

STRATEGIC WEAPON SYSTEMS IN THE TURKEY-RUSSIA-US TRIANGLE

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Executive Summary

Comparing two defensive strategic weapon systems is not easy. One should evaluate key parameters such as geography, air and missile threat landscape, inventory, defense economics and international military cooperation case-by-case. Thus, a way forward for Ankara's air and missile defense procurement should depend on a thorough assessment of Turkey's political-military conditions and security environment.

The US' recent Patriot offer seems more advantageous compared to the previous one. The package, consisting of Patriot GEM-T and Patriot PAC-3 MSE variants, would respond well to Turkey's critical defense requirements, especially when tackling ballistic missiles threats. Of course, ironing-out the final price, securing lucrative offset options, and negotiating a viable timeline would be important priorities for the Turkish administration.

It would be safe to assume that the S-400 would provide superior air defense capabilities than its Western equivalents could offer, although the Russian system is not combat proven yet. Additionally, the high mobility of the S-400 boosts its survivability in the battleground. However, hunting down ballistic missiles is a different story. Ballistic missile defense (BMD) depends on a complex architecture. The S-400 cannot be integrated into Turkey's existing NATO-compatible command & control networks. This would significantly curb its BMD capacity.

>> Open-source pieces of evidence suggests that Ankara would probably opt for simultaneously procuring the S-400 and the Patriot systems, while finalizing the F-35 deliveries. However, feasibility of such a procurement plan is questionable. The S-400 acquisition is likely to trigger a series of CAATSA sanctions, let alone the Patriot deal falling through from the beginning. Indeed, open-source summary of the Pentagon's (F-35 / S-400 related issues) report to the Congress suggest that apart from the F-35 deliveries, Turkey's existing F-16 inventory could also be affected by possible sanctions. EDAM's previous writings have in-depth assessed the force-multiplayer effects, information superiority edge, and network-centric capabilities of the F-35 Joint Strike Fighter. Considering Turkey's long-term national defense interests, the F-35-enabled capabilities will clearly dwarf the benefits of operating the S-400s as a standalone air defense asset.

In case Turkey was a non-NATO state that prioritized denying its airspace to potential adversaries, the S-400 would definitely overtake the Patriot variants. This is especially true if the country in question had a Soviet / Russian command & control architecture. Yet, none of the abovementioned conditions is relevant to the Turkish case.

The Patriot package (thanks to the combination of high-end GEM-T and PAC-3 MSE variants) will be more suitable for a NATO-member state that has a NATO-compatible command & control architecture and Western aircraft (predominantly the F-16 variants at present, along with 100 F-35As and possibly 20 F-35Bs more to come). Besides, Turkey's immediate doorstep is plagued with ballistic missile proliferation and rogue WMD programs. The nation, with a fast-developing indigenous defense sector, is a Level-3 partner of the F-35 project. The Turkish defense industry even produces high-end SOM-J missiles for the Joint Strike Fighter. Overall, while the S-400 is a true A2/AD asset, its procurement could also harm Turkey's defense modernization efforts.

Even if the Turkish administration decides to backtrack from the S-400 procurement, it should do so without damaging the Turkish-Russian security and diplomatic ties that remain critical for Ankara's cross-border military operations in Syria. Thus, this report recommends, the S-400 procurement could evolve towards different face-saving options that would provide tactical air defense capabilities for the army formations. In this respect, the Russian defense industry offers various low-to-medium range, mobile air defense solutions. These arms do not fall under the strategic weapon systems category, and should cause much less 'political debris' when compared to the S-400.



Introduction

November and December 2018 witnessed critical developments in Turkey's military modernization and international defense cooperation agendas.

In November 2018, the US Department of Defense presented a detailed report to the Congress on Turkey's purchase of the S-400 system, and the fate of the F-35 deliveries in this respect. The public, brief version of the report draws attention to some key issues that many assessments overlooked before. First, a possible S-400 procurement will not only kill the F-35 deliveries, but could also trigger a series of CAATSA (Countering America's Adversaries Through Sanctions Act) sanctions which would negatively affect a broad range of capabilities including Turkey's F-16 fighter aircraft, CH-47F heavy-lift helicopters, and UH-60 utility helicopters¹. If the CAATSA sanctions take place, especially amidst the present problematic regional threat landscape surrounding Turkey, they could hamper the Turkish Armed Forces' warfighting capacity and combat-readiness.

On December 16, 2018, President Recep Tayyip Erdogan announced that Turkey would acquire 120 F-35 multi-role aircraft². In addition to the known 100 F-35As, the President's remarks hinted at the prospects of procuring 20 additional F-35Bs for the forthcoming amphibious assault ships of the Turkish Navy – if true, a strategic move that could turn them into 'mini aircraft carriers' –.

Shortly after President Erdogan's '120 F-35s remark', on December 19, 2018, the US DSCA (Defense Security Cooperation Agency) notified the Congress about potential Patriot foreign military sales to Turkey³. Contrary to the notification back in 2009⁴, this time, Washington kept offset options open. The Congress did not voice any objections within the 15 days window. Thereby, the deal could now proceed if certain difficulties, first and foremost the S-400 procurement, are resolved. In fact, the offer should come as no surprise since the Pentagon's report to the Congress also highlighted the very necessity to propose an alternative to Turkey.

Notably, in the meantime, the Kremlin's spokesman Dmitriy Peskov told to the press that there were no worries about the S-400 sale to Ankara. Besides, Peskov underlined, Moscow had full confidence that Turkey would not share sensitive information about the Russian defensive strategic weapon system with the US⁵.

While Turkish defense planners' rhetoric suggests that Ankara would opt for proceeding with the Patriot and the S-400 procurements at the same time, present political balance in the US Congress, as well as the recent Pentagon report, make it extremely difficult to do so.

This report assesses the political-military aspects of Turkey's strategic weapons quest through various scenarios. In essence, we should find good answers to critical questions. What are the obvious advantages of the S-400 system compared to the Patriot? And, if Turkey walks away from the S-400 deal, would it lose an irreplaceable critical capability? In tandem, what should be the role of SAM (surface-to-air missile) systems in Turkey's airspace control, air defense, and air superiority capacities? If Ankara insists on the S-400 procurement, and if this decision halts the F-35 deliveries (and even triggers the CAATSA sanctions that could adversely affect the existing F-16 inventory), how would the cost benefit ratio look like?

⁴ DSCA, http://www.dsca.mil/major-arms-sales/turkey-patriot-advanced-capability-3-guided-missiles, Accessed on: December 25, 2018.

¹ The US DoD, FY19 NDAA Sec 1282 Report, Unclassified – Cleared for Publication, November 26, 2018.

² Habertürk, https://www.haberturk.com/istanbul-haberleri/17167112-erdogan-f-35ler-yapiyor-amerika-onlardan-bize-de-gelecek-120-tane-onlarin-bile-belli, Accessed on: December 25, 2018.

³ DSCA, http://www.dsca.mil/major-arms-sales/turkey-patriot-missile-system-and-related-support-and-equipment, Accessed on: December 25, 2018.

⁵ Sputnik, https://tr.sputniknews.com/rusya/201812191036703493-kremlinden-patriot-sorusuna-yanit/, Accessed on: December 25, 2018.



Analyzing Turkey's Air and Missile Defense Priorities

The Russian Federation is the second largest arms exporter in the world. Due to Moscow's flexibility in arms sales, and because it offers capable systems at more affordable prices compared to the West, Russian weapons are pretty attractive in many parts of the world. Between 2000 and 2016, Russia secured approximately 25% of global arms sales. This successful portfolio shines with 41% share in air defense systems sales globally⁶. The S-400 is the most advanced air defense solution in the long-range / high-altitude segment of the Russian defense industry.

In fact, the S-400 is superior to the Patriot family in the anti-access / area denial (A2/AD) abilities. Besides, many Western writings underline that the S-400 is more mobile and survivable⁷. When used effectively by air defense crews, the S-400 could prove to be very resilient against SEAD (suppression of enemy air defenses) threats. Some studies indicate that well-trained and disciplined personnel can ready the S-400 to relocate in about only 10 minutes⁸. The S-400s are also more resistant to electronic warfare than their Soviet / Russian predecessor SAM systems⁹.

In appropriate topographic conditions, the 40N6 missile¹⁰, which recently entered in the Russian inventory, might increase the range of the S-400 up to 400 kilometers against certain aerial platforms. Besides, having several missiles in the same battery (i.e. 48N6 and 9M96 variants) provides the system with target-set flexibility. Putting the 40N6 missile aside (which is not incorporated in Turkey's procurement package), the system has a maximum range of 250km against aerodynamic targets and 60km against ballistic threats¹¹. Obviously, these ranges, especially in air defense, overtake the Patriot family. On the other hand, unlike the US' THAAD system, the S-400 does not have exo-atmospheric interception ability¹². This is a critical shortfall against ballistic

missiles tipped with chemical and biological warheads, something that should be taken seriously especially in the Middle East. It seems that Russia aims to close the exoatmospheric interception gap by the forthcoming S-500. Nevertheless, the Russian Federation deploys the S-400 to protect high-value targets, including the capital Moscow. This is an encouraging factor for present and future procurers of the system.

Turkey, due to its geographical characteristics and military posture that becomes increasingly expeditionary, would not build its air order of battle chiefly on SAM systems. In addition, the strategic cultural formation of the Turkish Air Force has long been characterized by a pilot-first understanding. However, one cannot underestimate SAM systems in modern warfare¹³. While fighter aircraft need runways and complex facilities, mobile SAM systems can offer flexible solutions with less requirements. Again, aircraft depend on an adequate pilot pool with sufficient flight-hours and combat experience. Force generation for SAM systems is easier. In terms of initial procurement and operational costs, air defense systems are also cheaper than building 4th generation and 5th generation fighter fleets. Besides, except for hunting down SAM launchers in high-risk territory and conducting intelligence-surveillance-reconnaissance (ISR) activities, combat aircraft are not effective against ballistic missile threats (though the F-35 could soon stand out from the crowd due to its unique capabilities).

On the other hand, SAM systems also have some functional limitations. Fighter aircraft offer more options for politicalmilitary decision-makers in crises, escalations, and eventually warfare. In topographically challenging theaters, SAM systems need airborne early warning & control aircraft (for example, the S-400 would have a serious interoperability

⁶ Richard, Connoly and Cecillie Sendstad. Russia's Role as an Arms Exporter: The Strategic and Economic Importance of Arms Exports for Russia, Chatham House, 2017, pp.6-7.

⁷ For further information on Russian air and missile defense capabilities and related strategic weapons systems, see: Keir, Giles. Russian Ballistic Missile Defense: Rhetoric and Reality, US Army SSI, 2015.

⁸ John, Gordon IV and John Matsumura. The Army's Role in Overcoming Anti-Access and Area Denial Challenges, RAND, 2013, p.15.

⁹ Carlo, Kopp. Almaz-Antey S-400 Triumf, http://www.ausairpower.net/APA-Grumble-Gargoyle.html, Accessed on: December 24, 2018.

¹⁰ TASS, http://tass.com/defense/1026630, Accessed on: December 25, 2018.

¹¹ IHS Markit Jane's, S-400, November 2018.

¹² Keir, Giles. Russian Ballistic Missile Defense: Rhetoric and Reality, US Army SSI, 2015. p.16.

¹³ Michael, Lostumbo. et.al. Air Defense Options for Taiwan: An Assessment of Relative Costs and Operational Benefits, RAND, 2016.



problem with the Turkish AWACS aircraft). Lastly, SAM systems cannot perform some fighter aircraft functions, such as deep-penetration into hostile airspace, escort, and ground-attack¹⁴.

Given Turkey's size, strategic posture, geographical characteristics, and political-military objectives, it would be safe to conclude that fighter aircraft will keep being the dominant asset in the Turkish air order of battle, while SAM systems are to augment some critical envelops. If all political reservations and inventory compatibility issues were left aside, the S-400s would have been a more capable air defense solution in this respect.

On the other hand, the missile threats in the Middle East are pressing. As EDAM discussed in previous reports, ballistic missile defense relies on many factors, such as the satellite capabilities to monitor the ballistic missile launch in the boost phase, monitoring the threat in the mid-course phase (and intervening with exo-atmospheric interception-capable systems), and finally, launching the last layer of interceptors (such as the S-400 and the Patriot) in the terminal phase. All these layers should be able to work in coordination with real-time data cueing. Each layer has its own challenges and windows of opportunity. For example, although the midcourse phase has the longest time span, radical changes in the environment conditions make it difficult to track the missile. When it comes to the boost phase, on the other hand, the defender has a very limited window to interfere -a short-range ballistic missile with a range of 600km would have 90 seconds-long boost phase-15.

NATO-compatible Patriot systems would link-up Turkey's terminal phase ballistic missile defense capabilities to the allied architecture that would enable multi-layered interception capacity. In the S-400 option, there will be no such opportunity. When left standalone, the Russian SAM

system will only have limited early-warning, tracking and monitoring capabilities. Due to political, budgetary, and technological difficulties, Ankara cannot compensate for NATO's integrated air and missile defense architecture in short to mid-term. Therefore, the S-400 option will be doomed to unfulfilled potential.

The Patriot (especially later variants) has different advantages over the S-400. First of all, the Patriot family has been shaped by the experiences gained in combat zones for decades. In the Middle East, for example, Saudi Arabia and Israel have been intensively using these systems against real threats in a broad spectrum. Raytheon affirms that since its combat debut, the Patriot variants have made more than 200 engagements. Over the last three years, Patriot systems intercepted more than 100 ballistic missiles¹⁶. Although the S-400 brings the experience of deployment under real conflict conditions, it has no combat record. In addition, the PAC-3 MSE (Missile Segment Enhancement, one of the variants offered to Turkey) has the critical hit-to-kill capability¹⁷. Furthermore, the ability to operate at a higher altitude than the Patriot PAC-3 (40km reported for the PAC-3 MSE¹⁸, which is approximately twice the capacity of the standard Patriot PAC-3) marks a notable improvement against ballistic missile threats. Finally, the PAC-3 MSE's increased maneuverability, speed and - as discussed earlier - hit-to-kill interceptors bring about serious advantages against ballistic missiles¹⁹.

The proposed package to Turkey includes 60 PAC-3 MSE missiles and 80 Patriot MIM-104E GEM-T (*Guidance Enhanced Missiles*)²⁰. The GEM-T variant is built on the Patriot PAC-2 basis. It provides higher efficiency against airbreathing targets. Its ballistic missile defense capability is greater than the PAC-2, yet not as effective as the PAC-3 MSE²¹.

²¹ IHS Markit Jane's, Patriot, November 2018.

¹⁴ Shangsu, Wu. "Can Surface-to-Air Missiles Replace Fighters in Southeast Asia?", the Diplomat, February 2017,

https://thediplomat.com/2017/02/can-surface-to-air-missiles-replace-fighters-in-southeast-asia/, Accessed on: December 25, 2018.

¹⁵ UNIDIR, Missile Defense Deterrence and Arms Control: Contradictory Aims or Compatible Goals, UNIDIR – Wilton Park, 2002.

¹⁶ Raytheon, https://www.raytheon.com/capabilities/products/patriot, Accessed on: December 24, 2018.

¹⁷ IHS Markit Jane's, Patriot, November 2018.

¹⁸ Defensenews, https://www.defensenews.com/global/asia-pacific/2018/02/19/seoul-to-order-new-pac-3-interceptors-to-counter-north-korea/, Accessed on: December 24, 2018.

¹⁹ Lockheed Martin, https://www.lockheedmartin.com/content/dam/lockheed-martin/mfc/pc/pac3-mse/mfc-pac-3-mse-pc.pdf, Accessed on: December 24, 2018.

²⁰ DSCA, http://www.dsca.mil/major-arms-sales/turkey-patriot-missile-system-and-related-support-and-equipment, Accessed on: December 24, 2018.



All in all, while the S-400 appears to be a more capable air defense system with higher anti-access / area denial characteristics, the Patriot package, especially when layered with NATO's integrated air and missile defense architecture, would offer more effective ballistic missile defense solutions. Obviously, if the country in question were a non-NATO nation with a limited fighter aircraft fleet, the Russian SAM system would have been the best procurement option. This is especially true if the procurer country had a Soviet / Russian air and missile defense architecture, and it aimed to field A2/ AD assets to deny its airspace.

The Patriot package, however, will be more suitable for a NATO member country. This is especially true if the procurer nation enjoys stronger air-to-air combat capabilities compared to its regional competitors, perceives threat from ballistic missile proliferation and WMD development programs, and remains a partner of the F-35 project. The latter is important since the aircraft could boost the Turkish military's overall information superiority and network-centric warfare capabilities.

Of course, in an ideal world of excellent defense economics and flexible international military cooperation *marge de maneouvre*, procuring the S-400 and the Patriot at the same time could have been the most shiny, attractive wayforward. However, given the present conditions (especially after Russia's 2014 Crimea intervention) Russia, unlike South Korea for example, is not an 'ordinary' non-NATO country that Turkey could cooperate without any political repercussions. The Turkish – Russian cooperation in the strategic weapons segment cannot be limited to, say, a solely military framework. Such arms interactions have immense political resonations.

The tendency to demand both Russian and American strategic weapon systems is observable in the Gulf countries (Saudi Arabia and Qatar could be the next candidates for the S-400 foreign sales). However, these nations' political-military placings in the international system (none of them is NATO members), as well as their defense economics, drastically vary from those of Turkey.

Possible Effects of the S-400 Procurement on the F-35 Deliveries and the F-16 Inventory

As explained in the previous section, the S-400 is a capable A2/AD asset that can offer considerable air defense solutions. However, one should also evaluate the 'costs' of proceeding with this acquisition.

Although the F-35's stealth capabilities come to fore in Turkey, the benefits it can bring to a country are much greater than that. Having more than 8 million lines of software code, the F-35 is a flying headquarters with state-of-the-art sensors, excellent connectivity, and unprecedented C4ISR systems.

The F-35's design philosophy is centered on fostering information superiority in the battlefield and penetrating highly contested airspaces. The Joint Strike Fighter is a force multiplier that boosts the situational awareness of other platforms it can 'talk' with. It is tailor-made for network-centric warfare and joint operations. In addition, the F-35, being a

complete coalition asset, brings about a unique concept that connects all national fleets to each other through the Autonomous Logistics Information System (ALIS)²².

In addition, the Turkish defense industry has a 12 billion dollars-worth portfolio in the Joint Strike Fighter program (in the framework of Level 3 partnership), including the production of several critical components. This engagement is the most important assurance for Ankara with respect to the deliveries. Indeed, Turkey's exclusion from the F-35 program will exacerbate severe disruptions in the supply chain, and will lead to additional costs that could delay the production and delivery of 50 to 75 platforms up to 2 years²³. Furthermore, as seen in the SOM-J air-launched cruise missile example, the F-35 is a showcase for the high-end products of the Turkish defense industry. Finally, Ankara's potential to buy F-35Bs for the amphibious assault ships of

²² For detailed information see: Can, Kasapoglu and Sinan Ülgen. Is Turkey Sleepwalking Out of the Alliance? An Assessment of the F-35 Deliveries and the S-400 Acquisition, EDAM, 2018.



its Navy (in addition to 100 F-35As for the air force) suggests that the aircraft would play a key role in Turkey's power projection agenda.

On the other hand, top US defense circles' statements raised serious questions. For example, Ellen Lord, Deputy Secretary of Defense for military acquisitions, technology and logistics, stated that Turkey's S-400 procurement was "extremely problematic"²⁴. Even more critically, the US Air Force Deputy Undersecretary Heidi Grant told that the exclusion of Turkey's from the F-35 project would not have "a devastating effect"²⁵. Grant, in another assessment in 2017, said that if the S-400 procurement would go through, the F-35 would be in an extremely fragile and risky situation. She added that this critical technology must therefore be protected²⁶.

The Pentagon's report to the Congress indicates that the S-400 procurement could affect the F-16s via the CAATSA sanctions. Turkey has about 240 F-16s, *(44 F-16Ds, 196 F-16Cs reported)* in its inventory²⁷. Several international open-source defense databanks support the officially declared numbers²⁸. The F-16 variants play a central role in the Turkish Air Force. They are assigned to a wide scale of missions such as ground-attack, combat air patrols, SEAD, and air-to-air warfare. The Turkish Air Force might suffer from serious setbacks if the US opts for imposing sanctions due to the Russian strategic weapons procurement.

Let us have a quick glimpse into the recent record to understand the real meaning of having a highly combatready F-16 fleet for Ankara.

Firstly, on December 13, 2018, the Turkish military conducted air strikes in 100 – 150km deep Iraqi territory to target PKK militants and facilities in the Mount Sinjar and Mount Karacak. Turkey dispatched 20 platforms for the mission including tanker aircraft, AWACS, unmanned aerial vehicles *(probably for ISR tasks and battle damage assessment),* the F-16s and the F-4 2020s²⁹. The strike package destroyed more than 30 targets, including caves and shelters³⁰. The Minister of Defense, the Chief of Staff and branch chiefs watched the operation real-time³¹.

Secondly, at the overture of the Olive Branch, 72 aircraft (for about %25 of the entire arsenal) took off to pound more than 100 targets in northern Syria³². The air blitz enabled the Turkish ground troops to capitalize on the initial shock at the PKK/YPG ranks.

The abovementioned cases took place in different places, under different conditions, but they showed one thing. The Turkish Air Force must meet complex operational planning and execution requirements beyond its borders to eliminate hybrid threats. Furthermore, high operational tempo requirements necessitate the air force to be sharply combat ready all the time.

In addition to ground-attack missions, the F-16s also have a key role in the Turkish – Greek military balance. With the current developments in the Eastern Mediterranean, this issue could prove to be even more profound. Currently,

²⁴ Reuters, https://www.reuters.com/article/us-turkey-usa-lockheed/pentagon-report-on-turkeys-f-35-program-delivered-to-congress-idUSKCN1NK33T, Accessed on: December 22, 2018..

²⁵ Defensenews, https://www.defensenews.com/air/2018/12/04/no-devastating-impact-to-f-35-industrial-base-if-turkey-pushed-from-program-air-force-official-says/, Accessed on: December 22, 2018.

²⁶ Defensenews, https://www.defensenews.com/digital-show-dailies/dubai-air-show/2017/11/16/us-official-if-turkey-buys-russian-systems-they-cant-plug-into-nato-tech/, Accessed on: December 22, 2018.

27 Turkish Air Force,

https://www.hvkk.tsk.tr/T%C3%BCrk_Hava_Kuvvetleri/Hakk%C4%B1m%C4%B1zda/G%C3%BCn%C3%BCm%C3%BCz_Hava_Kuvvetleri/Envanterdeki_U%C3%A7aklar, Accessed on: December 22, 2018.

²⁸ For example, IISS Military Balance 2018 mentions about 260 F-16 variants.

29 Hurriyet,

https://www.hvkk.tsk.tr/T%C3%BCrk_Hava_Kuvvetleri/Hakk%C4%B1m%C4%B1zda/G%C3%BCn%C3%BCm%C3%BCz_Hava_Kuvvetleri/Envanterdeki_U%C3%A7aklar, Accessed on: December 22, 2018.

³⁰ Ibid.

³¹ Ibid.

³² https://twitter.com/tskgnkur?lang=de, Accessed on: December 22, 2018.



Athens is upgrading a significant portion of its F-16s to the F-16V variant, namely the latest configuration³³.

Finally, since the Pentagon report openly pronounced rotarywing platforms within the CAATSA range, Turkey's army aviation capabilities could also be hampered by potential sanctions. Without a doubt, the Turkish administration can weather all the setbacks in mid to long term. However, given the security situation in Syria, northern Iraq, and the Eastern Mediterranean, the 2020s could mark a very critical period for Turkey's national security that the nation cannot afford a military capability gap.

Key Findings and Policy Recommendations

The S-400 is an A2/AD element that provides stronger air defense solutions compared to many Western systems, including the Patriot family. Equipped with the S-400s, the Turkish military can make the country's airspace very dangerous indeed. However, the Russian SAM would offer little, if any, reliable ballistic missile defense solutions.

The F-35, on the other hand, would be a game-changer not only for the Turkish Air Force, but also for the future warfighting capacity of the Turkish Armed Forces as a whole. If the deliveries fall though, coupled with the potential CAATSA sanctions on the F-16s of the air force and rotarywing platforms of the army aviation, the S-400's costs could dwarf its benefits.

The Patriot offer, interestingly, could increase the risk of CAATSA sanctions in case Turkey proceeds with the S-400 procurement. The US President enjoys a waiver option over the sanctions decisions taken by the Congress. However, when the administration notified the Congress about the prospects of Patriot sale to Turkey, it also informed the lawmakers that Ankara would come under the CAATSA regime if the S-400 deal were realized. In other words, the US President, tacitly, told the Congress that he would not opt for a waiver in return for securing a green light for offering the Patriot alternative to Turkey.

Besides, Turkey's main argument about the S-400 procurement was centered on the West's reluctance in military cooperation, especially when it comes to defensive strategic weapons. Open-source pieces of evidence suggest that the Russians offered no co-production, offsets, or tech-transfer for the S-400 sale, whereas a certain level of offset prospects are on the table with the Patriot offer.

In case Washington and Ankara could negotiate good offset

options for Turkey's burgeoning defense industry, and in case the problems related to the F-35 deliveries could be ironed-out, the Turkish administration could find a face saver way-out for the S-400 deal without upsetting the critical bilateral ties with Russia.

The military cooperation with Russia could focus on shortto-medium range mobile air defense systems that combine anti-aircraft artillery and surface-to-air missiles. The Russian defense industry is also very capable in this class of weaponry. Acquiring such a capability would provide ground troops with reliable protection, especially when conducting cross-border incursions. Such a capacity, for example, could have prevented the Baath regime's November 24, 2016 attack on the Turkish troops, and claimed four lives, during Operation Euphrates Shield.

Overall, 'ideal world' scenarios seem far from the present reality in the Turkey - Russia - the US strategic weapons triangle. In the 2020s, most probably, we will not see the Turkish Air Force flying ALIS-connected F-35s, deploying the Patriot PAC-3 MSE systems against ballistic missile threats, and fielding the S-400s for building A2/AD envelops at the same time. While all these arms are very capable and inspiring to any military expert, they do not mix well due to political and technical reasons. Therefore, Ankara will eventually make a decision, depending on its foreign policy and defense modernization priorities. Forecasting this decision is not easy. Many factors, ranging from the US support to the YPG / PYD in Syria to Russia's stance in Idlib, could affect the Turkish administration's roadmap. One thing is certain though. Turkey is a powerful, G-20 member NATO nation with a game-changer regional posture. Whatever the decision between the Patriot and the S-400 be, it would have broad geopolitical ramifications.



Foreign Policy & Security 2019/2

January 2019

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