-altitude air and missile defense weapon systems, thus remains to be seen.

From a defense planning standpoint, Ankara will continue depending on foreign military cooperation to pursue its national security goals. However, this dependency is becoming more 'refined' and moving towards more sophisticated systems and sub-systems. Under these circumstances, arms restrictions and embargoes imposed by Turkey's traditional Western allies could backfire.

One thing is clear: Turkish elites want more freedom of movement in international affairs, and Turkey's contemporary military policy is in step with this aim

In other words, these restrictions could be tantamount to offering a critical NATO country's lucrative weapons market to Beijing and Moscow.

One thing is clear: Turkish elites want more freedom of movement in international affairs, and Turkey's contemporary military policy is in step with this aim. Ranging from the Horn of Africa to Qatar and Syria, Ankara has adopted a bolder doctrinal order of battle in the 21st century. This assertive military posture is augmented by the transformation of the Turkish Navy from a coastal deterrent into a blue-water, power projecting asset. Lastly, Turkish policy makers now consider proxy warfare to be a useful tool when intervening in Middle Eastern conflicts. This tells us something. Turkey, in a geopolitical fashion, is redefining itself, which inevitably leads to the urge to redefine its hinterland.

Turkey's stance has both benefits and limitations. After all, although Ankara fell short of overthrowing the Baath tyranny of Bashar al-Assad, it managed to disrupt a PKK terrorist *fait accompli* in northeast Syria. Turkey could not annihilate Haftar's entire force; however, it saved the UN-recognized Government of National Accord in Tripoli. The calculus is more or less the same for Turkey's DTIB. The Turkish defense sector can produce its armed drones, use them, sell them and deploy them in overseas bases. However, to generate a complete network-centric capacity, the Turkish military still needs NATO capabilities. All in all, Turkey needs a well-calculated national capacity analysis to pursue its military policy.

Endnotes

1. Turkey Presidency for Defense Industries, *Twitter*, retrieved August 28, 2020, from https://twitter.com/SavunmaSanayii?ref_src=twsrc%5Egoogle%7Ctwcamp%5Eserp%7Ctwgr%5Eauthor.

2. Agency, "ÖSO›ya TSK Destekli Eğitim," *Anadolu Agency*, retrieved from https://www.aa.com.tr/tr/pg/foto-galeri/osoya-tsk-destekli-egitim; Eşref Musa and Ömer Koparan, "ÖSO Muhtemel Yeni Operasyon Hazırlıklarını Tamamladı," *Anadolu Agency*, (October 6, 2019), retrieved November 10, 2019, from https://www.aa.com.tr/tr/dunya/oso-muhtemel-yeni-operasyon-hazirliklarini-tamamladi/1603766.

3. TRT *World*, retrieved August 28, 2020, from https://www.youtube.com/watch?v=aWOfc0cm12g.

4. Charles Lister, "Turkish-Backed Syrian Armed Opposition Groups to Unite Under One Banner," *Middle East Institute*, (October 2019), retrieved November 10, 2019, from https://www.mei.edu/blog/turkish-backed-syrian-armed-opposition-groups-unite-under-one-banner.

5. Ömer Kızılcık, "Uniting the Syrian Opposition: The Components of the National Army and the Implications of the Unification," *SETA*, (2019), p. 10.

6. Kızılcık, "Uniting the Syrian Opposition," p. 10.

7. Can Acun and Kutluhan Görücü, "Suriye Krizinde Göz Ardı Edilen Aktör: Türkmenler," *SETA*, (2018).

8. Can Kasapoğlu, *Turkey at the Gates of al-Bab, (Ankara: EDAM, 2017),* p. 2.

9. "Turkey's Erdogan Confirms Sending Syrian Fighters to Libya," *Al Jazeera*, (February 21, 2020), retrieved August 29, 2020, from https://www.aljazeera.com/news/2020/02/turkey-erdogan-confirms-sending-syrian-fighters-libya-200221082443159.html.

10. "Tank ve Helikopter İhaleleri İptal Edildi," *Hurriyet*, (May 14, 2020), retrieved August 26, 2020, from https://www.hurriyet.com.tr/ekonomi/tank-ve-helikopter-ihaleleri-iptal-edildi-225670.

11. "2019-2023 Strategic Plan," *Presidency of Defense Industries*, (2019), pp. 32-26.

12. "2018-2022 Savunma Sanayii Sektörel Strateji Dokümanı," *T.C. Cumhurbaşkanlığı Savunma Sanayii Başkanlığı*, retrieved from https://www.ssb.gov.tr/Images/Uploads/MyContents/F_20190402102925477924.pdf.

13. "2019-2023 Strategic Plan," *Presidency of Defense Industries*.

14. Andrew Galer, "Turkey: Weapons Production and Procurement 2018-2027 Turkish Weapons," *IHS Markit Jane's*, (March 2018).

15. Galer, *et al.*, "Turkey: Weapons Production and Procurement 2018–2027 Turkish Weapons."

16. Can Kasapoğlu and Barış Kırdemir, "The Rising Drone Power: Turkey on the Eve of Its Military Breakthrough," *EDAM*, (2018), pp. 18-19.

17. David Axe, "Guess Who Is a Drone Power Now? Turkey," *The National Interest*, (March 2020), retrieved April 2, 2020, from https://nationalinterest.org/blog/buzz/guess-who%E2%80%99s-drone-power-now-turkey-133702.

18. *Hurriyet*, retrieved August 28, 2020, from https://www.hurriyet.com.tr/.

19. "Bayraktar TB2," *Baykar*, retrieved August 29, 2020, from https://baykardefence.com/uav-15.html.

20. Roketsan, retrieved August 29, 2020, from https://www.roketsan.com.tr/en/.

21. Rosoboronexport, retrieved August 28, 2020, from http://roe.ru/eng/catalog/air-defence-systems/air-defense-systems-and-mounts/pantsir-s1/.

22. "Army 2019: Russia Unveils Pantsir-SM SAM Vehicle," *Janes*, retrieved April 10, 2020, from https://www.janes.com/defence-news/news-detail/army-2019-russia-unveils-pantsir-sm-sam-vehicle.

23. Hasan Hız, "Koral, SİHA ve F-16'lar: Rus Yapımı Hava Savunma Sistemlerinin Kabusu Oldular,"*Yeni* Şafak, (March 4, 2020), retrieved August 29, 2020, from https://www.yenisafak.com/dunya/koral-siha-ve-f-16lar-rus-yapimi-hava-savunma-sistemlerinin-kabusu-oldular-3528104.

24. "Koral Mobile Radar EW System,"*Aselsan*, retrieved August 29, 2020, from https://www.aselsan.com.tr/KORALENG_1218.pdf.

25. "Putin'in Esed'e Hediye Ettiği SU-24'ler 'KARTAL'a Takıldı,"*Akşam*, (March 3, 2020), retrieved August 20, 2020, from https://www.aksam.com.tr/guncel/putinin-esede-hediye-ettigi-su24ler-kartala-takildi/haber-1049933.

26. "Donanma Libya'da," *Yeni Safak*, (August 29, 2020), retrieved from https://www.yenisafak.com/gundem/donanma-libyada-3523079.

27. "2018-2022 Savunma Sanayii Sektörel Strateji Dokümanı," *T.C. Cumhurbaşkanlığı Savunma Sanayii Başkanlığı*.

28. Can Kasapoğlu, "Turkey's Defense Outlook for 2020s Very Promising," *Anadolu Agency*, (January 3, 2020), retrieved February 26, 2020, from https://www.aa.com.tr/en/analysis/turkey-s-defense-outlook-for-2020s-very-promising/1691178.

29. "Bayraktar AKINCI System," *Baykar*, retrieved August 2, 2020, from https://baykardefence.com/uav-14.html.

30. "Aksungur Flyer," *TUSAS*, retrieved August 2, 2020, from https://www.tusas.com/uploads/2019/12/aksungur-flyer.pdf.

31. Teknofest, retrieved February 27, 2020, from https://www.teknofest.org/#.

32. Roboik, retrieved August 22, 2020, from https://roboik.ssb.gov.tr/.

33. Yvonni-Stefania Efstathiou and Tom Waldwyn, "Turkish Defence Exports to 2023: Grand Ambitions," *IISS Military Balance Blog,* (April 2019), retrieved August 28, 2020, from https://www.iiss.org/blogs/military-balance/2019/04/turkish-defence-exports.

34. "Syria's Offensive Chemical Weapons Capability," Central Intelligence Agency, (1985), approved for release in 2011.

35. For a comprehensive assessment see, Paul Kerr, Steven Hildreth and Mary Beth Nikitin, "Iran-North Korea, Syria Ballistic Missile and Nuclear Cooperation," *Congressional Research Service*, (2016).

36. Magnus Normark, Anders Lindblad, Anders Norqvist, Björn Sandström, and Louise Waldenström, "Syria and WMD: Incentives and Capabilities," *FOI- Swedısh Defence Research Agency*, (2004), retrieved from https://www.foi.se/rest-api/report/FOI-R--1290--SE.

37. For a detailed assessment of the strategic weapons threat in Turkey's neighborhood see, Can Kasapoğlu and Sinan Ülgen, "Is Turkey Sleepwalking out of the Alliance? An Assessment of the F-35 Deliveries and the S-400 Acquisition," *EDAM*, (2018).

38. Kasapoğlu and Ülgen, "Is Turkey Sleepwalking out of the Alliance?."

39. Can Kasapoğlu, "Turkey's Nuclear Onset: Military Policy, Techno-Nationalism Trends and Defence Industrial Capabilities," *SWP*, (October 2019), retrieved from https://www.swp-berlin.org/fileadmin/contents/products/comments/2019C38_kasapoglu.pdf.