



Turkish drones, Greek challenges

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Summary

- This policy paper analyzes the evolution of Turkey's drone-led warfare, as well as the challenge that this evolution poses for Greece's military deterrence.
- It focuses on the symbiotic relationship between Turkey's increasingly autonomous and assertive national security and foreign policy, and the increasing efficacy of its drone-led warfare.
- The Turkish experience with drone warfare is then placed in a wider analytical context in the light of the international debate on: (a) what the offensive advantages are of this type of warfare, and how can these advantages be neutralized via the adoption of counter-drone measures; (b) how impactful a drone advantage could be in enhancing the ability of a country that possesses a significant drone capability to coerce or militarily defeat a country that does not.
- The paper will move on to attribute Greece's underdeveloped drone programme, and the yet-to-be-designed and implemented drone countermeasures, to (a) the overall impact of the country's fiscal crisis on defence policy, and (b) the unwillingness of the civilian leadership during the fiscal crisis to leverage the country's alliances, geography and R&D ecosystem to either acquire or develop a drone and counter-drone capacity.
- Finally, the paper will substantiate the need to address Turkey's drone challenge as a matter of urgency, and to identify the factors that will facilitate the ability of Greece's armed forces to evolve at the pace required to deny Turkey the ability to ever again develop an edge over Greece of the magnitude it has gained in drone warfare.

Introduction

Turkey's armed drone advent goes back to 1995, but it has really picked up steam over the last five years. This five-year trajectory was inaugurated with the employment of armed drones against Kurdish autonomists within Turkey in 2016, and culminated in the Armenian-Azerbaijan war over Nagorno-Karabakh in 2020, when the extensive use of drones, many of them of Turkish provenance, proved to be critical in the outcome of the war.

Over the same period, Greek civilian policy makers did not prioritize either imitating Turkish accomplishments in drone deployment via adoption, and/or developing extensive countermeasures to the use of armed drones. This policy paper examines why measures to imitate and neutralize the drone development and deployment of Greece's main strategic rival, Turkey, have been delayed during a period of escalating militarized tensions between the two countries. It then draws up a set of policy implications and recommendations.

The paper unfolds as follows:

First, an account will be given of Turkey's emergence as a highly ambitious innovator in the deployment and use of armed drones, and of the symbiotic relationship between this evolution and an increasingly aggressive Turkish national security and foreign policy.

Second, Turkey's progress as an innovative user of drone warfare will be contextualized in the international debate on drones' impact in modern warfare. Specifically, we will review two key issues: first, what it takes for an armed force to successfully integrate drones into its operations and, second, what challenges countering drones pose for modern armies. We will also review the related drone-created 'window of opportunity thesis', which assumes that countries that are in possession of armed drone fleets will increasingly be in a position to dictate terms to rival countries that have failed to develop a meaningful drone capacity, to adopt effective drone countermeasures, or both.

Third, the paper will review the thus far limited drone-specific measures implemented by Greece's armed forces, as well as the policy and public debate that Turkey's drone-related warfare has generated in Greece.

Fourth, the paper will outline a number of reasons that may explain why Greece's policy makers and planners have delayed introducing a comprehensive drone deployment and countermeasures programme.

In the fifth section, the paper will present a set of recommendations on how Greek civilian and uniformed policy-makers can pre-emptively address threats to the credibility of Greece's deterrence stemming from the introduction of innovative weapons systems and tactics by its main strategic rival, Turkey.

The concluding section will synthesize the paper's analysis and findings.

The development and deployment of Turkish drones: track record and key interactions

Turkey was an early drone adopter, making its first drone acquisitions from a US supplier back in 1995 and subsequently purchasing from Israel in 2005. Counterinsurgency

operations were a main motivator for this early adoption, initially to enable the observation of Kurdish guerrillas and direct assaults on such groups by army or air force units. However, Israeli drone exports ceased after Turkey's disastrous fall out with Israel in 2010, while the US refused to approve the transfer Reaper and Predator drones to Turkey. This made Turkey determined to acquire an autonomous drone development and deployment capability.

“Turkey became the first country to use weaponized drones in a mass coordinated attack on a conventional battlefield, targeting Syrian Army tanks, armoured personnel carriers, and anti-aircraft systems.”

Starting in the mid-2000s, established and newly-founded Turkish firms were awarded contracts to develop drones. The most notable output was the armed TB2, first rolled out in 2016, which has been used intensively in counterinsurgency operations, including attacks launched on insurgent personnel within Turkey and in Syria¹.

Subsequently Turkey upped its game, employing its drones in conflict situations either directly or through proxies (though, in all probability, with the direct engagement of Turkish armed forces personnel and command and control infrastructures); three in number, these conflict situations have involved semi- or wholly conventional forces, each one progressively more consequential than the other, over the last two years.

In Libya, in 2019, the Government of the National Accord employed Turkish drones to disrupt the supply lines of the opposing Libyan National Army and to help capture towns close to Tripoli. In March 2020, Turkey became the first country to use weaponized drones in a mass coordinated attack on a conventional battlefield, targeting Syrian Army tanks, armoured personnel carriers, and anti-aircraft systems. Importantly, drones were used in multiple roles: supporting ground artillery as scouts, firing on enemy positions, and providing cover to forces on the ground.

Several months later, Turkish- as well as Israeli-made drones were employed to devastating effect during the 44-day war between Armenia and Azerbaijan over the contested territory of Nagorno-Karabakh. As in Syria, a multiplicity of Armenian targets were hit by drones. Drones also shaped and facilitated ground operations by assisting target acquisition by artillery, reconnoitring for ground offensives, and so on. This integration of drones into an overall battle plan is widely assumed to have been implemented by Turkish personnel already experienced in drone warfare. Armenian ground air defences of Russian origin, designed to counter fighter jets, were unable to detect the drones and shoot them down, and were themselves destroyed on multiple occasions by armed Azeri drones². We emphasize that drones were employed to such effect, precisely because they were successfully integrated in combined operations, meaning that other elements of Azerbaijan's ground army, such as its special forces and artillery, were capable enough to exploit drone-conferred advantages³.

“...drones were employed to such effect, precisely because they were successfully integrated in combined operations.”

Thus, Turkey not only has no qualms about exporting drones to a conflict zone, it also actively assists the faction or country that procures its drone technology to employ it on the battlefield. This, in turn, both advances its own ability to innovate in drone warfare, as well as cementing its alliances with the customers of its drone technology, as in the case of Libya and Azerbaijan.

Clearly, Turkey's drone capability has evolved in tandem with the current Turkish

¹ See, Brownsword, S., *Turkey's unprecedented ascent to drone superpower status*, www.dronewarsnet, 15 June 2020 and Kasapoglou, C. and Krdemir, B., *The Rising Drone Power: Turkey on the eve of its military breakthrough*, *EDAM-Foreign Policy and Security*, 2018/4.

² See Gressel, G., *Military lessons from Nagorno-Karabakh: Reasons for Europe to worry*, *European Council of Foreign Relations*, 24 November 2020.

³ The following article illuminates drones' impact in the context of competent combined operations, Chan, E. *What Taiwan's Military can learn from the Armenia-Azerbaijan war*, *The Diplomat*, 9 December 2020.

“...drones are not only beneficiaries of military conflict, in the sense that their evolution is accelerated on the battlefield, they also enable it.”

leadership’s national security and foreign policy, which combines suppressing Kurdish secessionism, increasing Turkey’s geopolitical and geo-economic role, and gaining domestic popularity via the subsequent power projection⁴. Importantly, in this symbiotic relationship, drones are not only beneficiaries of military conflict, in the sense that their evolution is accelerated on the battlefield, they also enable it. Effective drone use raises the probability of Turkey and/or its allies being able to achieve victory at an acceptable fiscal cost and with minimal loss of life among its own troops (losses rendered even smaller by shifting a part of the casualties from Turkish soldiers to Syrian mercenaries both in Syria itself and in Libya)⁵.

“Turkey’s specific circumstances and its general characteristics indicate that its emergence as a drone power is not incidental but rather integral to its recent overall trajectory.”

Furthermore, Turkey fits the paradigm of countries most likely to both use drones themselves and to export the devices. As an increasingly authoritarian country, Turkey fits the typology of a drone user, as authoritarian countries tend to experience civil conflicts and drones can be highly effective in civil conflict situations. Authoritarian countries also tend to have fewer restrictions on whom they sell their drones to, which also fits with Turkey’s modus operandi of exporting drones to other authoritarian countries and/or regimes in conflict situations⁶.

All in all, both Turkey’s specific circumstances and its general characteristics indicate that its emergence as a drone power is not incidental but rather integral to its recent overall trajectory. Moreover, this status will remain a salient factor in Turkey’s power projection for as long as its trajectory maintains its current momentum.

That being said, we must also point out that there are also constraints on Turkey’s ability to maintain and evolve its status as a drone power. The reliance of Turkish drone manufacturing on imported commercial off-the-shelf (COTS) or military-use components means that the more enemies it creates by the combat deployment of its drones, the greater the limits will be on the availability of these components; this became evident after the Nagorno-Karabakh conflict⁷.

“Turkey’s middle-income status and mediocre innovative capacity makes it doubtful that it will be able to develop the next generation of drones.”

Just as importantly, Turkey’s middle-income status and mediocre innovative capacity makes it doubtful that it will be able to develop the next generation of drones. Due to demands for increasing sophistication (e.g. drones with stealth capacity, and/or drones which increasingly resemble manned fighter jets in their multiple capabilities), drone development will become an oligopoly in the near future. Such sophistication can only be produced by a few nation-states or multinational consortia, such as the US, China, the Russian Federation and the European Union⁸. As its air force did previously, due to the restrictions the US Congress placed on the export of know-how and components to Turkey after its acquisition of the S400 missile system, its drone programme will also ultimately stagnate⁹. Unless, that is, Turkey either repairs its relations with its Western allies, or hitches itself decisively to either China or the Russian Federation.

⁴ For an insightful assessment of Turkey’s military assertiveness, its drivers, opportunities and risks, see Kardas, S., 2020, Understanding Turkey’s Coercive diplomacy, *German Marshall Fund*, On Turkey / No 7.

⁵ For an examination of the loss minimization factor of drone warfare in ‘blood and treasure’ terms, see Lin-Greenberg, E., 2020. *Wargame of Drones: Remotely Piloted Aircraft and Crisis Escalation*, available at SSRN: <https://ssrn.com/abstract=3288988>

⁶ Horowitz, M.C., Schwartz, J.A., Fuhrmann, M., 2020. Who is prone to drone? A global time-series analysis of armed uninhabited aerial vehicle proliferation, *Conflict Management and Peace Science*, 1-24.

⁷ Canada banned the export of crucial target acquisition systems, following the Nagorno-Karabakh conflict, see <https://ahvalnews.com/armenia-turkey/armenia-finds-canadian-tech-turkish-drone-calls-global-embargo>

⁸ See, Gilli, A., and Gilli, M., the diffusion of drone warfare? Industrial, organizational and infrastructural constraints, *Security Studies*, 2016, 25:1, 50-84.

⁹ See, relatedly, this interesting comparison with the fate of Iran’s air force after the fall of the Shah, Iddon, P. How the future of Turkey’s air force could resemble Iran’s Experience, *Forbes*, 9 February 2021.

Developing and countering a drone capacity

Analysts have stressed that drones, like any other military innovation, become effective not as stand-alone units, but through demands for changes—in terms of force structure, doctrine, training, and technological infrastructure support—that integrate the innovation into the overall conduct of warfare. This has been especially true in the case of drones, which have necessitated significant upgrades in the collation and distribution of drone-generated information to other units, be they airborne or on the ground, via effective C4 infrastructures (Command, Communications, Controls and Computers).

“It seems to have been unanimously concluded that no armed force, up to and including the US, has yet to deploy a comprehensive set of countermeasures to drone warfare.”

By extension, the introduction of drones has necessitated significant and thus difficult skills upgrades, as it has created a need for personnel able to master the advanced communication technology employed¹⁰. Considering that drone deployment and use is transiting from the experimental to the institutionalisation phase, countries with an indigenous drone R&D infrastructure also benefit from feedback loops between the battlefield and the manufacturing floor, a process at which Israel has excelled at and where Turkey has also made substantial progress¹¹.

It seems to have been unanimously concluded that no armed force, up to and including the US, has yet to deploy a comprehensive set of countermeasures to drone warfare. There is discussion about whether existing air-to-ground weapon and radar systems, whether in the possession of the armies of the Russian Federation or of the US, can be adjusted to counter the drone threat to ground forces. There is also a question mark over the ability of Russian systems to adjust to the drone threat, given their seeming inability to do so in Libya, Syria and Nagorno Karabakh. Albeit a single instance, analysts have noted a similar inability on the part of advanced air defence systems of US, French and Swiss provenance to defend a Saudi oil refining installation against a sophisticated attack by drones, possibly of Iranian origin, in 2019¹².

Regarding the development of effective countermeasures, the consensus opinion seems to be that only comprehensive changes will do, involving the introduction of new or specially adjusted extant short-range air defence systems (or, to use an illuminating expression, ‘old systems able to function on new data’), the introduction of drone-specific defences in main battle tanks, and changes in the training of ground forces in terms of camouflage, manoeuvring and hardening defence posts. Such changes should also include the reconfiguration of ground army units, making them smaller but better defended, and/or the recreation of specialized air defence units at the brigade level. Such air defence units should be able both to defend their brigade from drone attacks and, while doing so, advise the brigade leadership on battleship tactics aimed at minimizing exposure to drone attacks¹³. In the words of US military analysts, what is required is a “comprehensive approach that links soldier, material and software solutions”¹⁴.

¹⁰ See Gilli, A., and Gilli, M., the diffusion of drone warfare? Industrial, organizational and infrastructural constraints, *Security Studies*, 2016, 25:1, 50-84.

¹¹ On this issue, see on Israel, Borg, S. 2020 Assembling Israeli drone warfare: Loitering surveillance and operational sustainability, *Security & Dialogue*, 2020 and on Turkey, Farook, U. 2019 The second drone age – How Turkey defied the U.S. and became a killer drone power, *The Intercept*.

¹² Byen, S., *Has the UAV defined the modern battlespace?*, accessed at <http://www.bryensblog.com/has-the-uav-defined-the-modern-battlespace/>

¹³ The following specialist discussion, organized by the International Institute for Strategic Studies, (IISS) provides a useful introduction to the policy debate on drone countermeasures, <https://www.iiss.org/events/2020/12/the-nagorno-karabakh-conflict-military-lessons-for-middle-powers>.

¹⁴ Guelfi, E.A., Jayamaha, B., Robison, T. 2020, The imperative for the US Military to develop a counter UAS strategy, *JFQ*, 97, 2ND Quarter.

Considering the above, even the most advanced armies need to develop resource-intensive and technologically challenging counter drone capabilities. Consequently, there are those who argue that drones have become a weapon and, more than that, a way of conducting modern war that can either force capitulation or defeat an opponent¹⁵. As such, drones, like other weapons systems that strengthen offence at the expense of defence, are seen as increasing the possibility of conflict. The issue then becomes binary, with countries that do not possess drones, in order to avoid capitulation or defeat, being compelled to also innovate or imitate, so they can acquire a drone and counter drone capability.

“...drones, like other weapons systems that strengthen offence at the expense of defence, are seen as increasing the possibility of conflict.”

In the absence of such a development, Turkey therefore seems to confirm the ‘window of opportunity’ thesis in relation to its rivals who are not its equal in drone development and deployment, and/or cannot neutralize its advantage in this sphere through convincingly comprehensive drone countermeasures¹⁶. The Armenia-Azerbaijan conflict over Nagorno-Karabakh also seems to confirm this thesis, in that Azerbaijan clearly planned for a conflict in which its drones would play a decisive role, and in that the drones fulfilled the expectations placed in them, helping to deliver military victory to Azerbaijan.

Greece’s response to Turkey’s armed drone programme and the related public debate

The Greek armed forces perceived the potential of drones early on; indicatively, the Joint Chiefs of Staff produced their first evaluation of drone utility in 1998. Greece purchased a number of French Sperwer drones back in 2002 with the aim of their supporting army units, and the artillery in particular, with tactical Intelligence, Surveillance and Reconnaissance (ISR) support. The Sperwer drones are integrated into the front line ground force formations in the Evros border region and the eastern Aegean islands¹⁷. However, the Sperwer drones are now considered outdated, and should have been replaced some time ago¹⁸. It was around the same time, in 2003, that the Greek Air Force formed its first drone unit, developing its own, also non-armed, Pegasus drones, which were upgraded several years later¹⁹. As drones became ever more prominent in their deployment and capabilities worldwide, the acquisition of highly advanced drones became a top priority for Greece’s uniformed leadership from 2011 on, according to a source²⁰.

Given this close-to-twenty-year engagement with drones of the part of both the army and the air force, coupled with Turkey’s rising drone power status, it should come as no surprise that the current Greek government recently agreed to lease Israeli-made Heron drones for ISR purposes; the units will be run by the Greek Air Force from the island of Skyros.

In terms of adopting comprehensive counter drone measures, no major initiatives have been disclosed by the Ministry of Defence thus far. The current Minister of Defence has

¹⁵ See Zegart, A., 2020 Cheap fights, credible threats: the future of armed drones and coercion, *Journal of Strategic Studies*, 43:1, 6-46 and Lin Greenberg E. 2020 *Wargame of Drones: Remotely Piloted Aircraft and Crisis Escalation*, Available at SSRN: <https://ssrn.com/abstract=3288988>

¹⁶ See Zegart, A. 2020 Cheap fights, credible threats: the future of armed drones and coercion, *Journal of Strategic Studies*, 43:1, 6-46.

¹⁷ See Dimankis, L., Greek ‘flying spy’, *Ta Nea*, 15 June 2002.

¹⁸ See Nikitas, G., Exclusive: The Armed Forces programme for the modernisation of the UAV Sperwer, defencereview.gr, 13 August 2019.

¹⁹ The following Air force link provides a brief history of the drone wing, <https://www.haf.gr/structure/ata/110pm/mmeaf/>

²⁰ According to this source, Greece’s uniformed leadership has consistently asked its political masters for help in procuring top-of-the-line drones and US Arleigh Burke frigates.

“...informal briefings have reinforced the expectation that Greece will acquire an advanced counter-drone capability.”

spoken of ‘neutralisation’ measures to be adopted at a future date to counter Turkish drones, which may or may not mean the adoption of electronic countermeasures. Informal briefings have also intimated that Greek propeller-driven air force trainers may be converted, with Israel’s assistance, into drone killers. The Minister of Defence has also met with four Greek firms that have received European Defence Fund financial support to develop drone-related solutions, communicating to their executives that the Ministry would stand by their efforts²¹. He has also singled out drone-related R&D as a field where Greece’s research and business communities can enter into a particularly fruitful partnership with the country’s armed forces, in the context too of the funding streams and partnerships generated by the EU’s Permanent Structured Cooperation (PESCO) and European Defence Industrial Development Programme (EDIDP)²². Importantly, a reference in an article by Greece’s National Security Adviser may well presage an ambitious effort by Greece’s politico-military leadership to develop as effective a response to Turkey’s drone capability as possible, in the least possible time²³. Subsequent informal briefings have reinforced the expectation that Greece will acquire an advanced counter-drone capability²⁴.

It is important to note that the drone policy response has been driven historically by the armed forces themselves, with the civilian leadership’s evaluation of drones’ significance becoming increasingly aligned with the view of the uniformed leadership over the last year. To put it mildly, Greece has not experienced anything like a ‘missile gap’²⁵ controversy, whereby its perceived lagging behind Turkey in drone capabilities would emerge as a defining political issue. The public and policy debate in Greece on drones in general, and on the increasing potency of Turkey’s drone capability in particular, has been limited. Specialised defence printed and web publications have dealt with narrow technical aspects of drone capabilities in relation to both Greece’s ground forces or the Greek Air Force, but this analysis has not spilled over into the politically significant mainstream quality print media.

It is illuminating to note that an extensive analysis of Turkey’s drone capabilities and its future aims, published by a well-known Turkish institution, has been available in English since 2018 at least. This publication, whose analysis of Turkey’s drone *modus operandi* appears prescient in the light of the Armenian debacle, has, to the best of the author’s knowledge, not stimulated a critical reflection, commensurate in sophistication and comprehensiveness, from non-official Greek defence analysts and scholars²⁶.

Reporting in the Greek quality press on Turkish drone capability and the contribution of drone warfare to the outcome in Nagorno Karabakh has been limited. It however opens avenues for further reflection regarding the use of trainer aircraft as drone killers or commitments to implement a plan on drone deployment in all three branches. Lessons

²¹ As communicated to the author by a high-ranking civilian official.

²² The Minister made this reference to drone-related R&D in a meeting with industry and research community representatives, see <http://www.mod.mil.gr/anakoinoseis-tytoy/symmetohi-kai-kateythynseis-yetha-nikolaoy-panagiotopoyloy-sti-synantisi>

²³ It is worth quoting the relevant reference to priority actions for 2021 in full: “Rapid investment in new technologies (including UAVs & antidrone systems with the growth of an indigenous capability) and solutions of low-cost, high deterrence ability” in Dokos, Th.P., Greek national security: review and challenges, *Kathimerini*, 24 January 2021.

²⁴ See, indicatively, reporting to the effect that Greece is actively seeking to acquire counter-drone measures from Israel, Nedos, V., Partnership with Israel, *Kathimerini*, 21 February 2021.

²⁵ The United States’ perceived missile gap vis-a-vis the Soviet Union became a key critique levelled by J.F. Kennedy at the Eisenhower Administration; see Zelizer, J.E. 2010 *Arsenal of Democracy – The Politics of National Security from World War II to the war on terrorism*, Basic Books. The US missile gap, unlike Greece’s drone gap with Turkey, proved to be exaggerated. Interestingly, the perception of a missile gap became prominent due to both real developments – the USSR’s launch of the Sputnik – as well as by reports issued by a Presidential Commission and by the Rockefeller Brothers Fund.

²⁶ See Kasapoglou, C. and Kirdemir, B., 2018, The Rising Drone Power: Turkey on the eve of its military breakthrough, *EDAM - Foreign Policy and Security*, 4.

drawn from Nagorno Karabakh ranged from questioning a reliance on undertrained conscripts in such a punishing battlefield environment to the conflict as an indication of the competence of Turkey's armed forces to indirectly reflecting on the implications of such a demonstration of drone potency for the operations and equipment of the Greek armed forces²⁷.

“...the fiscal crisis did not become an opportunity for reconfiguring and modernising Greece's armed forces, since civilian policy makers ran the structure that they found.”

The press provided more extensive coverage, shaped by the informal Ministry of Defence briefings, of the performance of the Greek navy and air force in the game of brinkmanship they played with their Turkish counterparts in the Eastern Mediterranean in 2020. The potency that will accrue to the Greek armed forces through the acquisition of the Rafale fighter jets, and the still undetermined navy frigates, has also enjoyed extensive media coverage²⁸.

Greek journalists and commentators have been keen to report on how: (a) the Greek navy and air force bested their Turkish counterparts in the Eastern Aegean and Mediterranean, and (b) the Greek navy and air force will secure parity with, or even ascendancy over, their Turkish counterparts thanks to their rearmament programme. Reporters and commentators have tended to overlook the potential threat which Turkey's drone capabilities pose primarily to Greece's ground forces.

Why has Greece developed neither a comprehensive drone capability nor a comprehensive counter-drone capability?

To be fair, and as we mentioned above, the Nagorno Karabakh conflict, which is perceived as being so catalytic for the modern battlefield, is very recent indeed. Earlier instances of effectively utilised drones besting standing armies and sophisticated air defence systems were of a more limited nature, as we have noted above. Indeed, even the armed forces of the US, the UK and elsewhere only seem to have woken up to the threat drones could pose to their ground forces quite recently²⁹.

However, when we move our focus from drone countermeasures to drone deployment, we see that armed forces as diverse as those of Italy and Sweden have made substantial progress in utilising drones in terms of force protection measures and combined operations. This is primarily due to the exposure of their ground forces in conflict situations such as those in Afghanistan and Mali³⁰. Additionally, considering that Greece

²⁷ See Kanellis, V. The War of drones in the Aegean, *Ta Nea*, 17-18 October 2020, which focuses on drones' surveillance capabilities over the sea; Psihogios, D., Lessons from Armenia, *Ta Nea*, 12 October 2020, for a non-specialist critic of conscript service who links drone performance at Nagorno-Karabakh with the assumed unsuitability of conscripts for Greece's Armed Forces; Charalambakis M., The unknown war of the drones, *Ta Nea*, 19 November 2020, who reports on Greece's extant and future drone capabilities, again focusing on surveillance despite referencing their role in Turkish combat operations. Diakopoulos, A., Lessons from the war in Nagorno Karabakh, *Ta Nea*, 14-15 November 2020, underlines Armenia's failure to compromise when it could have, losing far more on the battlefield due to military inferiority than it would have given away via the diplomatic route. It is illuminating that one of the very few analyses to appear in the quality Greek press of the drone tactics that produced victory for Azerbaijan in Nagorno Karabakh was actually a translation of a Reuters article; see The three factors of the victory of the Azeris, *Kathimerini*, 22 November 2020. Also, see an analysis conveying the Ministry of Defence's exploration of the possibility of converting T6 propeller-driven aircraft into drone killers in Nedos, V., Mammoth agreement with Israel for Kalamata, *Kathimerini*, 6 January 2021.

²⁸ See indicatively, Gasianis, M, Lessons in Superiority over the Aegean, *To Vima*, 6 December 2020; Charalambakis, M., Now everyone takes pride in their 'invisible' submarines, *Ta Nea*, 14-25 November 2020; and Stoupas, N, Tayip you managed just fine, *Capital.gr*, 28 January 2021 on, respectively, reports on the performance of Greek fighter jets and submarines during the brinkmanship between Greece and Turkey in the Eastern Mediterranean in the fall of 2020 and on the advantages accruing to the Greek side through the acquisition of French Rafale jets.

²⁹ See, for instance, Sabbagh, D., UK wants new drones in wake of Azerbaijan military success, *The Guardian*, 19 December 2020.

³⁰ See Borg, S., Below the radar. Examining a small state's usage of tactical unmanned aerial vehicles, *Defence Studies*, 20:3, 185-201 and Cottiglia, F. and Moro, N.M., 2016 Learning from others? Emulation and change in the Italian Armed Forces since 2001, *Armed Forces & Society*, 42:4, 696-718.

“...culture of force protection and safety at all costs, combined with a historical bias for territorial defence, led to Greece participating with minimum risks in demanding peacekeeping operations”

“Italian civilian and uniformed policy makers had internalized the value of a drone capacity as far back as 2005 and 2007, in Iraq and Afghanistan respectively.”

is Turkey’s most sophisticated strategic rival, we could expect the Greek civilian and military leadership to be outliers in terms of the timeliness of their response to the implications of Turkey’s experience with drone warfare. To the extent that this has not been the case over at least a five-year period, we can advance a number of reasons as to why.

First, the fiscal crisis did not become an opportunity for reconfiguring and modernising Greece’s armed forces, since civilian policy makers ran the structure that they found, just at massively reduced levels of spending. This was the case, too, in other state sectors such as public health and education, where double digit fiscal cuts did not catalyse rationalization and reform³¹. In national defence, operationally-redundant installations were not closed down; weapon systems and units past their sell by date were kept in service; no kitty was created for investment in smart weapon systems, such as drone deployment or drone countermeasures, that would enhance the defensive or offensive potency of the Greek armed forces; mismanaged state-owned defence firms were not restructured so that capital and knowhow relevant to drone development and countermeasures could flow in³². The decision to close down the (admittedly problematic) defence studies institute of the Ministry of Defence is indicative of the political system’s indifference to innovative policy delivery during the fiscal crisis. One would think it would be precisely in an environment of drastic fiscal cuts that out-of-the-box thinking would be at premium in Greece’s defence policy.

Second, a culture of force protection and safety at all costs, combined with a historical bias for territorial defence, led to Greece participating with minimum risks in demanding peacekeeping operations, such as Afghanistan’s International Security Assistance Force (ISAF) mission³³. Greece’s political leadership either ignored or did not value the positive impact that such participations could have, in higher risk environments, on the overall modernisation of Greece’s armed forces, including the timely appraisal of the importance of drone acquisition and deployment³⁴. Relatedly, fear of domestic opposition and inviting terrorist blowback in Greece meant the country had limited leverage for requesting the sale of armed drones from the US in exchange for allowing Greece-based US drones to launch attacks across the Mediterranean and elsewhere. Indeed, the US was only allowed to operate non-armed drones from Greece after five years of protracted negotiations, with US MQ-9 Reaper drones only landing at the Larisa air base in 2018³⁵. To underscore the risk aversion of Greece’s politicians, which was heightened during the fiscal crisis period, we note that Greece was led from 2012–2015 by centre-right PM Antonis Samaras, a foreign policy hard liner who should have been keen to develop Greece’s military deterrence.

³¹ For a critique of the timid rationalization measures, undermined by clientelistic pressures, in the critical field of higher education during the fiscal crisis, see Grispolakis, I. The spatial restructuring of higher education and the ATHINA plan, *Athens Voice*, 8 August 2013.

³² A comprehensive agenda for armed forces reform, rendered even more necessary by Greece’s fiscal crisis, was available by 2016; see Dokos Th., eds. 2016 *White Book on Greek Foreign Policy, defence and security*, I. Sideris (in Greek). This agenda highlights, among other issues, rationalizing the network of defence-related installations (camps and bases), a force structure determined by operational optimality versus the need to satisfy all three branches equally, and an efficient weapons acquisition process. Subsequently, Panos Laskaridis, a well-informed ship-owner and major benefactor to the Hellenic Navy, and Stefanos Manos, a retired politician, provided reliable, essentially insider accounts of the failings in weapons procurement and armed forces rationalisation during the fiscal crisis years in several op-eds; see, indicatively, Manos, S. Defence Expenditures: Instructions of rationalization and modernization, *Kathimerini*, 4 December, 2017, and Laskaridis, P. Our relations with Turkey and national defence: are we serious, *Kathimerini*, 30 September, 2019, Self-evident truths, *Kathimerini*, 12 July 2020.

³³ The following Greek Ministry of Defence link gives a description of the nature of the participation of the Greek contingent at ISAF, <https://geetha.mil.gr/en/afghanistan-isaf/>

³⁴ Through their participation in peace keeping operations in Afghanistan, Italian armed forces were compelled to respond to demanding interoperability conditions with US and other third-country forces, mastering skills including contributing to and benefitting from a common operating picture generated using data from drones and other sources; see Cottiglia, F. and Moro, N.M., 2016, Learning from others? Emulation and change in the Italian Armed Forces since 2001, *Armed Forces & Society*, 42:4, 696-718.

³⁵ See, Athanasopoulos, A.A., American drones in Larissa, *To Vima*, 23 March 2018.

“...the General Directorate for Defence Investments and Armaments (GGDIA) was, and is, manifestly unsuited to responding rapidly to the rising drone threat.”

The comparison with Greece’s neighbour, Italy, could not be starker. Italy allowed attacks, on a case-by-case basis, to be launched by US armed drones based at Sicily’s Sigonella naval air station in exchange for permission to buy armed MQ-9 Reaper drones from the US in February 2015³⁶. It is not, of course, incidental that Italian civilian and uniformed policy makers had internalized the value of a drone capacity as far back as 2005 and 2007, in Iraq and Afghanistan respectively, high-risk environments where unarmed Predator drones Italy had purchased were deployed in support of Italian troop contingents³⁷. In sum, Italy, unlike Greece, risked and actually suffered losses in peacekeeping operations (53 of Italy’s soldiers lost their lives in Afghanistan) and did not let fears of terrorist blowback cause it to deny the US the use of its bases for armed drone attacks. Combined, these decisions allowed the Italian armed forces to integrate sophisticated drones into their operations while also providing the Italian government with the leverage to demand that the US sell it armed drones.

“...an undernourished research community could not provide with ideas a civilian leadership historically accustomed to running the status quo and addressing political client constituencies hit by the crisis.”

Third, the General Directorate for Defence Investments and Armaments (GGDIA) was, and is, manifestly unsuited to responding rapidly to the rising drone threat, either via the rapid acquisition of a drone and counter-drone capacity from abroad or via interaction with Greece’s R&D ecosystem. As an ex-head of the GDDIA has pointed out, the Directorate: a) does not follow international best practice, as its staff are not permanent technocrats but rather field officers from the armed forces seconded to the GGDIA for three-year stints; b) labours under a dysfunctional legislative framework which was adopted during the fiscal crisis as a reaction to past defence procurement scandals; the framework causes significant delays and/or high failure ratios in the completion of bids, and is not suited to R&D partnerships with defence firms and research institutes; c) has no specialised desk dedicated to the partnership with the Greek R&D ecosystem; d) is saddled with an overall procurement process whose efficacy is compromised by the lack of a published long-term defence procurement planning document and from ad hoc procurement decisions made by a political leadership with no prior substantial interaction with the Directorate and Joint Chiefs of Staff³⁸.

Fourth, an undernourished research community could not provide with ideas a civilian leadership historically accustomed to running the status quo and addressing political client constituencies hit by the crisis³⁹. It is entirely possible that the Ministry of Defence drone working groups produced excellent and timely analyses of the implications of drone warfare for Greece’s deterrence. The point still stands, however, as evidenced by our analysis of the totally inadequate public and specialist debate on the potency of Turkish drones, that Greece lacks a critical mass of analysts and scholars who can induce reform and innovation in Greek defence policy. A critical mass of this sort would surely have enhanced the influence of future-oriented officers over the Ministry of Defence’s civilian leadership during the fiscal crisis, allowing ‘the crisis to be turned into an opportunity’, as the expression goes.

Fifth, a build-in bias formed during times of plenty towards the like-for-like (in relation to Turkey) acquisition of highly prestigious and visible weapons platforms such as main battle tanks, frigates and fighter jets has resulted in relative indifference on the part of

³⁶ See Cecolli, S. and Crosston, M., 2019, Diffusion and policy transfer in armed UAV proliferation: The cases of Italy and Germany, *Policy Studies*, 40:2, 111-130. See Athanasopoulos, A.A., American drones in Larissa, *To Vima*, 23 March 2018.

³⁸ See the very revealing interview with Admiral Kyriakos Kyriakidis (retd.) who led the GDDIA for nearly five years from 2015, <https://www.militaire.gr/kyriakos-kyriakidis-exoplismoi/>

³⁹ The negative interaction between the limited analytical ability inhering in the Ministry of Defence and the under-resourced community of defence studies scholars has been examined by the author; see Kamaras, A. 2020 *Establishing Defence Studies in Greece? It is high time...*, ELIAMEP, Policy Paper 41.

“It might also have been the case that former civilian leaders at the Ministry of Defence were incurious about seemingly far-off and exotic threats and capabilities, such as those presented by drones.”

the civilian leadership of the Ministry of Defence to less prominent, but no less important, weapon systems and infrastructures. Uncharismatic infrastructures which are less tangible and whose effectiveness is more difficult to evaluate, particularly when they are combined with drones deployment (C4 systems, for example) have been underdeveloped⁴⁰. It might also have been the case that former civilian leaders at the Ministry of Defence were incurious about seemingly far-off and exotic threats and capabilities, such as those presented by drones, in for instance the first decade of the twenty first century. In other words, civilian leaders would be content to tick the boxes relating to Greece’s deterrence force vis-a-vis Turkey—e.g. they have x fighter jets, we have y fighter jets, and so on—without delving into the substance of Greece’s deterrence, with its complexity, dynamic evolution, and inevitable uncertainty.

Pre-empting challenges to Greece’s military deterrence: lessons for the future

The development of a formidable as well as innovative drone capacity by the Turkish armed forces represents a significant challenge to Greece’s deterrence. This challenge is both short- to medium-term as well as long-term.

The short- to medium-term challenge is for Greece’s civilian and military leadership to rapidly upgrade and develop a drone and counter-drone capability respectively.

The long-term challenge, assuming the Turkish drone programme is only a harbinger of things to come, is to institutionalise a reform mindset, in organizational and technological terms, both within and outside the Ministry of Defence. Only with such a mindset in place can the Greek armed forces develop timely and effective solutions which can deter the dynamic and highly complex threats to Greek national security that have yet to emerge from Greece’s principal strategic rival, Turkey.

A highly technocratic, internationally-aware Greek Prime Minister, the Armenian debacle in Nagorno Karabakh, and an ever more militarily assertive Turkey all but guarantee that the Ministry of Defence will accelerate the acquisition of a drone and counter drone capacity in the months and years ahead.

“...in the future the civilian leadership may need to tilt the scales in favour of drone-led transformation.”

Considering the magnitude of the challenge, the Prime Minister should perhaps entrust a high-ranking Greek Army officer within the Ministry of Defence with developing a drone and counter-drone capacity for Greek ground forces. Doing so would require their being given enhanced authority, sufficient budgetary resources, and a tightly-scheduled reporting, which would include the Prime Minister himself. The designated officer would lead a task force including not only the army and air force, which are already experienced in drone deployment, but also the navy, as drones are increasingly finding their way into the world’s most advanced naval forces⁴¹.

We also note here that while soldiers rather than civilians have indeed been the main driving force behind Greece’s acquisition of a drone capability over the last twenty years, in the future the civilian leadership may need to tilt the scales in favour of drone-led transformation. This will be especially true if such a transformation makes increasing claims on scarce resources and compels radical force structure reforms, as the literature we have reviewed suggests it will. Such an eventuality would necessitate civilian leaders

⁴⁰ For these pathologies of weapons procurement in Greece, see the long piece written by an anonymous insider, Special Contributor 2020 Mistakes in Weapons Procurement Programmes 1996-2004 – Pathogenies that need to be cured, *Greek Defence and Technology*, 129.

⁴¹ See indicatively, Royal Navy’s Puma drone gets its claws into maiden deployment, *Royal Navy*, 9 October 2020.

taking the side of drone advocates within the uniformed leadership in opposition to the more conservative officers invested in status quo weapons systems and force configurations.

Given a tight schedule and sufficient financing, a designated counter-drone task force could also function as a catalyst in terms of mobilizing the country's research community and its more innovative defence firms in the cause of the country's military deterrence. It would certainly be hard to think of a more galvanizing challenge, considering Turkey's twin status as Greece's sole strategic rival and as an international leader in drone-led warfare.

“...as drones increasingly resemble manned fighter jets in their sophistication and capabilities, the only feasible option would be for Greek state and private firms to continue and/or join the relevant European consortia.”

In terms of Greece's ground forces acquiring a drone capability, the Ministry of Defence could judiciously apply technologies, doctrines and operations used and developed by one or more of its strategic allies—Israel would be a top candidate in that regard—with long and battle-tested experience in that domain. Greece could also copy Turkey by producing in short order a cheap but effective armed drone, not unlike the TB2, based on imported COTS as well as other readily available military-use equipment. Longer term, and as drones increasingly resemble manned fighter jets in their sophistication and capabilities, the only feasible option would be for Greek state and private firms to continue and/or join the relevant European consortia rather than expending precious time and resources on the chimera of self-sufficiency. In this way, the Greek armed forces could enjoy access to next-generation drones and Greek firms could develop critical competencies in both civilian and military drone use. Related EU initiatives are gathering pace in that direction⁴², and Greek firms and universities have joined the game⁴³. Still, a coherent road map should be developed by the Ministry of Defence to optimise these efforts⁴⁴.

While Greek uniformed and civilian policy makers could speed up the acquisition of a Greek drone and counter-drone capability through such actions, Greece's government should also attempt to concurrently slow down the Turkish drone effort. Specifically, the government should lobby vigorously for an embargo on the export of drone-related technologies to Turkey within the EU, UK and North America, at least. Thus far, the Greek government has focused its efforts on promoting an embargo on sales by Germany, Spain and Italy of major items such as submarines, a helicopter carrier, and attack helicopters⁴⁵. Now that Turkish drones have demonstrated their strategic significance in Nagorno Karabakh, exports of key drone components should clearly be treated with the same gravity as these major weapon systems, in terms of the potential threat Turkey's drones represent to a fellow EU member-state and loyal ally. In addition, an embargo on the export of drone components has the added advantage of being economically painless for the countries concerned. Compared to the cancellation of contracts for major weapon systems valued in the hundreds of millions of euros and affecting employment in key weapon manufacturers, a ban on the export of drone-related components would have a negligible economic and employment impact.

⁴² See, relatedly, these two key initiatives from EDIDP and PESCO respectively: <https://www.flightglobal.com/defence/eurodrone-project-gets-formal-go-in-advance-of-2021-contract-award/141556.article> and <https://pesco.europa.eu/project/european-medium-altitude-long-endurance-remotely-piloted-aircraft-systems-male-rpas-eurodrone/>

⁴³ EAV, Greece's state-owned military aviation firm, has already participated in such a consortium; see <https://www.haicorp.com/el/products-el/rd-el/neuron>. Another such consortium involves several Greek private firms and state universities as well as foreign partners; see https://ec.europa.eu/commission/presscorner/detail/en/fs_20_1086.

⁴⁴ For a template of how holistic and comprehensive a military capability development can be, see the US Department of Defence's recently published strategy on developing counter-measures against small drones: <https://media.defense.gov/2021/Jan/07/2002561080/-1/-1/1/DEPARTMENT-OF-DEFENSE-COUNTER-SMALL-UNMANNED-AIRCRAFT-SYSTEMS-STRATEGY.PDF>

⁴⁵ On Greece's effort to impose an EU-wide weapons embargo on Turkey, see Kamaras, A. 2020 Greece's call for an embargo on weapons sale to Turkey: a seminal step for the EU's collective defence identity? *ELIAMEP Policy Paper* 44.

Longer-term measures must principally aim at creating a robust pro-reform constituency both within and outside the Ministry of Defence. Such a pro-reform constituency should, indicatively, include the following eight action items:

1. The radical transformation of the legal and organizational set-up of the GGDIA, involving: a) the adoption of a legal framework that follows international best practice to allow for an efficient bidding process and a productive relationship with the Greek R&D ecosystem; b) the hiring of top-notch civilian scientists, or even the creation of another career officer track which would allow the MoD to induct high-quality mid-career scientists and technocrats into the Greek officer corps, and into the GGDIA in particular;⁴⁶ c) the creation within the GGDIA of a special desk dedicated to the cultivation of an effective relationship with the Greek R&D ecosystem.
2. Participation in demanding peacekeeping and other multilateral operations, so as to build and grow a cohort of officers familiar with the most advanced field equipment, doctrine and tactics worldwide. The participation of Greek special forces in Afghanistan would have enhanced both civil and military awareness of the efficacy of drones in facilitating combined operations and providing situational awareness that is critical for force protection. In this way, a template for the drone-led transformation of Greece's ground forces would have been internalized by the ground forces' officer corps. In this context, the participation of Greek special forces in the French-led mission in Mali would serve as a highly suitable starting point, and has been rendered politically legitimate by France's ongoing and multifaceted bolstering of Greece's deterrence.
3. A commitment by the Ministry of Defence to publish the quadrennial Force Structure and National Security Strategy documents, so that: (a) the policy community can test the Ministry's assumptions and, through policy dialogue and contestation, improve the game of both the civilian and uniformed personnel entrusted with the country's national defence; (b) the R&D ecosystem could invest time and effort in becoming an effective partner in such publicized, national defence priorities. A published force structure and national security document, in 2016 for instance, would have spurred highly sophisticated scholars and analysts in both Greece and the diaspora to warn Greek civilian policy makers not to underestimate drone-led warfare and its criticality for Greek deterrence.
4. The creating and funding of one or more departments of defence studies in Greek universities, which would create a cadre of civilian and military scholars and technocrats that would subsequently inform both public and policy dialogue. A critical mass of scholars resident in Greece would have excoriated the timidity of the successive Greek governments that failed to institute rationalization and modernisation measures during the fiscal crisis in order to update the armed forces' deterrent force in lean times. It is imperative, too, that Greek scholarship on Civil Military Relations (CMR) does not narrow its focus and examine the evolution of CMR from the perspective solely of the consolidation of democracy in Greece. Instead, Greek scholars should broaden their horizons and address the issue of how CMR have affected Greek defence policy and the combat

“Greece’s government should also attempt to concurrently slow down the Turkish drone effort.”

⁴⁶ The author owes this idea to a Greek of the diaspora who serves in the Australian armed forces; see Vlachos, A. Benefits of Australian Defence Force recruitment system, *Kathimerini*, 15 11 2020.

effectiveness of Greece's armed forces historically as well as in the present⁴⁷. The delay in the adoption of a drone and counter-drone capacity for the Greek armed forces is a CMR case study par excellence.

“Turkish innovations in drone warfare have emboldened Turkey's leadership to resort to warfare.”

5. A decisive break with the political taboo on defence-oriented R&D in Engineering, IT and other highly technical university departments and research institutes through the creation of Ministry of Defence liaison desks within these institutions' technology transfer units⁴⁸. Furthermore, the allocation of Ministry of Defence basic and applied science funding streams, so that Greece's research community itself becomes an integral part of the pro-reform defence policy agenda through its capacity to innovate in a way that is relevant to national defence. Particularly in Information and Communications Technology (ICT), a highly relevant domain for developing a drone and counter-drone capacity, Greece's university departments and research institutes have developed a critical mass of expertise. Providing competitive as well as long-term funding, such expertise can significantly contribute to the capacity of the Greek armed forces to field innovative drone and counter-drone capacities and other breakthrough military technologies.
6. Leveraging EU programmes and policy priorities in both the military and civilian domains in order to develop R&D competences relevant to national defence. For instance, the effective involvement in the EU drone 2.0 strategy, as well as properly designed actions to be funded by the Greek Recovery and Resiliency Fund, can deepen Greece's competencies to the ultimate benefit of defence-related applications⁴⁹.
7. The rationalization of state-owned defence firms and successful leveraging of offset agreements can help the country acquire a forward-looking military & industrial complex. In partnership with the scientific community, this complex can become an effective agent of ceaseless modernisation for the country's armed forces. Recent inflows of outside capital into Greece's state-controlled defence firms is encouraging, but new owners and/or joint venture partners should be rewarded with Department of Defence contracts through technically demanding bids that would reward not just efficiency but also innovative solutions in critical domains such as drone warfare.

Conclusion

Turkey's drone warfare trajectory involves the interaction between a novel military technology and a nation-state which: (a) as it regresses to one historical norm, namely

⁴⁷ Typically, the latest publication on Greek CMR focuses on their impact on the democratization process in Greece, forty-six years after the nation's transition to democracy; see Tsarouhas, D. 2021 *Greece: From overt military activism to democratic normality*, Oxford Research Encyclopaedia of Politics. Relatedly, a leading Greek political scientist discusses how deficient governance in the Directorate of Army History within the Ministry of Defence has deprived the contemporary policy dialogue on Greece's strategic rivalry with Turkey a historically informed view of the ability of Greek armed forces to confront Turkey's armed forces on the battlefield; see Mavrokordatos, G., Use and abuse of military history, *Kathimerini*, 28 July 2020.

⁴⁸ Relevantly, the Deputy Minister of Education, Angelos Syrigos, revealed in the Hellenic Parliament that ideological opposition to military-related research, backed up by the real threat of campus violence, has discouraged academics in Greece's engineering faculties from engaging in drone-related research activities; see Bokas, A., Syrigos: state of terror in particular universities – professors are targeted and self-censor, *Proto Thema*, 2 February 2020. Admittedly, campus prejudice against defence-related fields of academic inquiry is not a Greek monopoly, as the distinguished British military historian Max Hastings has pointed out; see Hastings, M., American Universities declare war on military history, *Bloomberg*, 31 January 2021.

⁴⁹ See paragraph 66, page 15 for the drone component of the European Commission's smart mobility strategy: https://eur-lex.europa.eu/resource.html?uri=cellar:5e601657-3b06-11eb-b27b-01aa75ed71a1.0001.02/DOC_1&format=PDF

the internal repression of its Kurdish minority, is simultaneously (b) deviating from another historical norm, namely its Western orientation and a prudent national security and foreign policy which has eschewed military entanglements outside its NATO-allied structure (with the exception of the 1974 invasion of Cyprus, though this involved its co-ethnics on the island). Both the regression to one norm and the deviation from another have propelled Turkey forward as a leading innovator in drone warfare within the space of five action-packed years, from 2016 to 2020, starting with South East Turkey before moving to Syria, Libya and Nagorno-Karabakh. In a feedback loop, Turkish innovations in drone warfare have emboldened Turkey's leadership to resort to warfare, either directly or via its proxies and allies, in pursuit of various domestic and external aims.

"...as scholars and as citizens, we cannot divorce armed forces reform from the country's overall reform process."

Why has Greece delayed responding to this development, considering that it is one of Turkey's most sophisticated strategic rivals and in possession of substantial armed forces? Because from 2016 to 2019, roughly speaking the second half of Greece's severe fiscal crisis, the Ministry of Defence proved as unwilling and unable as other governance sectors (public health and education, for instance) to respond to a dramatic fall in fiscal spending with aggressive rationalization and modernization. The lesson learned is that enduring deficiencies in the country's reform capacity extend to the country's national defence. Thus, as scholars and as citizens, we cannot divorce armed forces reform from the country's overall reform process.

In the critical years of 2019–2020, the escalation of Turkey's militarized challenge to Greece to unparalleled heights coincided with the first post-fiscal-crisis government taking office. We predict, given the salutary effect of drone-led warfare in Nagorno-Karabakh, that the current Greek government will implement its drone and counter-drone capacity acquisition programme within 2021.

Greece's own status as a NATO member-country in possession of still competent and powerful armed forces, notwithstanding the fall in defence expenditure and institutional weaknesses, some of which have been identified in this paper, has surely helped to stave off armed conflict with Turkey following the militarization of its foreign policy. This has given Greek policymakers time to become progressively more knowledgeable about Turkish drone capabilities.

Thus, now is the time for the country's leadership to demonstrate wisdom and determination and address the gaps in Greece's drone and counter-drone capacity which the defeat of others, most prominently Armenia in Nagorno Karabakh, have starkly underscored. By doing so, the Greek government will not only neutralize a critical Turkish battlefield advantage, it will also demonstrate to Turkey that any such advantage will always be fleeting due to Greece's innate strengths as well as its privileged access to the critical know-how and expertise of its Western allies—the same allies Turkey has done so much to antagonise through its bellicose national security and foreign policy.

"...the Greek government should lay the foundations for ensuring that Greece never again has to learn from catastrophic test cases, lest Greece itself becomes such a test case in the future."

At the same time, the Greek government should lay the foundations for ensuring that Greece never again has to learn from catastrophic test cases, lest Greece itself becomes such a test case in the future. After all, Turkey's increasing autonomy and assertiveness mean that it will continue to be incentivised to innovate in its conducting of military operations. Which means that Greece will not always be able to 'buy' off-the-self equipment, doctrines and operations from its allies at relative short notice to counter this ever-evolving and sui generis threat. Consequently, Greece should improve the reform dynamism of its own armed forces; strengthen its defence-related R&D judiciously in order to provide effective, tailor-made, home-grown solutions to threats emanating from Turkey; and participate in challenging multilateral peacekeeping

Turkish drones, Greek challenges

missions which, though they will endanger the lives of its professional soldiers, will allow for the development of a cadre of officers capable of acting as agents of military innovation.