



Heiko Borchert and Cyril Widdershoven

**The Dawn of a
New Arab Defense Industrial Network**

Arab Defense Industry Papers
No. 1 ■ July 2016

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Arab Defense Industry Papers (ADIP) is a new professional series focusing on the role of the defense industry in Algeria, Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Libya, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia, Turkey, and the United Arab Emirates. The main focus of the series is on the respective national defense industrial base and the defense industrial actors, national defense industrial policies, defense exports and collaborative defense projects, and defense funding as well as the interplay between Arab nations' growing military experience, the resulting future capability requirements, and the likely impact on future concepts and technology needs. While all of the countries of interest engage in defense relations with third parties, defense industrial cooperation among them is of primary interest within this series. In addition, analyses will also deal with the expected consequences of Arab defense industrial cooperation on well-established defense suppliers and new opportunities likely to be created for emerging defense suppliers from other regions. Papers published in this series seek to strike a balance between academically informed research and current defense industrial practice in order to present readers with practical, policy-oriented analyses.

The series welcomes submissions for publication. If you are interested in contributing to the series, please contact the editors:

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Summary

Conventional wisdom considers Arab nations in the Middle East and North Africa (MENA) to be leading importers of modern defense systems. Although this is true, it is only half the story. Since the 1950s, Arab countries have been partly focused on setting up and expanding their own indigenous defense capabilities. Early initiatives have not been very successful. However, following the leading examples of Turkey, the United Arab Emirates, and Egypt in particular, these nations have slowly but steadily begun to change their defense policies.

Diversification to break away from traditional defense suppliers and to broaden their national economies in tandem with geostrategic changes in the region have been the main drivers of a fundamental makeover of the regional defense industrial base. Since the late 1990s and early 2000s it has become increasingly clear that ambitious Arab nations that strive for more political and economic clout are using defense industries as an instrument to shape regional developments. In particular, Arab nations have grown increasingly ready to knit an ever-closer network of defense industrial relations among them. This network is focusing on the MENA and Gulf region but will likely expand not only to Eastern Africa but also across the Indo-Pacific, thus reflecting these nations' geostrategic interests.

The dawn of a new Arab defense industrial network is of utmost strategic importance but has not received enough attention by defense analysts. Therefore, this inaugural *Arab Defense Industry Paper* provides an overview of the developments that are nurturing this increasingly important network. To this purpose, the paper puts a particular focus on defense exports and collaborative defense industrial projects, defense material donations, and third party defense funding as key instruments of the growing pan-Arab defense industrial cooperation.

Introduction

Today, international analyses mainly see leading Arab nations such as the members of the Gulf Cooperation Council (GCC), Egypt, Jordan, and Turkey as key importers of defense systems. International statistics back this view. Data provided by the Stockholm International Peace Research Institute shows that global spending on defense imports from 1990 to 2015 was around \$647bn, with Arab nations in the Middle East and North Africa (MENA) accounting for roughly \$161bn (Figure 1).¹

However, considering leading Arab nations to be important defense importers is only half the story. Since the 1950s, Arab countries have partly focused on setting up and expanding their own indigenous defense capabilities. Egypt, Saudi Arabia, the United Arab Emirates (UAE), and Turkey have invested widely in their own defense production organizations, which include a growing number of privately owned defense suppliers. Over the past couple of years, these nations have slowly but steadily begun to change their defense policies.² These changes reflect long-term developments, including the geostrategic remaking of the region, the establishment of albeit still nascent common military forces such as the Peninsula Shield Force, the Maritime Security Group 81, or the Islamic Military Coalition, and growing worries about the long-term plans of the United States within and for the region. In addition, Arab nations also have a fundamental interest in diversifying national economies by building up local defense industries that contribute towards bolstering national high technology capacities – as underlined by Saudi Arabia’s most recent decision to redirect spending on military purchases towards local industry and to counter financial constraints.³ Furthermore, the opening up of Iran is supporting further dynamic to this ongoing process.

As a consequence, the regional defense industrial landscape is changing. Driven in particular by Turkey, Saudi Arabia, and UAE, Arab nations are putting strong efforts into knitting an ever-closer network of defense industrial relations. This growing network consists of several elements:

- 1 <http://www.sipri.org/databases/armstransfers/armstransfers> (accessed June 30, 2016). The most important suppliers to the region were the United States (around 51%), Russia (15.5%), France (7.3%), the United Kingdom (5.2%), and Germany (4.3%). Other important suppliers included, among others, China (1.6%) and South Korea (0.8%).
- 2 Heiko Borchert, “Rising Challengers: Ambitious New Defence Exporters Are Reshaping International Defence Trade,” *European Security & Defence* (February 2015), 61-64.
- 3 Farha Abdelhaq and Reem Abdellatif, “Saudi Arabia Plans to Make Half of Military Purchases Domestically,” *Argaam*, April 26, 2016, accessed June 30, 2016, <http://www.argaam.com/en/article/articledetail/id/423531>.

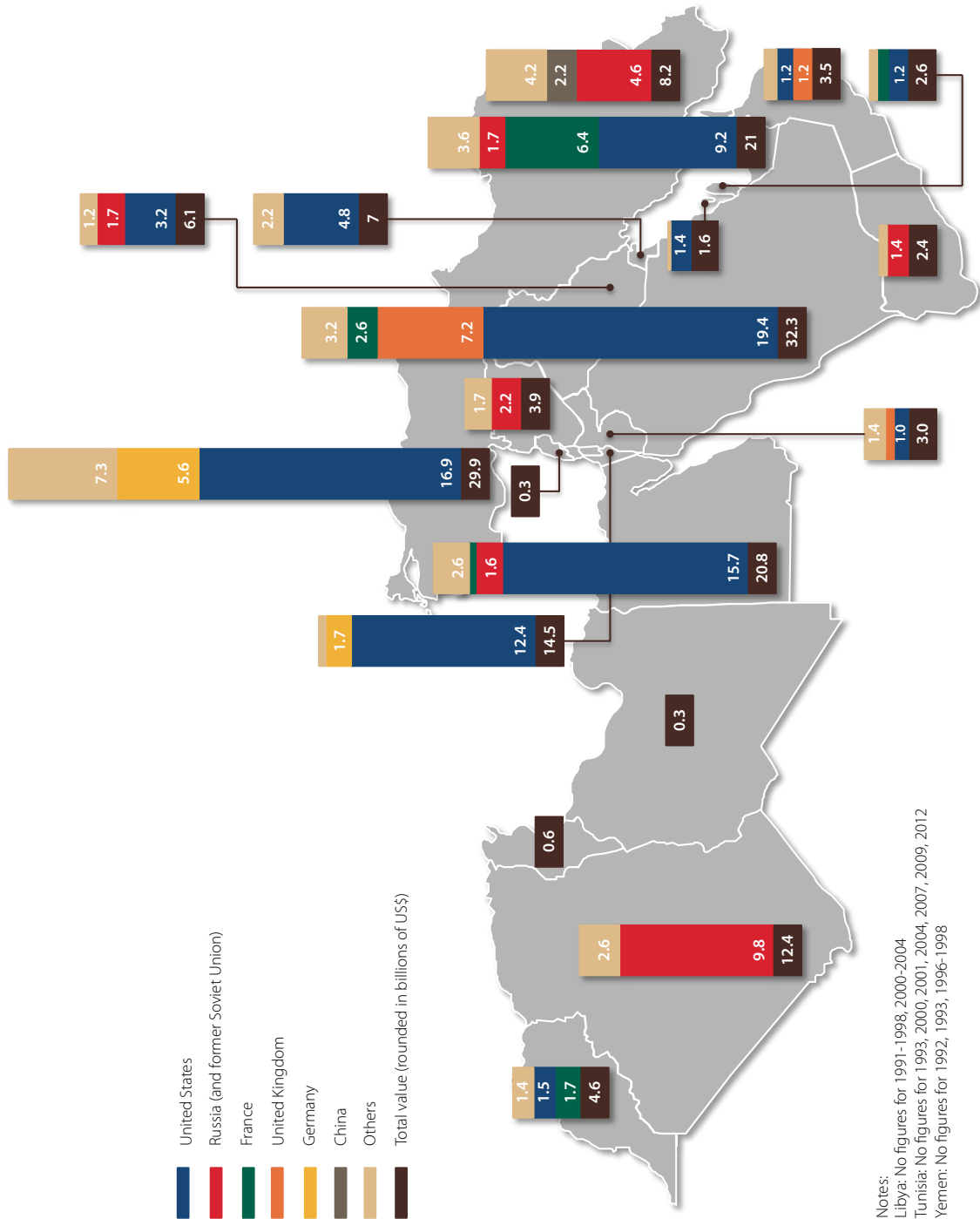


Figure 1: Defense Imports of MENA and GCC nations, 1990-2015 (in billions of US\$).

Source: <http://armstrade.sipri.org/armstrade/page/values.php> (accessed June 30, 2016).

- First of all, Arab nations are keen to set up a hub for defense players from different nations in order to establish national defense industrial champions and push them into export markets.
- Against this background, growing defense exports and joint collaborative defense projects between Arab nations constitute the first element.
- The second building block is defense material donations that help cement strategic political relationships and strengthen military capabilities of key allies.
- Bilateral financial aid and specific defense investment funds together form the third element, which provides the essential lubricant for the network to lift off.

The emergence of this new pan-Arab defense industrial network among nations on the Arab peninsula and MENA will change existing client-supplier relations within and beyond the region. As we will show, some market segments will come under increasing pressure, whereas other opportunities remain intact. Overall, traditional suppliers of this region can expect Arab countries to take increasingly tough lines vis-à-vis their non-Arab partners. However, this strategy also entails risks as long as the local defense industrial base does not yet match Arab nations' growing political ambition. That's why some Arab nations reach out to Russia, China, and India for defense industrial cooperation and technology transfer in parallel to establishing their own defense industrial base.

Current Geopolitical Dynamics

The MENA/GCC region is currently in flux. Extremism, fundamentalism, and regional conflicts are shaping the overall views of Arab regimes in the region and beyond. The impact of the Arab Spring and the destabilization of leading Arab nations (e.g., Egypt, Syria, and Libya) have put most Arab regimes under heavy domestic pressure. At the same time, Iran, the only non-Arab and Shi'a-led country in the region, has reentered the regional military-political constellation in full after the United States, the European Union (EU), and the United Nations decided to lift nuclear sanctions on the regime. Tehran also has become a major military power in the region after committing itself to the Syrian-Iraqi conflict and the fight against IS/Daesh. As a consequence, Arab regimes are feeling cornered by a Shi'a led alliance that is expanding its footprint in the Syrian conundrum and has become a main feature in Bahrain, Yemen, and even Lebanon.

In parallel and due to changes in U.S. foreign policy vis-à-vis the region, which is partially backed by EU members, a power vacuum has emerged in which Ar-

Arab regimes are being confronted by a lack of (perceived) security and military support from its historical allies, while Iran and Russia are making new inroads that are threatening the overall power stability in the region.

The first years after the 2011 Arab Spring brought havoc to the region. Arab countries have been rather conservative in their overall approach to these new crisis and threats. In the last two years, partly due to the decline in oil and gas prices, which has had a devastating effect on most Arab government revenues, new power players have emerged. The main proponent of the new players is Saudi Deputy Crown Prince Mohammed Bin Salman, who is trying to use the economic situation to change the overall political-economic and military set up in the region while at the same time extending Saudi Arabia's influence in Egypt, Jordan and Turkey.

As a consequence of these trends, Arab GCC nations have signed several military cooperation agreements in order to deepen defense cooperation.⁴ Among other things, they have agreed to advance military cooperation in the fields of training and joint exercises, logistics, and interoperability. Northern Thunder, the first grand-scale military exercise in the region's history, which involved 20 Islamic countries including all six GCC nations, Turkey, Egypt, Jordan, Pakistan, and others, can be seen as a sign of growing defense and security cooperation across the region. At the same time, the GCC countries have unofficially decided that they will not fully compete with each other when setting up indigenous military complexes and industries. This gentlemen's agreement has also been signed with non-GCC countries like Egypt, Jordan, and Turkey. As a consequence, the regional defense industrial complex is gaining relevance and thus receiving heightened political attention.

Arab Defense Industrial Base

The level of maturity of the defense industrial base across Arab nations is very heterogeneous. Although lowering dependence on foreign defense suppliers is the stated political goal of many governments in the region, only few have so far achieved real progress. Among them, Turkey and the UAE are in the lead. Saudi Arabia under Crown Prince Mohammed bin Salman is about to turn the page, and Qatar is slowly emerging as well. Other nations, like Jordan and

4 However, the six GCC nations are far from being a coherent entity. Despite official denial, there have for years been rumors that Oman might consider leaving the GCC and joining other fora such as the Shanghai Group or the BRICS group of nations. See for example: "Oman 'not leaving the GCC:' official," *Gulf News*, June 27, 2016, <http://gulfnews.com/news/gulf/oman/oman-not-leaving-the-gcc-official-1.1853457>; "The Gulf States must deter Oman from leaving the GCC," *The National*, December 9, 2013, <http://www.thenational.ae/thenationalconversation/comment/the-gulf-states-must-deter-oman-from-leaving-the-gcc> (accessed June 30, 2016).

Oman, for example, are in the process of establishing and expanding indigenous defense industrial capacities. Egypt's defense sector is broad and of significant economic relevance, but it is still partly constrained by internal political conflicts and Western sanctions.

Turkey

Turkey's defense industrial policy is geared towards independence, and this is affecting the national defense industrial set-up.⁵ Turkey strives to master demanding integration capacities for land, sea, and aerial systems and wants to possess the respective technology expertise.⁶ The key defense industrial actors fall into four different categories: defense production facilities owned by the government, government-controlled companies, private companies, and joint ventures with international partners, most often with a government stake.

Turkey has established several national prime contractors, such as Turkish Aerospace Industries (TAI), Aselsan, or Roketsan, which are the preferred interlocutors for international partners.⁷ Whereas TAI is the leading Turkish aerospace company, Aselsan and Roketsan engage among other things in defense electronics and missile systems. Besides the Navy Yards, ADIK, RMK Marine, and Yonca-Onuk are among the leading companies in the naval sector.⁸ In the land systems industry Otokar, FNSS (a joint venture between BAE Systems and Turkish Nurol Holding), and BMC are the main suppliers.⁹ In addition to Aselsan, Havelsan and Meteksan are important players in the fields of defense electronics and communication systems. Further, Turkey has invested significantly in several defense and security-related clusters and technology parks that benefit from substantial government support, among other things through tax benefits.

Over the years, Turkey has developed a very productive national defense industry.¹⁰ The land systems and naval industries are the cornerstones, with both producing a broad portfolio of armored tracked and wheeled vehicles as well as different fast patrol crafts, frigates, and corvettes, respectively. In contrast, the

5 Back in 2013, Turkish officials argued that the national defense industry had achieved 54% self-sufficiency. Self-sufficiency was highest in the land sector followed by the naval sector. Dependence on foreign suppliers is still significant in the aerospace industry. Interview by Heiko Borchert, Ankara, July 22, 2013.

6 Nicholas de Larrinaga, "Murad Bayar, Undersecretary of the Turkish Undersecretariat for Defense Industries: Interview," *Jane's Defence Weekly*, April 24, 2013, 34.

7 <https://www.tai.com.tr/en>; <http://www.aselsan.com.tr/en-us/Pages/default.aspx>; <http://www.roketsan.com.tr/> (accessed May 30, 2016).

8 For a most recent update on Turkey's naval industrial plans, see: "Strengthening the Turkish Shipyard Industry," *Defence Turkey* 67 (April 2016), 8-20.

9 <https://www.otokar.com/en-us/Pages/default.aspx>; <http://www.fnss.com.tr/en>; <http://www.bmc.com.tr/> (accessed June 30, 2016).

10 See also: *Turkey: IHS Jane's Navigating the Emerging Markets* (London: IHS Jane's, 2014).

aerospace industry still relies heavily on international partners, in particular in the engine segment and for aerospace design. Despite existing gaps, Turkish producers have embarked on an ambitious program to manufacture national Unmanned Aerial Vehicles (UAV) and Unmanned Combat Aerial Vehicles (UCAV)¹¹ and are venturing into space.¹² In addition, Turkey is ramping up efforts in the fields of electronics and information technology, with the government paying specific attention to beefing up cyber security.

Egypt

Egypt's local defense industry has been playing an important strategic and economic role since the 1950s. The set-up of an integrated Arab defense conglomerate with Saudi Arabia and the Emirates has been partly unsuccessful, leading to the sale of Saudi-Emirati shares in the project the last years. Currently, the Egyptian defense sector is fully owned by the national government and the Egyptian Defense Forces. Even though the country's defense production is high, total capabilities are lagging behind current and future requirements, leading to an ever growing demand for sophisticated weaponry in the coming years. Reports indicate that the demand for sophisticated weaponry and the government's numerous contracts with foreign companies are expected to fuel Egypt's defense imports in the future.

Since the Egyptian Army ousted Muslim Brotherhood President Mursi, the Egyptian military has regained its strength in the Egyptian economy. In addition to financial support from Saudi Arabia and the UAE, which has increased due to military cooperation against IS in Libya, Cairo has also benefited from Western financial aid. From 1987 to today, the United States provided \$1.3bn in annual military aid and granted Cairo special aid provisions, such as excess defense material and cash flow financing.¹³ The U.S. Department of Defense awarded \$300m in new contracts to deliver or coproduce military equipment with Egypt, directly after the removal of Mursi. At the same time, BAE Systems teamed with Egyptian military factories to construct radar systems for military cargo aircraft in September 2013. European partners also have reentered in full, as the French \$7bn arms deal for Rafale fighter jets and Mistral amphibious assault ships showed in 2015.

However, outside financial assistance has put strains on Egypt's domestic defense operators, especially Egypt's Ministry of Military Production and the Ar-

11 "Turkey Outlines UAV Plans," *Defence Turkey* 67 (April 2016), 30-34.

12 For an overview, see: <https://www.tai.com.tr/en/departman/space-systems> (accessed June 30, 2016).

13 Jeremy M. Sharp, *Egypt: Background and U.S. Relations* (Washington, DC: Congressional Research Service, 2016), 13, 17.

ab Organization for Industrialization, Egypt's main defense product producer. Economic planning is still very poor, as the two operators have been in competition to produce their own versions of defense technology.

Today, Egypt's defense-industrial complex engages in high-profile co-production of mainly U.S. weapons systems, such as the M1A1 Abrams tank or the M88A2 tank recovery vehicle, and middle-range projects with partners from New Zealand, South Korea, or Finland.¹⁴ In addition, Egypt's defense industry also produces civilian goods. This has led to an excessively broad portfolio, which is detrimental to the sector's industrial performance and has thus prevented Egypt's defense industry from absorbing technology know-how gained from technology transfer and co-production.¹⁵

In theory, Egypt's defense industry still dwarfs the GCC defense capabilities (in volumes and track record). However, due to the ongoing influx of U.S.-Western-Russian and GCC military funding and hardware, the future of the Arab Organization for Industrialization in particular is still unclear. Ongoing cooperation with foreign suppliers extends the country's dependence on third-party technology, production, and finance. Overall, Egypt will need to change its approach dramatically, as it will not be able to counter growing domestic and regional threats (Muslim Brotherhood, IS, Al Qaeda) with the country's current dependence on foreign supply of defense material.¹⁶

United Arab Emirates

For years, the Emirates have been systematically working on establishing a national defense industrial base as a means to diversify the national economy. Local rulers play a key role in setting up this industry sector, which has also benefitted from joint venture companies with international partners.¹⁷ However, this has led to a large and diversified portfolio that has recently been streamlined. In 2014, most of the subsidiaries of Tawazun Holding, Mubadala, and Emirates Advanced Investments Group have been reorganized under the newly estab-

14 Shana Marshall, "Egypt's Other Revolution: Modernizing the Military-Industrial Complex", *Pambazuka News*, February 16, 2012, accessed June 10, 2016, <http://www.pambazuka.org/governance/egypts-other-revolution-modernizing-military-industrial-complex>.

15 Zeinab Abul-Magd, "The General's Secret: Egypt's Ambivalent Market", *Sada*, February 9, 2012, accessed June 30, 2016, <http://carnegieendowment.org/sada/?fa=47137>.

16 Egypt is locally producing land systems in cooperation with U.S. suppliers, but it also receives U.S. excess defense material, such as a total of 762 mine-resistant ambush-protected vehicles. See: Jeremy Binnie, "US Delivers Surplus MRAPs to Egypt", *Jane's Defence Weekly*, May 18, 2016, 21.

17 Among others, joint ventures include the Advanced Military Maintenance, Repair and Overhaul Center between Abu Dhabi Aircraft Technologies, Sikorsky and Lockheed Martin; Burkan Munition Systems between Mubadala, Bin Jabr Grup and Rheinmetall; Tawazun Dynamics between Tawazun and Denel; Abu Dhabi Systems Integration between Abu Dhabi Shipbuilding and Selex-SI.

lished Emirates Defence Industries Company (EDIC).¹⁸ The International Golden Group serves as an additional defense technology holding company.¹⁹ In addition, Mubadala and Tawazun cooperate on knowledge transfer and potential offset projects. The reorganization is said to have contributed towards accelerating the development of technology capabilities and to create additional employment opportunities for UAE citizens.

The Emirati defense industry is the most advanced in the naval sector, with Abu Dhabi Shipbuilding as the key player. Abu Dhabi Shipbuilding sees itself as the prime contractor that also engages in through-life support, whereas subcontractors are mainly in charge of designing, manufacturing, and testing naval platforms.²⁰ In the land systems industry UAE has the expertise to develop, manufacture, and maintain armored vehicles mainly through NIMR Automotive and Emirates Defense Technology.²¹ Finland's Patria and Renault Trucks Defense of France, which belongs to Volvo Group Governmental Sales, are important international players in UAE's land systems segment. Keen to broaden the expertise in this segment, the Emirates are using locally built armored vehicles in ongoing operations in Yemen to assess their performance.

In addition, the Emirates strive to establish the most potent Air Power in the region. This has two defense industrial consequences. First, the country has used significant air force investments as drivers to set up military aerospace companies mainly focusing on maintenance, repair and overhaul (MRO). This complements the commercial aerospace segment that grew with investments to establish Dubai as a world leading transportation hub and Etihad and Emirates as major global airlines. Second, the UAE have ambitious plans to establish the first truly national defense industrial base in the field of UAV/UCAV with companies like Abu Dhabi Autonomous Systems Investments (ADASI) and ADCOM Systems. ADASI has teamed with Schiebel to locally manufacture the Camcopter S-100. ADCOM, owned by businessman Dr. Ali Al Dhaeri, ADCOM has been working with a broad set of partners ranging from South Africa to Ukraine, among others, on its United-40 platform, which can also be armed.²²

18 <http://www.edic.ae/en/>; <https://www.tawazun.ae/home/>; <https://www.mubadala.com/> (accessed June 30, 2016).

19 <http://www.iggroup.ae/> (accessed June 30, 2016).

20 Richard Scott, "ADSB Charts New Course Towards Higher Value Business," *Jane's Navy International* (April 2013), 41.

21 <http://www.nimr.ae/> (accessed June 30, 2016).

22 Interviews by Heiko Borchert, Abu Dhabi, March 6, 2016; September 28, 2013; <http://www.adasi.ae/>; <http://www.adcom-systems.com/Index.html> (accessed June 30, 2016).

Saudi Arabia

For the time being, the aerospace sector is the main focus of Saudi Arabia's defense industrial base, with local companies focusing on final assembly, maintenance, and repair of air systems. Land systems companies are engaged in final assembly and maintenance; some of them have also acquired the capability to develop the respective systems. In addition, Saudi Military Industries Corporation and Saudi Chemical Company are setting up several research projects in the fields of armored vehicles and ammunitions. In the naval sector Saudi Arabia's defense industrial base is lagging behind, partly due to international constraints, whereas cross-horizontal sectors such as defense electronics and information and communication technology are slowly emerging.²³

Crown Prince and Minister of Defense Mohammed bin Salman is not satisfied with the slow progress in establishing Saudi's defense industrial base. The 2015 decision by King Salman to appoint Mohamed Al-Mady as the new head of the General Organization for the Military Industries Corporation was a first sign of change.²⁴ Other steps followed. In late 2015, for example, it became known that Saudi Arabia wanted to partner with consortiums in the EU to develop and manufacture fighter jets. In addition, Saudi Arabia has actively pursued training and technology development projects to bolster the capabilities of its naval and security forces, but political concerns in Western countries are blocking the implementation of these initiatives.

In early 2016 news emerged that Mohammed bin Salman was working on setting up a military investment fund worth around US\$15bn to broaden the local defense industrial base. The reports coincided with plans to create a new defense holding company in Saudi Arabia that is likely to bring together companies from different sectors such as air, naval and land systems, missile production, border security, and surveillance systems.²⁵ Additional reports indicate that the wealth of the Saudi Public Investment Fund²⁶ could be tapped to invest in the local defense industry. To this purpose TAQNIA, established in 2011 to advance the transfer and commercialization of technology and to undertake specific investments, seems to play a key role.²⁷

23 See also: *Saudi Arabia: IHS Jane's Navigating the Emerging Markets* (London: IHS Jane's, 2014).

24 Sean Cronin, "Top Military Role for Sabic Chief," *The National*, February 14, 2015, accessed June 30, 2016, <http://www.thenational.ae/business/energy/top-military-role-for-sabic-chief>.

25 "KSA: Holding Company for Military Industries," *TR Weekly*, April 29, 2016, 4; "KSA: Military Industrialization Investments," *TR Weekly*, January 22, 2016, 3.

26 <http://www.swfinstitute.org/swfs/public-investment-fund/> (accessed June 30, 2016).

27 <http://www.taqnica.com/2014/EN/indexen.html>.

Other Actors

Significant national defense industrial structures are slowly emerging in other Arab nations. Among others, the following examples are noteworthy:

- For the time being, Nakilat Damen Shipyards Qatar has been Doha's key actor in the naval sector. To what extent the most recent €4bn deal with Italy's Fincantieri will help expand Qatar's naval sector remains to be seen.²⁸ More recently, Qatar has also joined forces with Turkey to ramp up national defense industrial capacities. In addition, Qatar also seems to follow its GCC neighbors in setting up a national UAV industry.²⁹
- Oman has a very basic industrial capacity to produce armored vehicles, weapons systems, and fast crafts. More interesting is the country's focus on cyber security. At the end of 2012, Oman managed to host the first ITU-IMPACT Arab Cybersecurity Innovation Centre. Since then, Oman has been trying to position itself as a cybersecurity hub in the region and is promoting national suppliers such as InfoShield.³⁰
- Jordan's national defense industry is very basic. The King Abdallah II Design and Development Bureau (KADDB) is the main player in the land systems industry, and Jordan Aerospace Industries provides the core of the nation's capacity to design and manufacture light aircraft. Both companies are also involved in producing UAV.³¹ In addition, KADDB and Turkey's Aselsan established a joint venture in 2014 to produce night-vision equipment for rifles and anti-tank weapons, among other things.³² KADDB's ammunition and armored vehicle developments are being pursued via joint ventures with Northwest European entities and research organizations.

Defense Exports and Collaborative Defense Industrial Projects

For ambitious Arab nations, defense exports underline their national defense industries' growing proficiency and political clout. Despite the fact that the growth rate of Turkey's defense exports has recently slowed down, Ankara's drive to push its own defense suppliers into international markets serves as an

28 "Fincantieri to Build Seven Units for Qatar," *Fincantieri Press Release*, June 16, 2016, accessed June 30, 2016, <https://www.fincantieri.it/cms/data/browse/news/000751.aspx>.

29 "Qatar: Interest in the UAV Industry," *TR Weekly*, October 30, 2015, 3.

30 "ITU-IMPACT Establishes First Cybersecurity Innovation Centre for Arab Region," *ITU Press Release*, December 19, 2012, accessed June 30, 2016, http://www.itu.int/net/pressoffice/press_releases/2012/93.aspx; <http://www.infoshield.com.om/index.html>.

31 See, for example: David Donald, "KADDB Continues UAV Development," *Jane's Defence Weekly*, May 18, 2016, 9.

32 Burak Ege Bekdil, "Aselsan Launches Subsidiary in Jordan," *Defense News*, December 15, 2014, accessed June 30, 2016, <http://www.defensenews.com/story/defense/international/asia-pacific/2014/12/15/aselsan-launches-subsidiary-in-jordan/20427365/>.

example of the Emirates' ambitious defense industrial policy. Saudi Arabia is following suit, while at the same time revising its respective policy regime. In parallel to growing pan-Arab defense exports, collaborative projects involving Arab defense companies are emerging as well, thus mirroring the global trend of establishing and deepening defense-related work shares across countries and companies.

Turkey

The rise of Turkey's annual defense exports from barely US\$140m in 1997 to roughly US\$1.6bn in 2015 is remarkable. According to the government, the country wants to achieve total defense exports worth around US\$25bn by 2023. However, this looks increasingly daunting, as even Turkey's Defense and Aerospace Industry Manufacturers Association (SaSaD) recently acknowledged.³³ Despite that, Turkey's defense export success results from a clever combination of a broad product portfolio, strong government support, and the opportunity for foreign defense suppliers to fulfill offset requirements by enabling Turkish defense exports. Turkey's defense exports to GCC nations and collaborative projects have matured:

- In 2013, Turkey and the Emirates formalized a 2009 agreement on defense industrial cooperation that also foresees joint activities to access foreign markets. Turkish defense exports with growing Emirati local content includes fast patrol crafts, missile systems such as the laser-guided Cirit missile, and weapon stations. For weapon stations, Emirati International Golden Group and Aselsan have set up IGG Aselsan Integrated Systems (IAIS), a joint venture company that will also target export opportunities across the Gulf region.³⁴
- Saudi Arabia and Turkey signed a defense cooperation agreement in 2010 that covers scientific research and technology development. Since then, bonds have grown increasingly strong and led to the establishing of a Strategic Cooperation Council in early 2016.³⁵ Turkish suppliers have a traditional footprint in the land systems sector, as they have modernized Saudi land systems originally supplied by Western manufacturers. In early 2016, reports indicated that there would be a general agreement between King Salman and President Erdogan to buy Turkish made vehicles for around US\$2bn in the near future. This could even include the Saudi purchase of Turkey's Altay

33 "Turkish Assembly Defense Commission Hosted SaSaD," *Defence Turkey* 67 (April 2016), 26-28.

34 "Turkey and UAE Are Ready to Support Each Other and Come Up with Reasonable Solutions for Third Countries," *Defence Turkey* 39 (July 2013), 5-13; "IAIS Will Be a Success Story as a UAE Based Defense Industry Company," *Defence Turkey* 39 (July 2013), 40-43.

35 Ibrahim al-Hatlani, "Saudi Arabia Turns to Turkey," *Al-Monitor*, February 11, 2016, accessed June 30, 2016, <http://www.al-monitor.com/pulse/originals/2016/02/turkey-visit-saudi-arabia-economy-political-partnership.html>.

main battle tanks should Germany refuse to provide Riyadh with Leopard tanks.³⁶ Saudi-Turkish cooperation for UAV and UCAV is also emerging. Riyadh is looking seriously into buying Turkish Anka UAV/UCAV, while at the same time investing in setting up its own UAV-related industrial base for the joint production of Anka systems. In addition, Aselsan of Turkey and TAQNIA Defense and Security Technologies agreed in February 2016 to set up the Saudi Arabian Defense Electronics Company to manufacture radar systems and electronic weaponry. This follows an earlier agreement between Aselsan and the King Abdulaziz City for Science and Technology on cooperation in the field of software defined radios.³⁷

- Turkish military cooperation with GCC nations reached new heights in April 2016, when Turkey opened the first military base in Qatar. Bilateral military cooperation is firmly grounded in a cooperation agreement and the 2014 decision to set up a Council for Strategic Cooperation. So far, Qatar has bought naval vessels and tactical UAV from Turkish suppliers and is also interested in wheeled vehicles, tanks, artillery, air defense systems, anti-tank and air-to-ground missiles, attack helicopters, and communication systems.³⁸
- In 2014 the Qatar Armed Forces Industry Committee took a 49% stake in Turkish vehicle producer BMC, which reflects Qatar's interest in entering the land systems sector.³⁹ As of recently, President Erdogan was said to play a mediating role between Qatar and the United States, given Doha's protracted attempt to buy F35 Joint Strike Fighters.

Beyond these three GCC partners, Turkey has sold fast patrol boats to Bahrain and naval training simulators to Oman and is exploring the possibility for Kuwait to buy Turkish vehicles. In addition, Turkey signaled its readiness to sell weapon systems to Iraq and the Kurdish Regional Government. In addition, Turkish company STM has recently been awarded a contract to upgrade Paki-

36 This option seems more and more realistic. In early June 2016 the new Saudi ambassador to Germany said that his country was no longer interested in German main battle tanks. See: Thomas Monath, "Streit um Panzer für Saudi-Arabien," *Tagesspiegel*, June 1, 2016, accessed June 30, 2016, <http://www.tagesspiegel.de/politik/nach-aussagen-des-botschafters-streit-um-panzer-fuer-saudi-arabien/13669310.html>.

37 Necmettin Baykul, "Aselsan Has Joint Production Targets With Dependable and Reputable Local Organizations and Companies by Way of Technology Transfer," *Defence Turkey* 39 (July 2013), 20-23; Burak Ege Bekdil, "Turkish Aselsan Partners with Saudi Enterprise," *Defense News*, February 22, 2016, accessed June 30, 2016, <http://www.defensenews.com/story/defense/policy-budget/industry/2016/02/21/turkish-aselsan-partners-saudi-enterprise/80702680/>.

38 On the general prospects of bilateral defense cooperation, see: "Turkish Defense Industry Aims to Sign Deals Worth \$5b in Qatar," *Daily Sabah Business*, September 30, 2015, <http://www.dailysabah.com/money/2015/09/30/turkish-defense-industry-aims-to-sign-deals-worth-5b-in-qatar>; "Turkish Defence Industry Moves Up a Gear in Qatar," *Defence Turkey* 64 (October 2015), 66-67.

39 "Qatari Diplomat a Shareholder in Turkish Defense Company," *Hurriyet Daily News*, May 20, 2015, accessed June 30, 2016, <http://www.hurriyetdailynews.com/qatari-diplomat-a-shareholder-in-turkish-defense-company-report.aspx?pageID=238&nID=82716&NewsCatID=345>.

stan's Agosta 90B submarines, and both countries are in talks to upgrade more than 70 F-16 fighter jets and supply T-129 attack helicopters.⁴⁰

United Arab Emirates

Of all the GCC nations, the UAE currently shows the strongest defense export ambitions. The Emirati defense export policy is said to mirror Turkey's approach.⁴¹ It is therefore not surprising that export opportunities rank high in the UAE's offset policy. In addition, the Emirates' investment in significant local production capacities only makes sense if the resulting products are destined for use in regional campaigns, such as in Yemen, and/or will reach international export markets.

Export activities reflect current defense industrial strengths. For one, the UAE aspires to set up the GCC's most modern UAV fleet and is at the same time trying to export systems produced by Adcom and ADASI. These plans should also be seen in light of current UAE ambitions to set up a permanent air surveillance network along the GCC coast that could use UAVs. In addition, armored vehicles are likely to play a stronger export role in the future as well. Back in 2012, UAE's Tawazun Holding and Algerian Groupement de la Promotion de l'Industrie Mécanique signed a joint venture agreement to produce UAE-designed vehicles under license from NIMR.

Saudi Arabia

For the time being, Saudi Arabia has played only a very marginal role as a defense exporter. The Stockholm International Peace Research Institute's weapons transfer register, for example, only records the sale of second-hand transport aircraft to Turkey and towed guns to Morocco.⁴² Crown Prince Mohammed bin Salman's plans to reinvigorate the Saudi defense industry will most likely lead to changes and aspire to establish the country as a future defense exporter as well. In this regard, traditional arms suppliers to Saudi Arabia should in particular take note of the willingness of the Crown Prince to exert pressure on traditional suppliers. Reports indicate that he is about to drastically overhaul Saudi Arabia's current regulatory framework. Crown Prince bin Salman is said to be considering using general economic interest in doing trade with Saudi Arabia

40 "Turkey: Defense Exports to Oman and UAE Set to Increase," *Stratfor*, March 26, 2012; Jon Grevatt, "Pakistan to upgrade Agosta 90B subs," *Jane's Defence Weekly*, June 29, 2016, 13; Burak Ege Bekdil, "TAI in Talks to Upgrade Pakistani F-16s," *Defense News*, May 24, 2016, <http://www.defensenews.com/story/defense/air-space/2016/05/24/tai-talks-upgrade-pakistani-f-16s/84854448/>; "Ministers Discuss Burgeoning Defense Ties between Ankara, Islamabad," *Anadolu Agency*, June 3, 2016 (accessed June 30, 2016).

41 Interview by Heiko Borchert, Abu Dhabi, September 28, 2013.

42 http://armstrade.sipri.org/armstrade/page/trade_register.php (accessed June 30, 2016).

as a lever to pressure the respective governments to lower defense export restrictions on systems that Riyadh wants to purchase.⁴³

Defense Material Donations

Donating defense material to partners helps to offload surplus equipment from the donor's arsenal and strengthens partner capabilities. A more advanced purpose of material donations is to effectively raise market entry barriers for other suppliers.

So far, the UAE is the most active GCC donor. Donations of fighter jets and land systems mirror the Emirates' ambitions to build up the region's leading Air Power and establish a leading national land systems industry. In line with this, the UAE has donated armored personnel carriers and Mirage 2000 jets to Libya and Air Tractor 802U aircraft to Yemen and Jordan.⁴⁴ In contrast, the Emirati donation of Mirage 2000-9 jets to Iraq proved more difficult. Initially, Baghdad was reticent to accept the donation, and Riyadh opposed it. However, at the beginning of 2016 these problems seem to have been overcome, and Iraq was said to have asked Saudi Arabia for help in sealing the transfer.⁴⁵

Occasionally, other GCC nations engage in defense material donations as well. In mid-2015 there were talks between Riyadh and Amman over possibly supplying the Royal Jordanian Air Force with Saudi Tornado jets. Back in 2012, Qatar donated vehicles and crowd-control equipment to Tunisia. However, donations are not always welcome. In 2014, reports indicated that Iran was willing to donate vehicles and artillery to Lebanon, but these plans met with strong resistance from France, the United States, and also the United Nations Special Envoy in Lebanon.⁴⁶

43 "KSA: Rules of Reciprocity with Arms Exporters," *TR Weekly*, May 13, 2016, 4.

44 Oscar Nkala, "UAE Donates Armored Personnel Carriers, Trucks to Libya," *Defense News*, April 28, 2016, <http://www.defensenews.com/story/defense-news/2016/04/28/uae-donates-armored-personnel-carriers-trucks-libya/83654116/>; Nigel Howarth, "IOMAX Commences Archangel Deliveries to UAE," *Aviation Week Network*, June 24, 2015, accessed June 8, 2016, <http://aviationweek.com/blog/iomax-commences-archangel-deliveries-uae>.

45 "UAE Likely to Supply Mirage 2000-9 Fighters to Iraqi Air Force," *Airforce Technology*, January 21, 2015, accessed June 30, 2016, <http://aviationweek.com/blog/iomax-commences-archangel-deliveries-uae>.

46 "US Warns Lebanon Over Possible Iranian Weapons Donation," *Al-Akhbar*, October 10, 2014, accessed June 30, 2016, <http://english.al-akhbar.com/node/21949>.

Third Party Funding

Funding is probably the most effective way of exerting political influence, as it gives the financier a say vis-à-vis the country that is going to buy weapon systems and the respective suppliers. The UAE and Saudi Arabia are well-versed third party financiers that clearly link defense-related financial aid to their broader geostrategic interests.

United Arab Emirates

The UAE uses defense funds to support partners' purchases of small and big-ticket systems. The current funding pattern is in line with the UAE's strategic orientation towards the Northwest and the South, where instabilities reign.

The UAE provides funds to equip the Yemeni Army in particular with vessels and vehicles. In Libya, the Emirates engage primarily in funding acquisition of different wheeled and tracked vehicles. In Egypt, Abu Dhabi helped fund the procurement of UAVs as well as the purchase of 24 Rafale jets from France. Funds for Tunisia are said to facilitate naval purchases, such as patrol boats and likely also a new Corvette, and border security projects. Together with Saudi Arabia, UAE also helps fund new naval acquisitions in Libya.⁴⁷

Saudi Arabia

Saudi Arabia uses defense funding to support allies in hot spots, provide aid to pivotal states surrounding the respective hot spots, and nurture strategic partnerships.

In terms of the hot spots, Riyadh has provided funds to equip the Yemeni Army in particular with armored and fighting vehicles and anti-aircraft missiles. As of late 2015, Saudi Arabia also started pouring money into projects meant to strengthen naval capabilities of Yemen, Sudan, Eritrea, and Djibouti. Another hot spot where Riyadh wants to leave its mark is Lebanon. In late 2014, Saudi Arabia, France, and Lebanon signed the comprehensive DONAS agreement. Publicly available information suggests that the \$3bn arrangement financed by Riyadh would have included French deliveries of Cougar and Gazelle helicopters, fast attack craft, self-propelled howitzers, armored vehicles, and air-defense systems. However, in early 2016 Saudi Arabia halted the deal for fear of weapons ending up in Hezbollah's hands.⁴⁸

47 Interviews by Heiko Borchert, Abu Dhabi, March 7-8, 2016.

48 "We Don't Want Arms to Fall into Hezbollah's Hands: Saudi Minister," *Gulf News*, March 6, 2016.

At the strategic level, financial aid for Bahrain must be seen in light of the country's close security and defense partnership with Saudi Arabia, which is based on ongoing Shi'a uprisings in Bahrain and the possible spillover to Saudi Arabia's oil-rich Eastern Province. The 2014 decision to set up a common air defense network based on both nations' acquisition of Eurofighters explains why Riyadh is providing funds for Manama's fighter jet acquisition. Funds for the Royal Bahrain Air Force also illustrate that third party funding can open doors for newcomers in the defense export market, as Manama is said to be interested in at least two Chinese CH-4 Rainbow UAVs. In addition, the Royal Bahrain Naval Force receives Saudi funds to purchase different crafts.

Saudi Arabia's most substantial financial engagement is with Egypt, where Riyadh is said to provide funds for Egypt's acquisition of Rafale jets, Russian arms, and German submarines.⁴⁹ In addition, there seems to be talk about setting up an Arab Investment Fund worth around \$500m to procure vehicles for Egypt's counter-terrorism and special operations forces.⁵⁰ Saudi-Arabia's cooperation with Pakistan is of similar strategic significance. Among other things, Riyadh is said to have invested in Pakistan's nuclear weapons programs and to be helping Islamabad to procure weapons from China.

Most recently, Saudi Arabia has pushed strategic third party funding to a new level by earmarking funds for the Saudi-led Islamic Military Coalition currently operating in Syria and likely to operate in Iraq and Libya in the future. Among other things, Riyadh seems interested in buying UAVs, UCAVs, vessels, and surveillance equipment for Coalition forces.⁵¹

Other Actors

In addition to Abu Dhabi and Riyadh, there were news reports in the past that Qatar was also looking into providing funds to allies, in particular in Libya, Tunisia, and Sudan. Occasionally, the collective of GCC nations also seems to offer financial aid to less endowed members. Back in 2014, for example, the idea was floated that GCC defense ministers could help fund the reinforcement of Oman's air surveillance by buying UAVs, but the current status of that initiative is unclear.

49 "Saudi-Financed Russian Missiles Mooted," *Intelligence Online*, February 5, 2014, 3; "TKMS Prepares to Board in Cairo," *Intelligence Online*, February 5, 2014, 6.

50 This initiative is part of a broader bilateral investment fund agreed upon in April 2016. See: Ali Abdelaty, "Egypt, Saudi Arabia Sign 60 Billion Saudi Riyal Investment Fund Pact," *Reuters*, April 9, 2016, accessed June 30, 2016, <http://www.reuters.com/article/us-egypt-saudi-idUSKCN0X60VQ>.

51 "KSA: UAVs for Islamic Military Coalition," *TR Weekly*, March 4, 2016, 3; "KSA: Islamic Military Coalition," *TR Weekly*, April 1, 2016, 3.

Conclusions

If and to what extent growing defense industrial cooperation among Arab nations will crowd out traditional defense suppliers remains to be seen. However, in the current political climate, traditional defense suppliers can expect Arab nations to toughen their policy by preferring local suppliers to international partners, if local suppliers deliver.⁵² Although signs of a more significant make-over of the regional defense supplier base are looming on the horizon, local decision makers face four key challenges to promoting the nascent Arab defense industrial network: establishing sustainable defense ecosystems, beefing up local integration capacity to deal with interoperability challenges resulting from the growing defense industrial diversification, defining the unique selling propositions for Arab-made weapons systems, and nurturing local talent to support craftsmanship.

Challenge No. 1: Defense Ecosystems

In building up local ecosystems for defense and security, regional decision-makers need to tackle at least two hurdles: First, local decision-makers tend to be somewhat impatient. They might want to have access to the latest technology, but this should come at limited risk and if possible with maximum local content. However, this is hardly possible as long as national defense industries lack maturity (see Challenge No. 2 below). Second, it might be tempting to build up national champions, as these companies can serve as lighthouses epitomizing local scientific and industrial capabilities. However, this can be detrimental to establishing a well-balanced mix of system integrators, design authorities, small and medium-sized companies, and academic institutes that would all be needed to establish sustaining ecosystems.⁵³

The portfolio mix of actors in the national and regional ecosystems also relates to the long-term position that Arab nations aspire to take in the international defense market. For the time being, this strategic thrust is underdeveloped.⁵⁴ Turkey and the Emirates, which are pushing into international markets, mainly sell products that are already available. This works to kick off national production and, as long as political support is strong enough, to open doors.⁵⁵ But in the long term, Arab defense industries need to define their unique selling prop-

52 The Emirates' decision to give precedence to local armored vehicle manufacturer EDT for a new 8x8 vehicle over the Finnish competitor Patria and the later decision to again seek Patria's support is a case in point.

53 Interviews by Heiko Borchert, Ankara, October 1-2, 2015.

54 Interview by Heiko Borchert, Abu Dhabi, September 13, 2015.

55 It remains to be seen in particular to what extent growing economic and financial problems in Arab states will continue to provide the rulers with enough leeway to prioritize the establishment of a national defense industrial base.

osition (USP) in relation to what is on offer from other suppliers (see Challenge No. 3).

However, building up new national defense establishments from scratch also provides opportunities to circumvent lock-in effects haunting traditional suppliers.⁵⁶ One aspect is the need to bridge the gap between commercial and defense and security-related technologies. The key challenge comes from shorter commercial life cycles that increase obsolescence problems. In this regard, Saudi Arabia and the Emirates seem to be reaching out to universities as mitigating entities. In both nations, university research institutes serve as transmission hubs between international partners and national champions as well as among these champions and other national players. Tasking these research institutions to put particular emphasis on developing solutions to synchronize different life cycles could prove particularly valuable. This leads directly to the second challenge, however.

Challenge No. 2: Diversification and Local Integration Capacity

Diversification to reduce dependence on single defense suppliers is wise in terms of improving national resilience. However, integrating technology from various different sources puts a premium on systems integration to achieve interoperability and logistics for through life support. For the time being, systems integration is a weakness in many Arab nations, in particular with regard to system of systems approaches that are needed to set up networked armed forces whose services are expected to operate seamlessly across different domains. In addition, through life support and logistics are most often considered a task that is to be covered by the supplying industry. This creates a two-fold problem: Over the long term, this might lead local armed forces to neglect logistics as a core process that they need to master themselves. In addition, as long as the local industry is not yet able to provide substantial through life support, Arab nations will continue to depend on outside suppliers, which runs counter to their basic endeavor for more defense industrial self-sufficiency.

Therefore, diversification should go hand in hand with strengthening those capacities needed for systems integration, such as risk management, large-scale project management, and modeling and simulation. The challenge is that these areas of expertise might not be as 'shiny' as others and thus tend to be neglected. Over the long term, however, these areas of expertise will be indispensable. Thus, in view of training and educating a cadre of defense and security engi-

56 Among other things, these effects include the production of few, very sophisticated, quite expensive weapon systems that might come under increasing risk in tomorrow's threat environment as well as clear segmentation of the defense industry along the lines of traditional military services rather than cross-domain approaches.

neers that are able to produce what Arab nations need rather than modify what others provide, thought should be given to establishing pan-Arab education programs focusing on these capacities.

Challenge No. 3: Threat Perception, Local Content, and Arab Defense Industrial USP

In a way it is ironic that more advanced Arab defense exporters perfectly mimic the behavior of traditional Western and non-Western defense suppliers, in that they sell what they have produced for their own needs to fellow Arab nations. This road is likely to lead into a dead end as soon as receiving nation's defense industrial bases become more mature. Then, Arab defense exporters will need to explain what their USP is.

In responding to that question, thought should be given to more substantial collaborative defense projects. We are well aware that the coordination – not to speak of the harmonization – of threat perceptions between Arab nations is very challenging. But we also contend that joint military initiatives such as the Peninsula Shield Force, the Maritime Security Group 81, or the Islamic Military Coalition might in the long run serve as means to achieve this goal. Thus, Arab nations should start thinking about how their own warfighting experience is affecting their capability requirements as well as defense technology and product needs.

Automation and the use of remotely piloted systems could be one area where joint Arab responses might be especially pertinent. Most Arab armed forces operate on a thin personnel basis. Using automated and remotely controlled systems can augment capabilities and enable armed forces to do more with less. At the same time, these systems could also improve risk mitigation and provide opportunities to act more daringly. Most importantly, with the use of automated and remotely controlled systems, Arab armed forces could leapfrog and circumvent path dependencies that occur, for example, with Western styles of warfighting. This puts a premium on trust in technology and requires armed forces to seriously invest in concepts of operations that illustrate how to translate technological advances into operational advantages.

To this purpose, Arab armed forces need to identify the best way to counter the most prevailing threats such as terrorism, violent extremism, and uprisings in densely populated and thus cluttered and contested urban environments. These environments raise serious challenges for the use of unmanned systems, for example. For this reason, unmanned aerial systems might be attractive in terms of long-term defense industrial ambitions, but in view of the immediate need to tackle challenges in urban environments they might not be enough. Arab na-

tions should therefore: (1) analyze to what extent the use of unmanned systems provides them with real operational advantages, (2) see what lessons can be derived from current operations with the use of locally built and/or imported unmanned systems, (3) discuss where concepts of operations developed by non-Arab nations fit into their own conceptual understanding and where modifications are needed, and (4) identify how local suppliers could join forces in a way that would enable them to make unique offers not yet matched by competitors.

Challenge No. 4: It's All About Craftsmanship

In the end, education and training will be key to sustaining a pan-Arab defense industrial base. Craftsmanship needs to be seen in light of the broader political context in which the defense industry is operating. Again, ambitious players like the Emirates, Saudi Arabia, and Turkey have provided a boost for academic training to set up the cadre of engineers needed. Additional value could be created by introducing training and education programs that cross national boundaries and enable tomorrow's defense engineers to understand threat perceptions and operational needs of neighboring countries. Training programs set up at national defense academies across the region would also benefit from opening up to fellow nations.

In particular, thought should be given to creating an atmosphere where experts of different age groups and professional origins engage in critical but constructive dialogue. Tolerating dissenting opinions is key to identifying patterns of groupthink that can entail vulnerabilities that will hardly be recognized if everyone is expected to think and act along the same lines of reasoning. This will be essential in developing concepts of operations that embody Arab political visions and reflect upon their warfighting experience. These new, indigenously developed concepts of operations would then serve as strong guidelines to produce the next generation defense systems of Arab origin.

