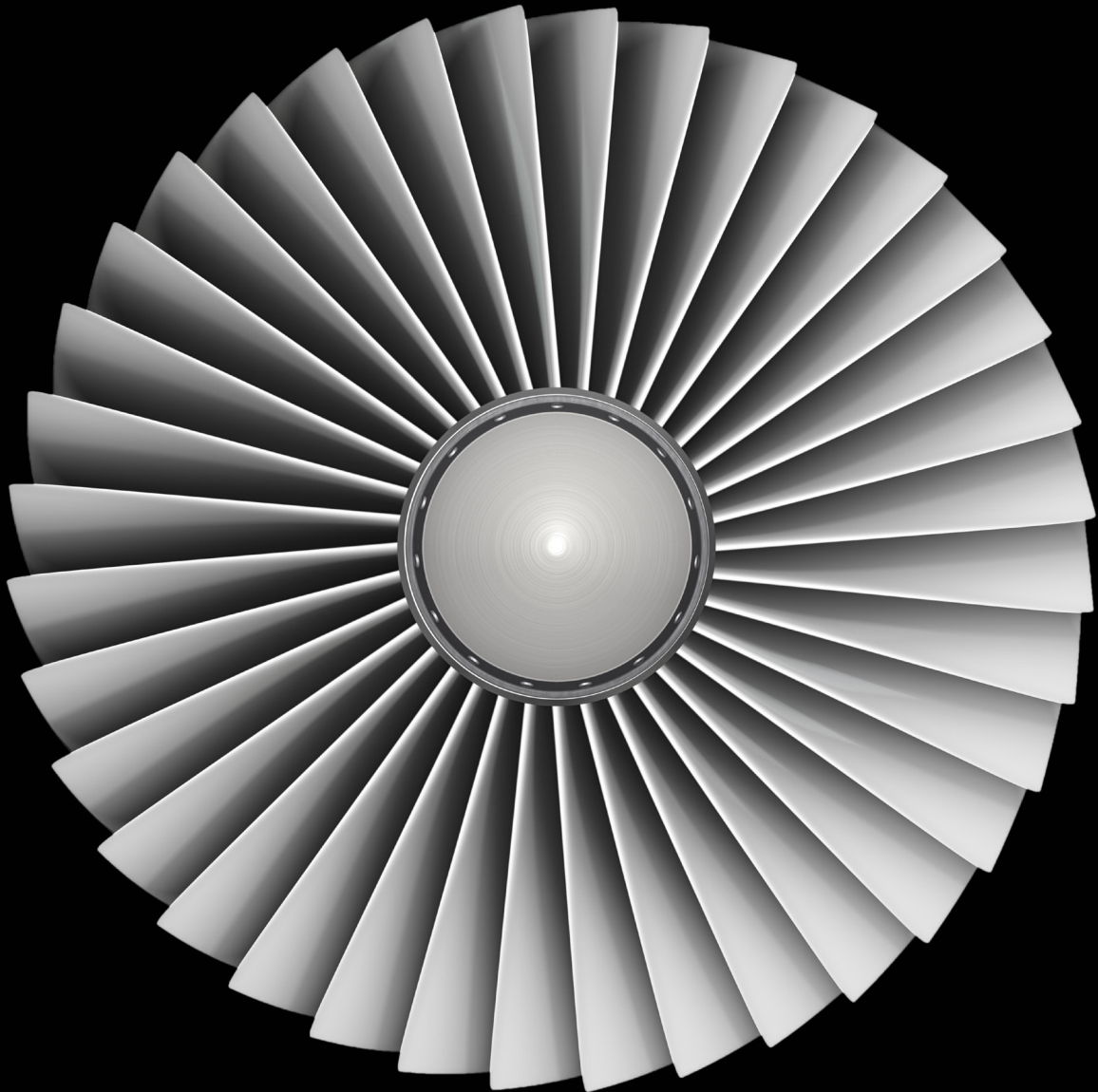


**Deloitte.**



**On a solid profitable growth path**

2018 Global aerospace and defense industry outlook

# Contents

|                                                                      |           |
|----------------------------------------------------------------------|-----------|
| Executive summary                                                    | <b>1</b>  |
| Commercial aircraft sector outlook                                   | <b>2</b>  |
| Defense sector outlook                                               | <b>6</b>  |
| Regional perspectives                                                | <b>9</b>  |
| Major aerospace and defense industry trends                          | <b>12</b> |
| Outlook for M&A activity in 2018                                     | <b>15</b> |
| Global aerospace and defense industry shareholder return performance | <b>17</b> |
| 2017 financial performance                                           | <b>18</b> |
| Endnotes                                                             | <b>21</b> |
| Authors                                                              | <b>25</b> |
| Contacts                                                             | <b>25</b> |

# Executive summary

After a year of subdued growth in 2017, the global aerospace and defense (A&D) industry is expected to strengthen in 2018 with Deloitte forecasting industry revenues to grow by about 4.1 percent. The industry closed the 2017 year with 2.1 percent revenue growth, in line with Deloitte's forecast of 2.0 percent (refer to Deloitte's [2017 Global aerospace and defense industry outlook](#)).

Recovery in global gross domestic product (GDP) growth, stable commodity prices – including crude oil – and growth in passenger travel demand, especially in Asia-Pacific, the Middle East, and the Latin America region, is likely to drive the commercial aircraft sector growth in 2018. At the end of 2017, commercial aircraft backlog remained at an all-time high of about 14,000 units, representing nine and a half years of current annual production rate. We expect nearly 100 additional aircraft to be produced in 2018, compared to 2017 as aircraft manufacturers ramp up production in response to growing aircraft demand.

On the defense sector side, heightened global security threats, recovery in US defense budgets, as well as higher defense spending from other major regional powers such as India, China, and Japan are likely to drive global defense sector revenue growth in 2018 and beyond. As global tensions rise, defense spending growth is likely to continue over the next five years. Deloitte estimates global defense spending to grow at a compounded annual growth rate (CAGR) of about 3.0 percent over the 2017–2022 period.

Mergers and acquisitions (M&A) activity has accelerated over the past year, with a greater than two-fold increase in deal value. In 2018, the A&D industry is likely to continue to experience increased M&A globally, driven by original equipment manufacturers' (OEMs) continued pressure on suppliers to reduce costs and boost production rates. M&A activity in the US defense sector could accelerate in 2018 as increased defense budgets are likely to provide certainty to military planners. Large prime contractors are expected to consider acquiring small-to mid-sized companies to gain access to new technologies and markets. The defense sector in Europe is unlikely to see large M&A deals, however, companies may pursue joint-ventures (JVs) to strengthen their market positions.

With higher production requirements for both aircraft and defense equipment in the future, it is critical for A&D companies to invest in new and advanced technologies. This will help the industry to be at the forefront of manufacturing, enhancing productivity and efficiency.



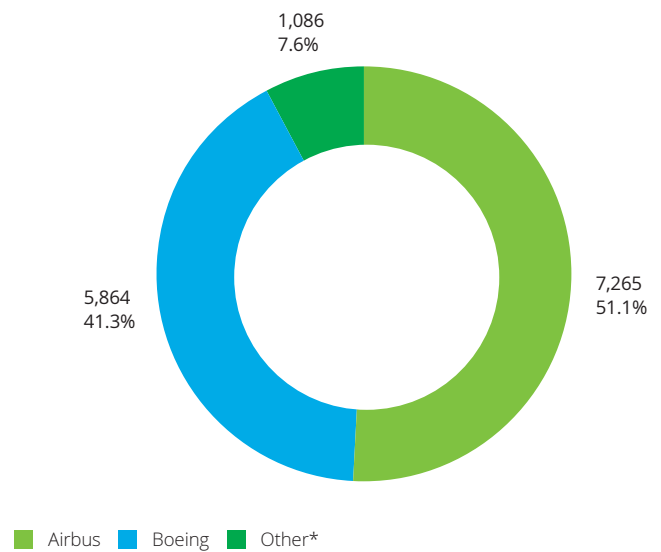
# Commercial aircraft sector outlook

The global commercial aircraft sector is expected to record a 4.8 percent growth in revenues in 2018.<sup>1</sup> The sector is likely to experience stronger growth in 2018 after a subdued performance in 2017, primarily driven by an increase in production levels as aircraft manufacturers look to ramp up production to cater to growing aircraft demand. We expect nearly 100 additional commercial aircraft to be produced in 2018, primarily led by narrow body aircraft. Major aircraft manufacturers, Airbus and Boeing, have indicated production rate increases in 2018 and 2019, with Airbus likely to ramp up production of its A320neo in 2018. Boeing is expected to increase the production rate of its 737 from 47 per month in 2017 to 52 per month in 2018 and 57 per month in 2019.<sup>2</sup>

Travel demand (revenue passenger kilometers or RPKs) increased at a CAGR of 5.1 percent over the last 10 years. Annual passenger enplanements rose from about 2.5 billion in 2008 to more than 4.0 billion in 2017. The year-on-year increase in 2017 was led by the Asia-Pacific region<sup>3</sup> and will likely continue to drive passenger growth in the long-term due to the increasing share of middle class population in Asia-Pacific, which is forecast to grow to 65 percent by 2030 as compared to 46 percent in 2015.<sup>4</sup>

Over the next 20 years, passenger traffic is expected to grow at an average annual growth rate (AAGR) of 4.7 percent,<sup>5</sup> contributing to increased aircraft production. Strong order intake in the past several years resulted in a record high commercial aircraft backlog of 14,215 units at the end of 2017, representing nine and a half years of current annual production.<sup>6</sup>

**Figure 1. Commercial aircraft unit backlog (as of December 2017)**



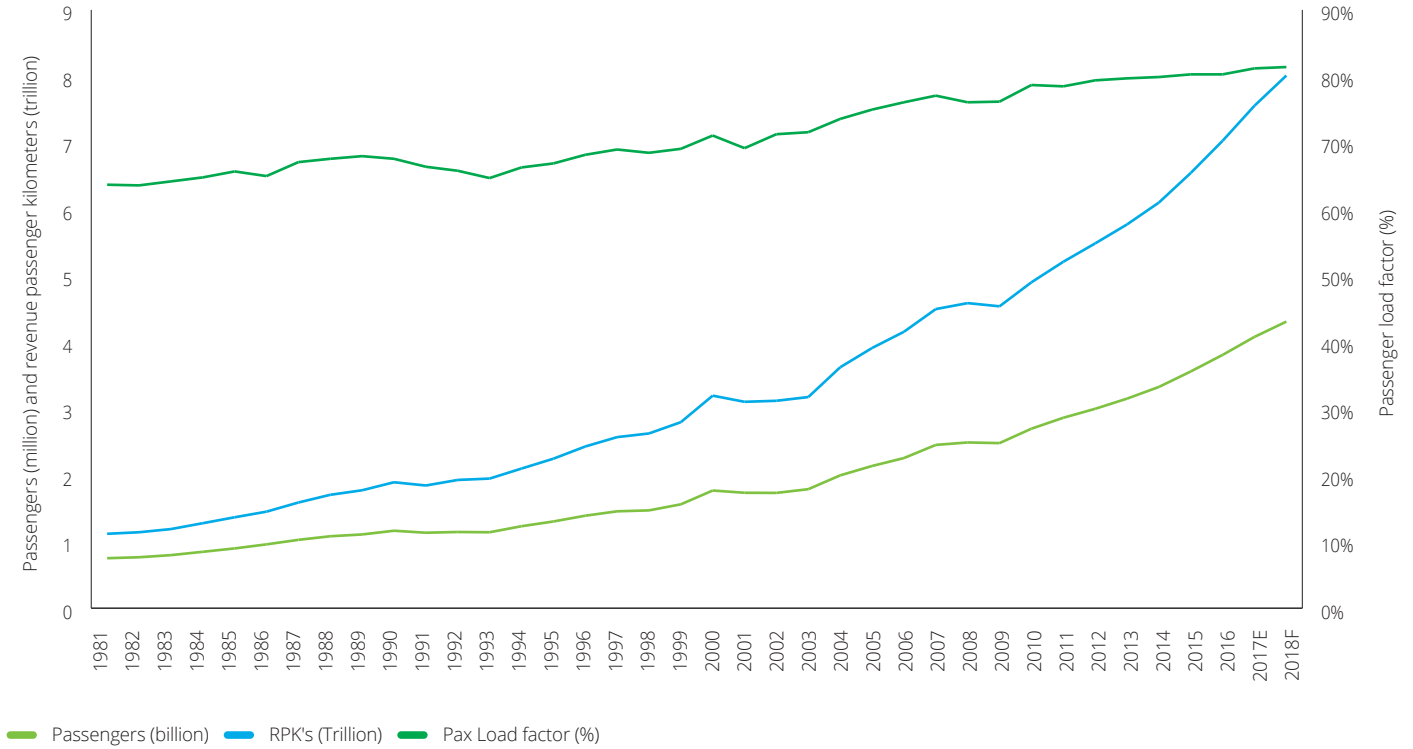
Source: Deloitte analysis based on data from The Boeing Company, 2017 Annual report

[http://s2.q4cdn.com/661678649/files/doc\\_financials/annual/2017/2017-Annual-Report.pdf](http://s2.q4cdn.com/661678649/files/doc_financials/annual/2017/2017-Annual-Report.pdf); Airbus Group, "Orders and deliveries," accessed in February, 2018, <http://www.airbus.com/company/market/orders-deliveries/>; FlightGlobal

Note: \*Other includes C-Series, COMAC C919, and Irkut MS-21



**Figure 2. Global airline traffic (1981 to 2018F)**



Source: Deloitte analysis of the data from International Air Transport Association (IATA), "Fact Sheet," December 2017  
[https://www.iata.org/pressroom/facts\\_figures/fact\\_sheets/Documents/fact-sheet-industry-facts.pdf](https://www.iata.org/pressroom/facts_figures/fact_sheets/Documents/fact-sheet-industry-facts.pdf)

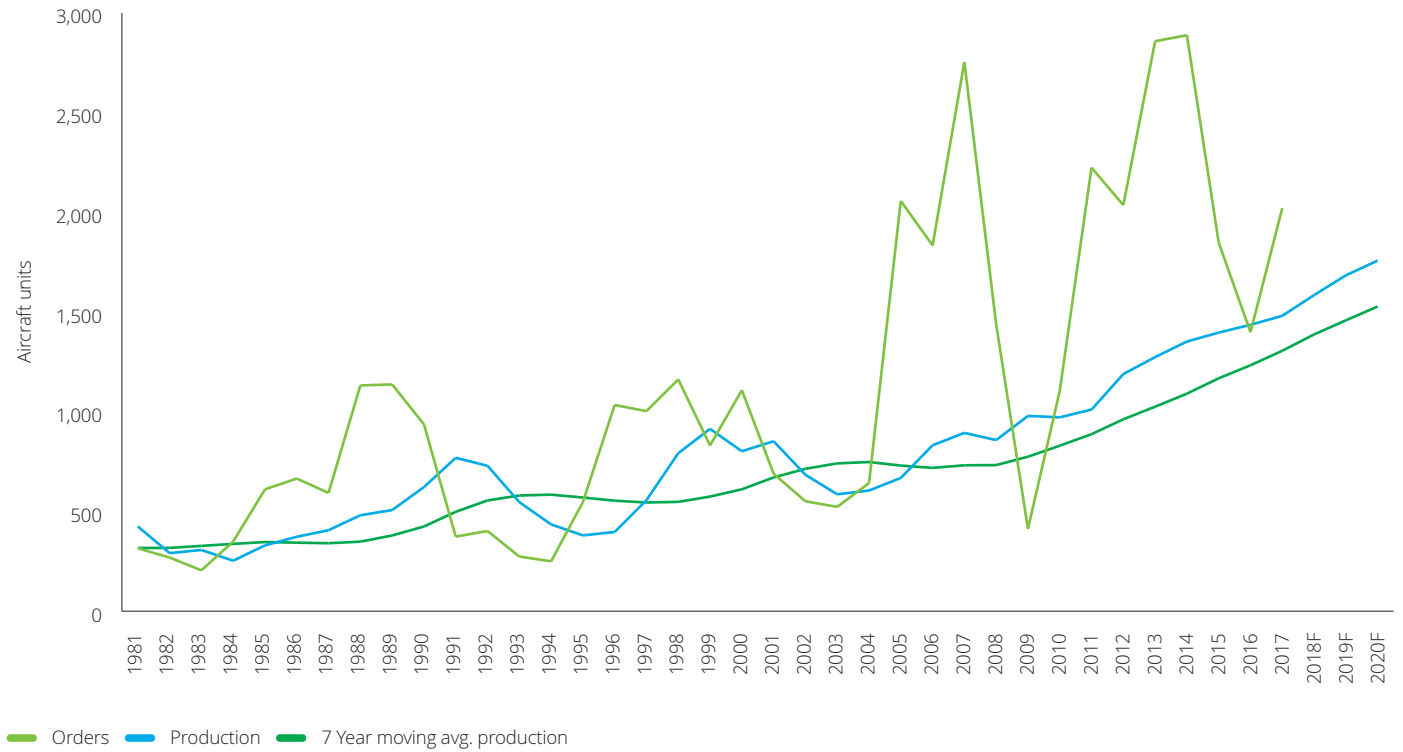
As shown in Figure 2, passenger travel demand increased nearly seven times from 1981 to 2017, with passenger load factor (aircraft utilization) rising 27.5 percent (nominally growing from 63.7 percent to 81.2 percent) during the same period.<sup>7</sup> Likewise, the number of people flying per year also continued to grow, with a greater than five times increase from 1981 to 2017. This was mainly led by increased affordability of tickets as average return fare (adjusted for inflation) of US\$355/per passenger in 2017 was 64 percent lower than in 1996.<sup>8</sup>

Global demand for new aircraft production over the next 20 years is estimated to be 36,780 aircraft (excluding regional jets).<sup>9</sup> Figure 3 further illustrates sales order and production history of commercial aircraft from 1981 through 2017, showing a 248.5 percent increase in production during the period.<sup>10</sup> On the basis of a seven-year moving average, production levels over the past 20 years have increased 138.3 percent<sup>11</sup> and over the next decade, commercial aircraft annual production is likely to increase by 25.0 percent.<sup>12</sup>

As aircraft production continues to grow, the key challenges the industry needs to consider include – strengthening the supply chain, effective program management, and use of new and advanced technologies to become more efficient.

The key challenges the industry needs to consider include – strengthening the supply chain, effective program management, and use of new and advanced technologies to become more efficient

**Figure 3. History and forecast for large commercial aircraft orders and production (1981 to 2020F)**



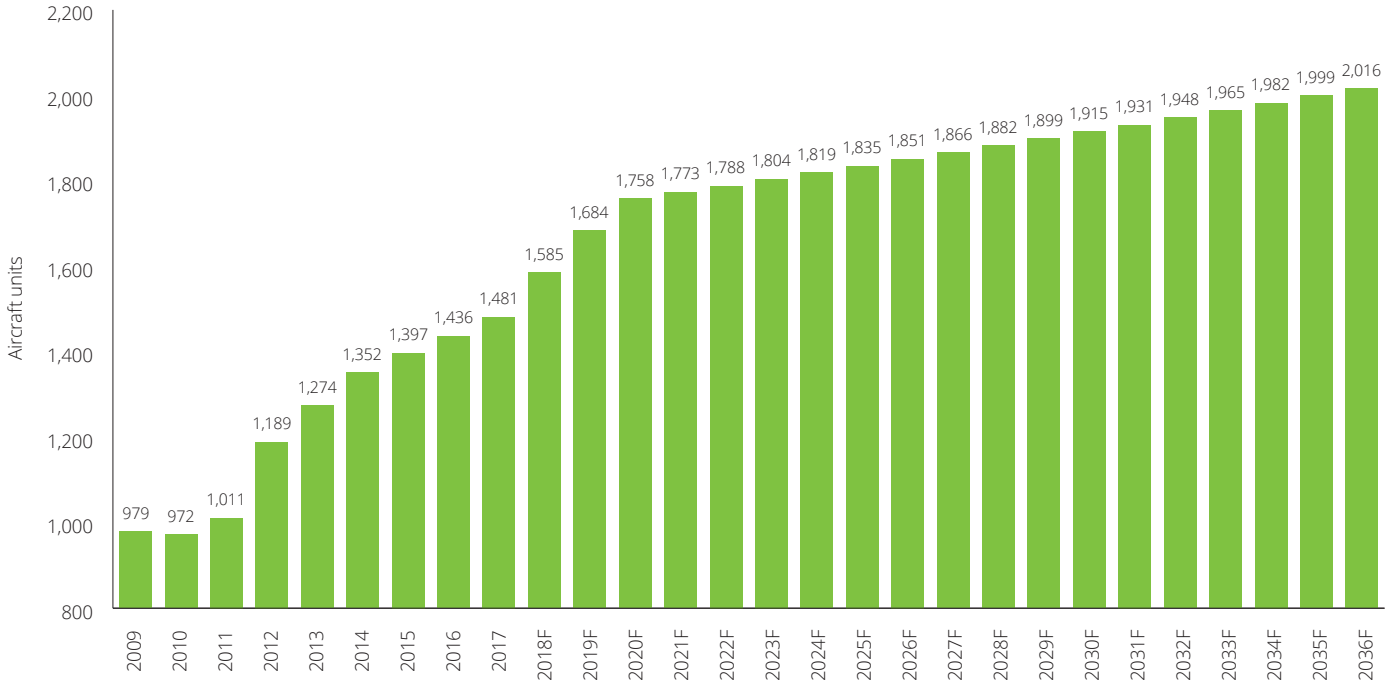
Source: Deloitte analysis of the following data: The Boeing Company, "Order and deliveries," accessed in February, 2018 <http://active.boeing.com/commercial/orders/index.cfm>; Airbus Group, "Orders and deliveries," accessed in February, 2018, <http://www.airbus.com/company/market/orders-deliveries/>; UBS, US Aerospace and Defense Playbook, 27 November 2017; and Deutsche Bank, Global Aerospace and Defense – Industry Update, 15 December 2017.

After experiencing moderate growth in deliveries in 2017 to 1,481 units, it is estimated that 1,585 commercial aircraft will be produced in 2018, a 7.0 percent increase over 2017, and a 24.4 percent increase compared to five years ago.<sup>13</sup> In five years, the sector is expected to produce 1,788 aircraft, a 20.8 percent increase from 2017.<sup>14</sup> Figure 3 illustrates aircraft production, indicating solid growth experienced by the commercial aircraft sector since 2009.

However, demand for widebody aircraft is expected to soften due to overcapacity in the industry, airlines deferring upgrades as they wait for super-efficient next-generation widebodies, as well as the robust order backlog of widebodies. Moreover, with oil prices stabilizing at low-to-mid levels, older aircraft have become more economical, potentially making new widebodies less attractive.



**Figure 4. Aircraft deliveries (2009 to 2036F)**



Source: Deloitte analysis of the following data: The Boeing Company, "Order and deliveries," accessed in February, 2018 <http://active.boeing.com/commercial/orders/index.cfm>; Airbus Group, "Orders and deliveries," accessed in February, 2018, <http://www.airbus.com/company/market/orders-deliveries/>; UBS, US Aerospace and Defense Playbook, 27 November 2017; and Deutsche Bank, Global Aerospace and Defense – Industry Update, 15 December 2017.

As the demand for commercial aircraft continues to increase, new production programs are emerging from other regions, particularly China and Russia. With 815 orders from 28 customers for Commercial Aircraft Corporation of China's (COMACs) C919 aircraft program, China is seeing some success with respect to a domestic manufactured commercial aircraft, whose deliveries are likely to commence in 2021.<sup>15</sup> As majority of its customers are Chinese airlines and leasing companies, COMAC also plans to increase its focus on potential buyers in Africa, Middle Asia, and West Asia.<sup>16</sup>

Nevertheless, to compete with the existing duopoly, these new entrants will face several challenges, ranging from procurement of orders from established global carriers, risk of cost and schedule over-runs, certifications from European and US regulators, to establishing a track record of safe and reliable operations.



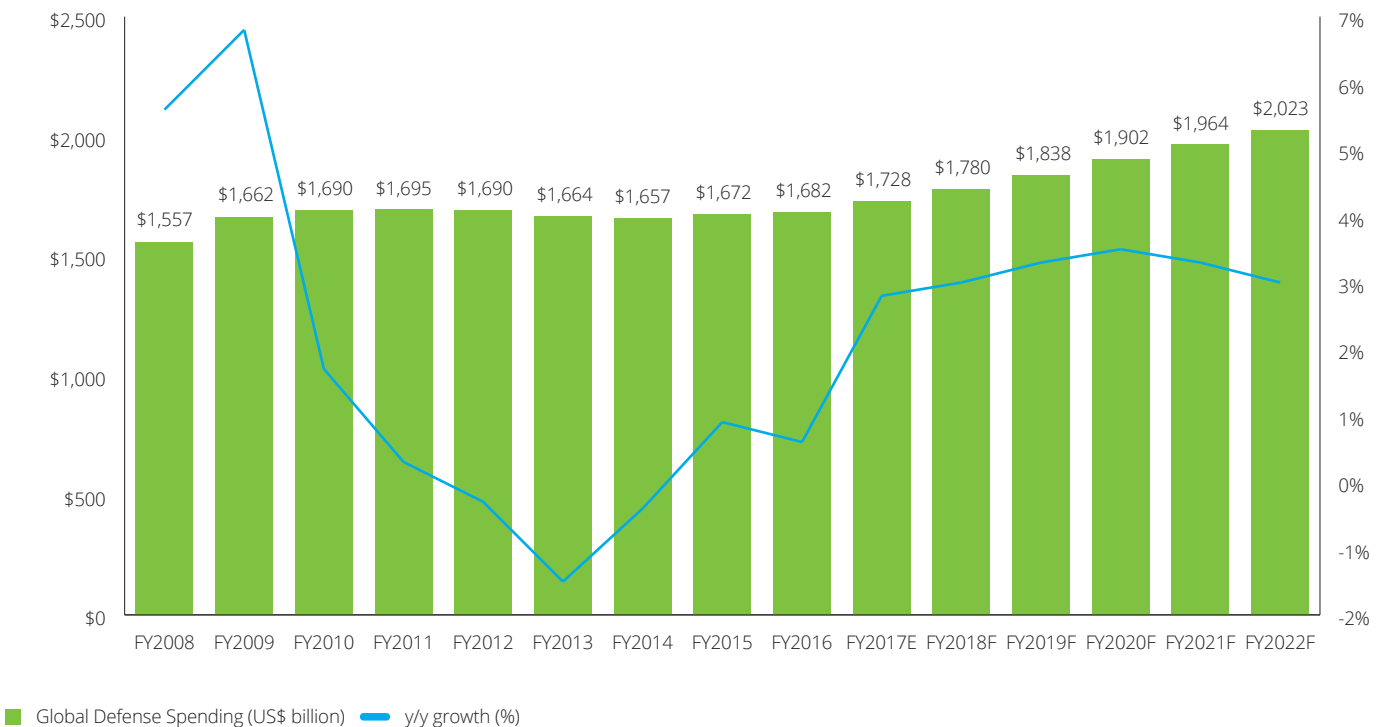
# Defense sector outlook

In 2018, global defense sector revenues are expected to grow 3.6 percent as global tensions continue to persist and a majority of the affected countries plan to recapitalize and improve their defense posture. Threats continue to evolve from traditional land based force on force, to maritime disputes, hybrid warfare, island building, high seas piracy, urban insurgency, lone-wolf civil attacks to cyber-attacks.

As security threats continue to rise across the globe, defense spending growth is likely to continue over the next five years. Deloitte estimates global defense spending is anticipated to grow at a CAGR of about 3.0 percent over the 2017-2022 period, crossing US\$2 trillion by 2022.

There is a growing risk of cyber-attacks worldwide, which could include data thefts, ransomware and malware outbreaks and attacks aimed at causing critical infrastructure disruption. Russia, China, Iran, and North Korea are testing destructive cyber-attacks that pose a threat primarily to the US and its allies. In the South China Sea region, the United States and its allies continue to pursue aggressive intelligence, surveillance, and reconnaissance operations to counter potential threats. The US also tested a ballistic missile defense system earlier this year, with China responding by conducting a similar defense system test days later. Japan is likely to further strengthen its military as it seeks to cope with security threats from China and North Korea, whereas, Russia and the Ukraine continue to be at odds. Moreover, North Korea continues to threaten its neighbors with its nuclear ambitions, while the Islamic State (ISIS) remains a major threat in Syria, Iraq, and Afghanistan and continues to carry out terror strikes in Europe, Africa, and elsewhere. Apart from this, the recent chemical weapons attack on UK soil has created further tensions between the United Kingdom and its allies and Russia.

**Figure 5. Global defense spending to exceed US\$2 trillion in 2022**



Source: Deloitte analysis of data from Stockholm International Peace Research Institute (SIPRI) Military Expenditure Database, accessed in December 2017 [http://www.sipri.org/research/armaments/milex/research/armaments/milex/research/armaments/milex/milex\\_database](http://www.sipri.org/research/armaments/milex/research/armaments/milex/research/armaments/milex/milex_database) and Deloitte estimates

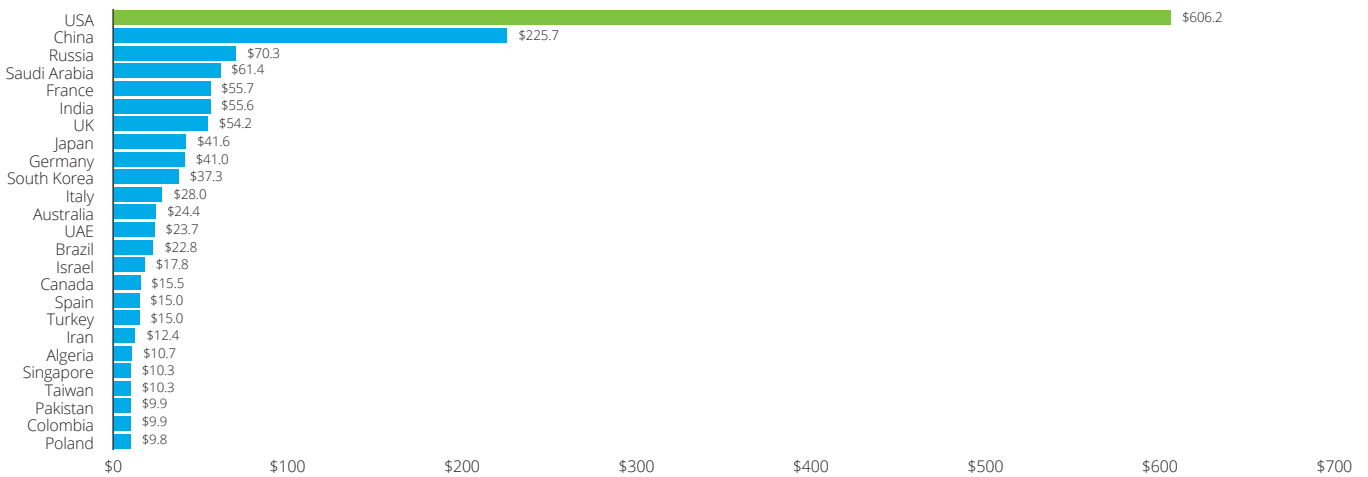


Figure 6 shows the top 25 military spending nations in the world. The US remained the largest defense spending nation, accounting for 36 percent of the total global military spend of US\$1,682 billion in 2016.<sup>17</sup> Several Middle Eastern and African countries spend a higher percentage of their GDP on military expenditures, with Oman, Saudi Arabia, and Congo the top three in 2016.<sup>18</sup>

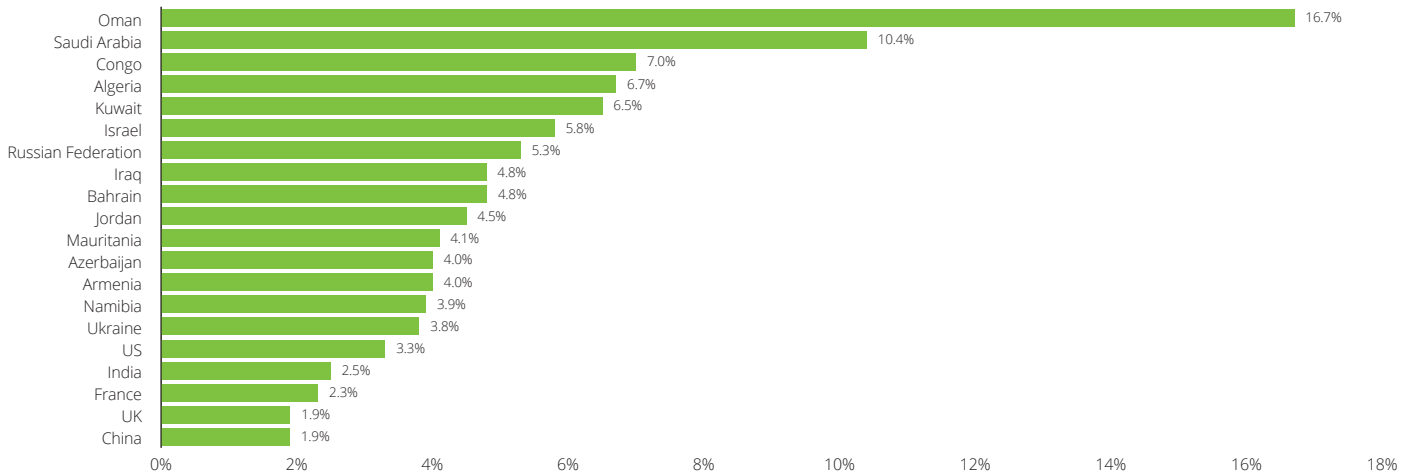
**Figure 6. Top 25 military spending nations 2016 (US\$ billion)**

Total spend in 2016 was US\$1,682 billion

**Military expenditure 2016 (US\$ billion)**



**Military Expenditure as a % of GDP (2016)**



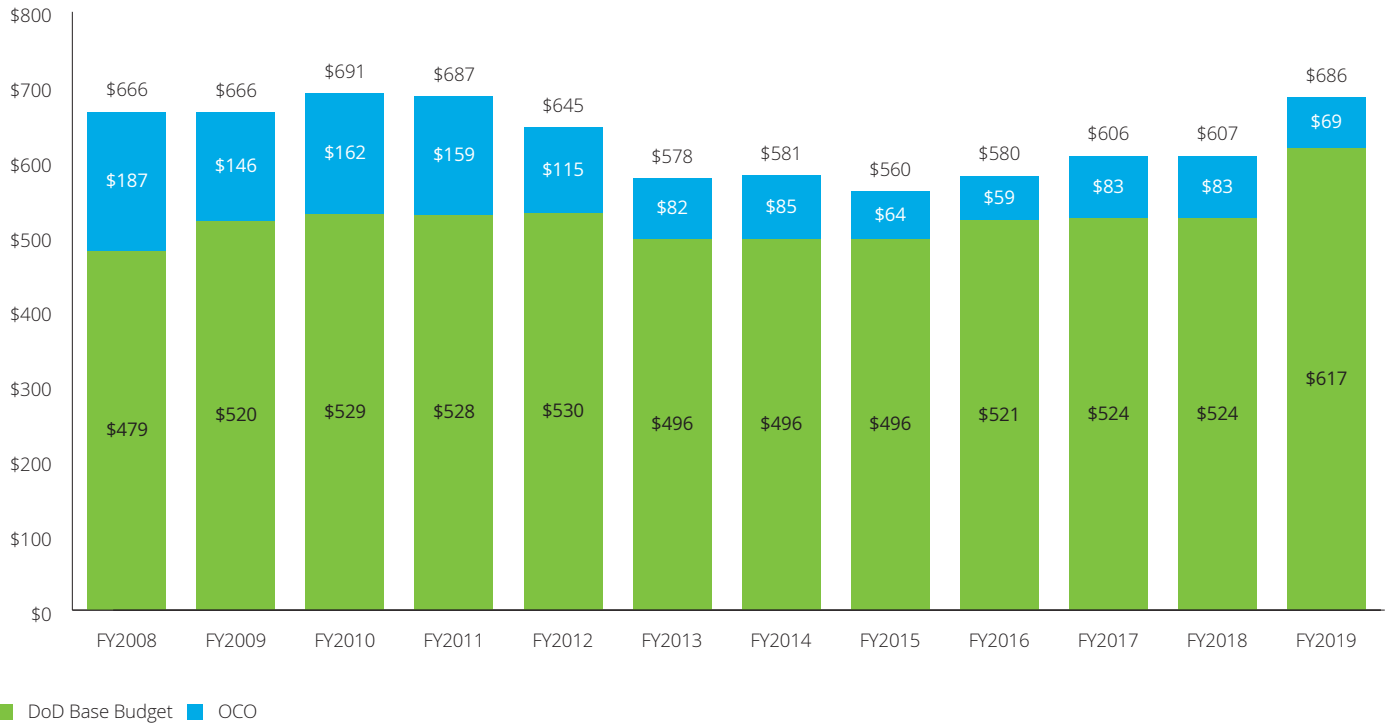
Source: Deloitte analysis of data from Stockholm International Peace Research Institute (SIPRI) Military Expenditure Database, accessed in December 2017

[http://www.sipri.org/research/armaments/milex/research/armaments/milex/research/armaments/milex/milex\\_database](http://www.sipri.org/research/armaments/milex/research/armaments/milex/research/armaments/milex/milex_database).

Note: Military expenditure data for 2015 is not directly comparable with the data in our previous outlook as this is being converted by SIPRI using constant currency exchange rates (based on 2017 average exchange rate). Note: Figures for China, Saudi Arabia, South Korea, Israel, and Turkey are SIPRI estimates.

The US administration’s increased focus on strengthening the nation’s military has already led to higher US defense budgets for 2018 to 2019. Figure 7 illustrates US Department of Defense (DoD) budgets from fiscal years (FY) 2008 to 2019, showing a five-year decline from FY2010 to FY2015, with total budgets increasing from FY2016 onwards. The US DoD budget – inclusive of Overseas Contingency Operations (OCO) funding – announced for FY2019 is US\$79 billion higher than FY2018.<sup>19</sup> It should be noted that the DoD base budgets have been increasing since 2016 and have reached a ten-year high. This recent growth has resulted in the revenue and operating income growth experienced by the top US defense companies as the DoD begins to use this funding to recapitalize and modernize the armed forces.

**Figure 7. US Department of Defense budget in US\$ billion (fiscal years 2008 to 2019)**



Source: Deloitte analysis of the data from the Office of the Under Secretary of Defense (Comptroller) in the United States Budget Request Document, accessed in February 2018, <http://comptroller.defense.gov/>.

Governments of other countries have also started increasing their defense budgets to address security threats and to encounter terrorism. For instance, India, Russia, and China’s 2016 military expenditure rose by 8.5 percent, 5.9 percent, and 5.4 percent year-on-year, respectively.<sup>20</sup> Some of the major defense products that are expected to remain in focus include armored ground vehicles, ground attack munitions, light air support aircraft, intelligence, surveillance and reconnaissance electronic sensors, cyber protections, maritime patrol ships and aircraft, and provision for equipment maintenance and sustainment.

International demand for defense and military products is increasing in the Middle East, Eastern Europe, North Korea, and the East and South China Seas. This is resulting in higher defense spending globally, especially, in the United Arab Emirates (UAE), Saudi Arabia, India, South Korea, Japan, India, China, and Russia. In the recent battle in Syria, Russian forces used more than 200 new types of advanced weapon systems.<sup>21</sup> This could lead to higher defense spending by Western countries and NATO members to counter potential threats and remain competitive. Moreover, increased political pressure from the US administration on NATO member countries to increase military expenditure to 2.0 percent of GDP<sup>22</sup> is likely to drive defense spending growth in Europe.

International demand for defense and military products is increasing in the Middle East, Eastern Europe, North Korea, and the East and South China Seas

# Regional perspectives

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## Country/Region A&D industry trends and outlook

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### India

- India is likely to be the third largest aviation market by 2025<sup>23</sup>
- The country is forecast to have a demand for a record 2,100 new aircraft in the next two decades, worth US\$290 billion, with the majority being single-aisle planes<sup>24</sup>
- India's 2017-18 defense budget reached US\$57.4 billion to become the third largest globally<sup>25</sup>

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### China

- China's aviation sector is expected to be the world's largest (by passengers) by 2024<sup>26</sup>
- The country is estimated to have a demand of 7,240 commercial aircraft worth US\$1.1 trillion the next 20 years<sup>27</sup>
- China's defense budget was the second largest globally in 2017, at US\$192.5 billion (up 5.2 percent YoY)<sup>28</sup>
- For 2018, the country is aiming at an 8.1 percent growth in defense budget, making this the largest year-on-year increase in the last three years<sup>29</sup>

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### Japan

- Passenger traffic growth in Japan is estimated to be around 2.7 percent over the next 20 years, one of the lowest in Asia Pacific<sup>30</sup>
  - Recent growth in low-cost carriers (LCCs) is likely to drive commercial aircraft demand in the region<sup>31</sup>
  - Japan's defense budget ranked in the top 10 globally, with the budget increasing by 1.4 percent to US\$43.5 billion in 2017<sup>32</sup>
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## Country/Region A&D industry trends and outlook

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### Middle East

- The pace of growth in passenger traffic in the Middle East slowed down in 2017 due to US travel bans as well as the prohibition of carrying large electronic devices on board<sup>33</sup>
- Over the next two decades, passenger traffic in the Middle East is forecast to grow at 5.6 percent, creating demand for 3,350 additional aircraft<sup>34</sup>
- The pace of growth in defense budgets of the two key countries in the region – the UAE and Saudi Arabia – declined recently<sup>35</sup>
- Low-to-mid level oil prices are likely to continue to impact future defense spending in the Middle East

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### United Kingdom (UK)

- The UK's 2017 defense budget grew 1.4 percent to US\$51.2 billion, moving up to the fourth position, from the fifth in 2016<sup>36</sup>
- Over the next three years, the country is expected to invest nearly US\$38.6 billion (£30 billion) to strengthen its military forces<sup>37</sup>
- As Brexit nears, there is ambiguity around its impact on the UK A&D industry – access to and mobility of the workforce as well as the negotiation of trade agreements with the EU and other major trading nations are likely to impact productivity and profitability of the sector

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### France

- The defense budgets of France remained flat in 2017 at US\$45.6 billion, despite which, the country's ranking moved up from eighth in 2016 to seventh in 2017<sup>38</sup>
  - France's defense spending is likely to grow over the next five years given the pressure from the US administration on NATO countries to increase military expenditure to 2.0 percent of GDP (France's current military expenditure is at 1.4 percent of GDP)<sup>39</sup>
-

## India

The defense sector in India has experienced robust growth over the recent past, with India's defense budget for 2017-18 reaching US\$57.4 billion.<sup>40</sup> This has been led by the country's focus on recapitalizing and strengthening its military to counter potential threats from China and Pakistan, as well as efforts to upgrade existing assets.

Over the past two years, the Indian government has undertaken multiple policy initiatives to attract foreign investment in the A&D industry – including increased international engagement, a revamped foreign direct investment (FDI) policy, and a new defense procurement procedure with amendments in offset regulations, and the announcement of strategic partnership model. The Indian government eased norms for the defense sector in June 2016, permitting foreign companies to own 100 percent of domestic ventures with the approval of the government.<sup>41</sup> In May 2017, the Indian government announced a "Strategic Partnership Model" for defense manufacturing policy, under which, Indian firms will be allowed to enter into strategic partnerships with non-Indian OEMs in key defense subsectors such as fighter aircraft, submarines, helicopters, and armored fighting vehicles. Under the "Strategic Partnership Model," which aims to enhance India's self-reliance index in defense procurement, the government will shortlist foreign OEMs to work with domestic strategic partners to manufacture defense platforms in India (including technology transfer).<sup>42</sup>

In the commercial aircraft sector, South Asia is expected to witness 8.0 percent passenger traffic growth over the next 20 years, which will be dominated by India.<sup>43</sup> Also, India is likely to be the third largest aviation market by 2025, a year earlier than originally expected, according to IATA.<sup>44</sup> The country is forecast to have a demand for a record 2,100 new aircraft, worth US\$290 billion, in the next two decades, with the majority of these being single-aisle planes.<sup>45</sup> The demand will primarily support the growth of low-cost carriers, which account for more than 60.0 percent of the total flights in the country.<sup>46</sup>

## China

China's defense budget was the second largest globally in 2017, at US\$192.5 billion, up 5.2 percent compared to 2016.<sup>47</sup> For 2018, the country has a target of 8.1 percent growth in its defense budget, making this the largest year-on-year increase in the past three years.<sup>48</sup> The growth in spending will cater to China's increasing focus on developing new military capabilities, such as stealth fighters, aircraft carriers and anti-satellite missiles. However, the country's military expenditure as a percentage of GDP remained low as compared to other regions. China's military expenditure to GDP ratio of 1.9 percent is low compared to 2.5 percent for India, 5.3 percent for Russia, and 3.3 percent for the United States.<sup>49</sup> China has been primarily dependent on foreign arms purchases and technology transfers, but, is now focusing on becoming self-reliant. The country is working towards increasing its defense-industrial innovation and production by encouraging participation of the private sector in its defense industrial base.

To encourage overseas investment into the country, China relaxed restrictions on foreign investment in free trade zones in January 2018. Foreign investors are now allowed to set up wholly-owned foreign enterprises to undertake small scale aircraft design, manufacturing, and repair in free trade zones.<sup>50</sup> In 2015, China also revised its "Catalogue of Industries for Guiding Foreign Investment" to expand the range of approved investment activities of foreign entities into the commercial aircraft sector. These measures are likely to enable foreign investors to manufacture small scale aircraft parts, including aircraft motors and bearings, in the country.

China's commercial aviation sector is growing rapidly and is expected to be the world's largest (by passengers) by 2024, surpassing the United States.<sup>51</sup> Robust growth in the aviation market is likely to drive the commercial aircraft sector demand in China, with the country requiring 7,240 commercial aircraft worth US\$1.1 trillion in the next 20 years to meet growing travel demand.<sup>52</sup>

The country has also entered commercial aircraft manufacturing to meet domestic as well as global demand for aircraft. Chinese state-owned aircraft manufacturer, COMAC, is nearing the launch of a 168-seater single-aisle aircraft – C919, which has already received order commitments for more than 800 aircraft from various customers.<sup>53</sup> The aircraft completed its maiden flight in May 2017, with deliveries likely to begin in 2021, and is expected to have a market potential of nearly US\$100 billion.<sup>54</sup>

## Japan

Japan's defense budget ranked in the top ten, with the budget increasing by 1.4 percent to US\$43.5 billion in 2017.<sup>55</sup> However, the country's military expenditure as a percentage of GDP remained low – slightly below 1.0 percent,<sup>56</sup> as compared to other Asian nations, such as India and China. Nevertheless, given the heightened security concerns regarding the dispute with China over the islands in the South China Sea, Japan's defense budgets are likely to increase in the near-term.

Major defense programs in Japan will focus on strengthening its position in the disputed islands. The nation is likely to invest in more amphibious warfare capabilities, including assault vehicles, anti-submarine warfare helicopters, drones, and fighter aircraft, apart from others.<sup>57</sup>

In 2014, Japan lifted the half century ban on the export of military equipment, enabling it to be a part of multi-national development projects for advanced weapon systems. The move was also aimed to allow Japanese defense companies to enter new markets as Japan's military spending remained constrained due to the country's increasing budget deficits. However, the guidelines permit export of weapons only to the country's allies, who agree to not sell them to other nations without Japanese approval.<sup>58</sup>

In the commercial aircraft sector, passenger traffic growth in Japan is estimated to be around 2.7 percent over the next 20 years, one of the lowest in the Asia Pacific region.<sup>59</sup> However, the recent growth in low-cost carriers (LCCs) is likely to drive commercial aircraft demand in the region. LCCs in Japan achieved a 10 percent market share in only six years of existence.<sup>60</sup>

### Middle East

The region saw a spike in spending on commercial aircraft and military equipment during the oil price boom period (2009 to 2014) as higher oil prices and strong cash positions enabled countries in the Cooperation Council for the Arab States of the Gulf (known as Gulf Cooperation Council or GCC) to undertake multi-billion-dollar defense modernization programs. However, the growth in defense budgets of the two key countries in the region—the UAE and Saudi Arabia – has declined recently, while Israel’s defense budget grew. In 2017, Israel’s defense budget was up 5.6 percent to US\$15.0 billion.<sup>61</sup> Saudi Arabia’s defense budget for 2017 stood at US\$50.9 billion, only 1.8 percent higher than 2016.<sup>62</sup> Moreover, as oil prices stabilize at much lower levels compared to mid-2014, it is likely to impact future defense spending in the Middle East region, especially for countries with higher reliance on the oil and gas industry. Though the UAE has a more diversified economy and is relatively less dependent on the oil and gas industry, Saudi Arabia is highly dependent on the industry, which has contributed more than 90 percent to government revenues, and hence, is more vulnerable to lower oil prices.<sup>63</sup>

Although the slowdown in defense spending by the Middle Eastern countries is a major concern for A&D companies in the United States and Europe, national security threats and ongoing conflicts in the region are likely to drive a strong order flow. However, the oil dependent Saudi Arabia may be challenged to sustain high levels of military expenditure going forward due to affordability.

With respect to the commercial aircraft sector, the Middle East remains an important market by virtue of its strategic location as a hub linking the major global airline networks. This has resulted in strong travel demand from the region in the past. The Middle East region led travel demand growth globally during 2012–2016. However, in 2017, the pace of growth slowed down due to the US travel bans as well as prohibition of carrying large electronic devices on board, both of which negatively impacted passenger traffic.<sup>64</sup> Nonetheless, over the next 20 years, passenger traffic growth is forecast to experience robust growth of 5.6 percent and it is estimated that the region will need 3,350 aircraft to meet this demand.<sup>65</sup>

### UK

In 2017, the UK defense budget recorded 1.4 percent growth to US\$51.2 billion, moving up to the fourth position, from the fifth in 2016.<sup>66</sup> The country is expected to invest nearly US\$38.6 billion (£30 billion) over the next three years to strengthen its military forces.<sup>67</sup> A majority of UK defense spending is likely to focus on surface ships and submarines, land equipment, new precision weapons, and a new anti-surface guided weapon.<sup>68</sup>

However, as Brexit nears, there is ambiguity around its impact on the UK A&D industry with respect to productivity on major defense programs, new immigration requirements, the ability to attract and retain talent, the mobility of workforce, etc. Increased international trade costs, including customs brokerage fees, duties, and taxes, will have an impact on profitability and pricing competitiveness. There is also concern over whether the multi-layered UK supply chain is prepared for Brexit and whether some of the smaller yet business critical suppliers are prepared for the change. Although defense spending in the United Kingdom is expected to remain steady, there is a likelihood that Brexit will impact some of the defense programs.

### France

Although the French defense budget remained flat in 2017 at US\$45.6 billion, the country’s ranking moved up from eighth in 2016 to seventh in 2017.<sup>69</sup> France’s defense spending is likely to experience growth over the next five years, given the pressure from the US administration on NATO countries to increase military expenditure to 2.0 percent of GDP. The country’s current military expenditure stands at 1.4 percent of GDP.<sup>70</sup>

Going forward, there are several factors that will prove crucial for the French A&D industry. International air traffic growth represents a major advantage for France as does rising military expenditures, the trend in the euro/dollar exchange rate, the industrial strategy of aircraft manufacturers, significant industrial innovation efforts, the cost of aircraft produced in France, the efficiency of French production means, and government-backed initiatives. However, globalized production and foreign competition, namely through relocation, are impeding this expansion, largely because of the pressure on prices driven by aircraft manufacturers.

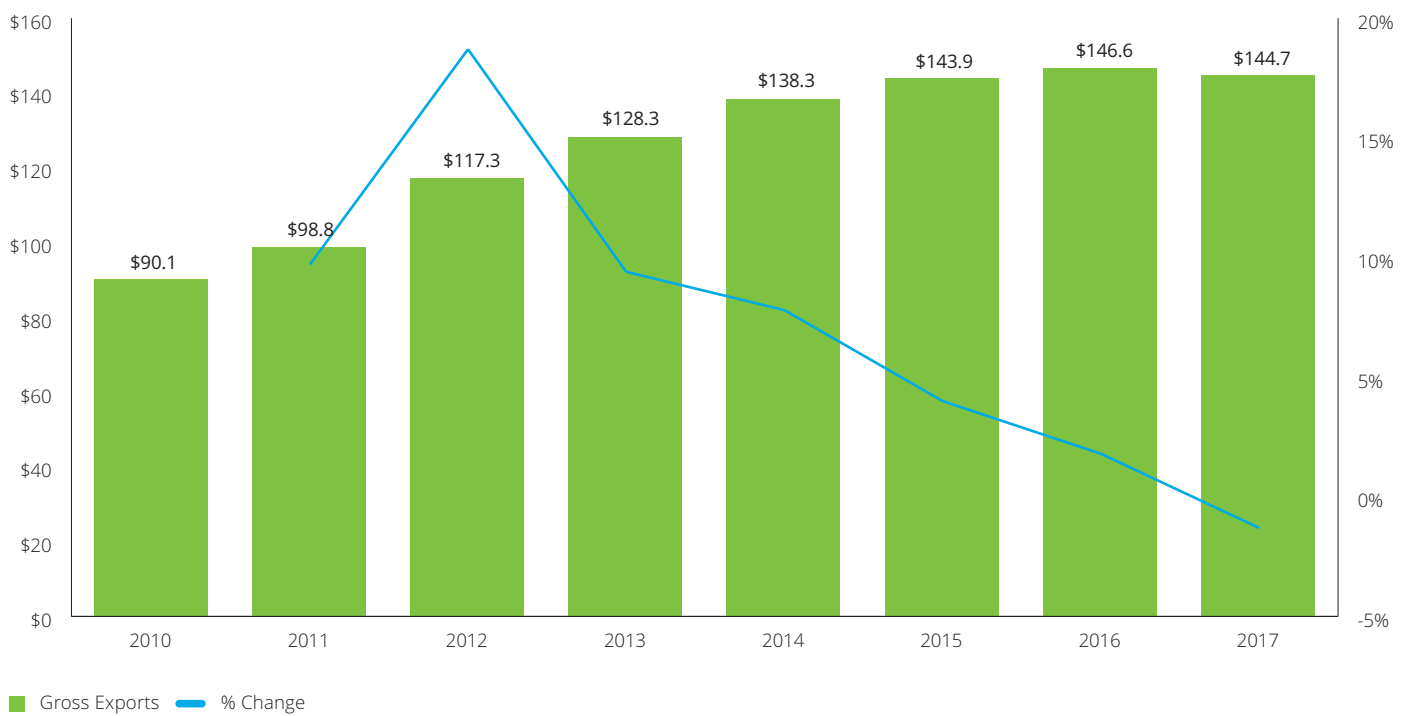
French companies have also developed expertise and business processes in technology transfer that are making them more competitive in securing large foreign military deals. For instance, to negotiate the Rafale deal with India, Thales and Dassault set up subsidiaries in India years ago. However, European military forces are experiencing a gap with US capabilities and face the challenge of making the best use of technologies to enhance their intelligence, autonomy, and accuracy.

# Major aerospace and defense industry trends

## US A&D industry exports

As shown in Figure 8, US A&D exports experienced a slight decline in 2017, after a multi-year growth streak. Exports of US A&D products stood at \$144.7 billion, down 1.3 percent over 2016. Although US A&D exports increased during the 2010–2016 period, the pace of year-over-year growth weakened – 18.7 percent in 2012, 9.4 percent in 2013, 7.9 percent in 2014, 4.0 percent in 2015, and 1.7 percent in 2016. The dip in US A&D exports has been mainly due to the strengthening of the US dollar and increased competition from global competitors, especially Russia and China. Although the contribution of US A&D exports globally will continue to remain significant, the magnitude of growth will likely depend on the new US administration’s regulatory actions with respect to export of aerospace and defense products.

**Figure 8. US aerospace and defense industry gross exports in US\$ billion (2010 to 2017)**



Source: Deloitte analysis of data from the U.S. Census Bureau, accessed in December 2017

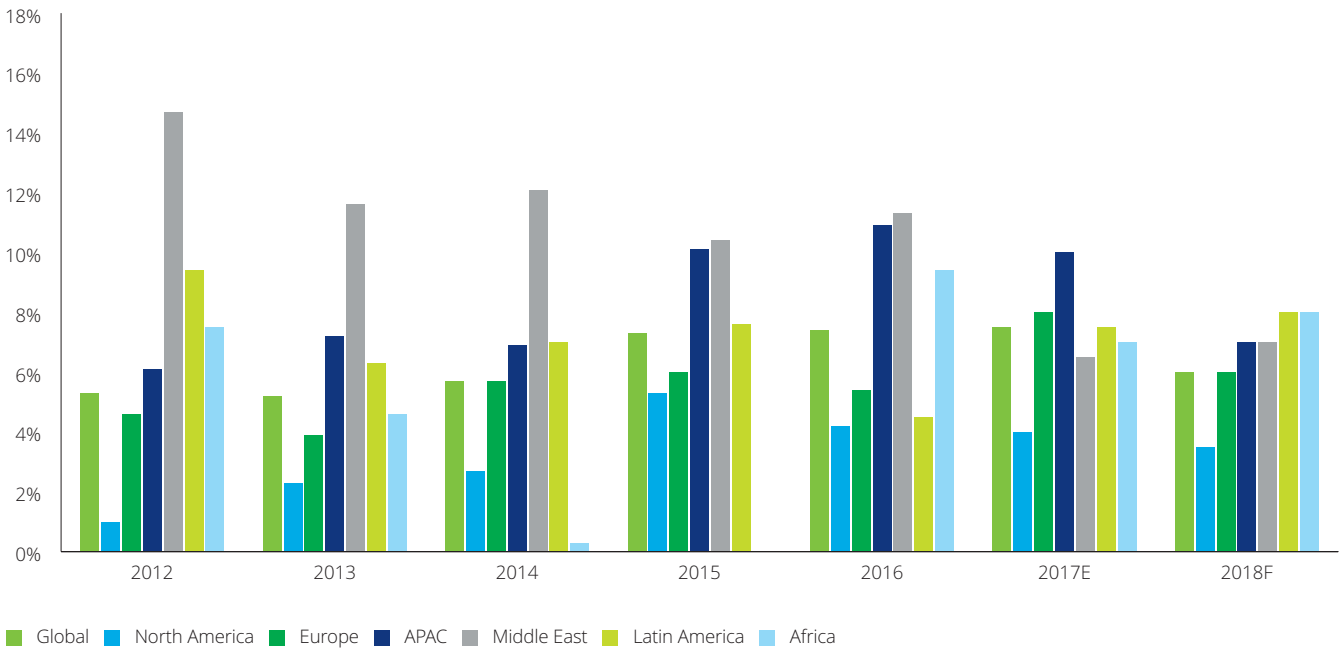
Sources: Deloitte analysis of data from the U.S. Census Bureau, accessed in December 2017, [www.census.gov/](http://www.census.gov/); and UN Comtrade | International Trade Statistics Database, accessed in December 2017, [www.comtrade.un.org/](http://www.comtrade.un.org/)

The dip in US A&D exports has been mainly due to the strengthening of the US dollar and increased competition from global competitors, especially Russia and China.

**Key growth regions for commercial aerospace**

Passenger travel demand has been increasing in countries and regions that have experienced continued wealth creation – especially, India, China, and the Middle East. These markets will continue to be the focus regions for commercial aircraft companies in the near future. Figure 9 illustrates the relatively stronger growth expected in passenger traffic in Asia Pacific, the Middle East, Latin America, and Africa in 2018.

**Figure 9. Passenger traffic (RPK) year-on-year growth by region (2012 to 2018F)**



Source: Deloitte analysis based on data from IATA, Industry Statistics, December 2017

Source: Deloitte analysis based on data from IATA, Industry Statistics, December 2017

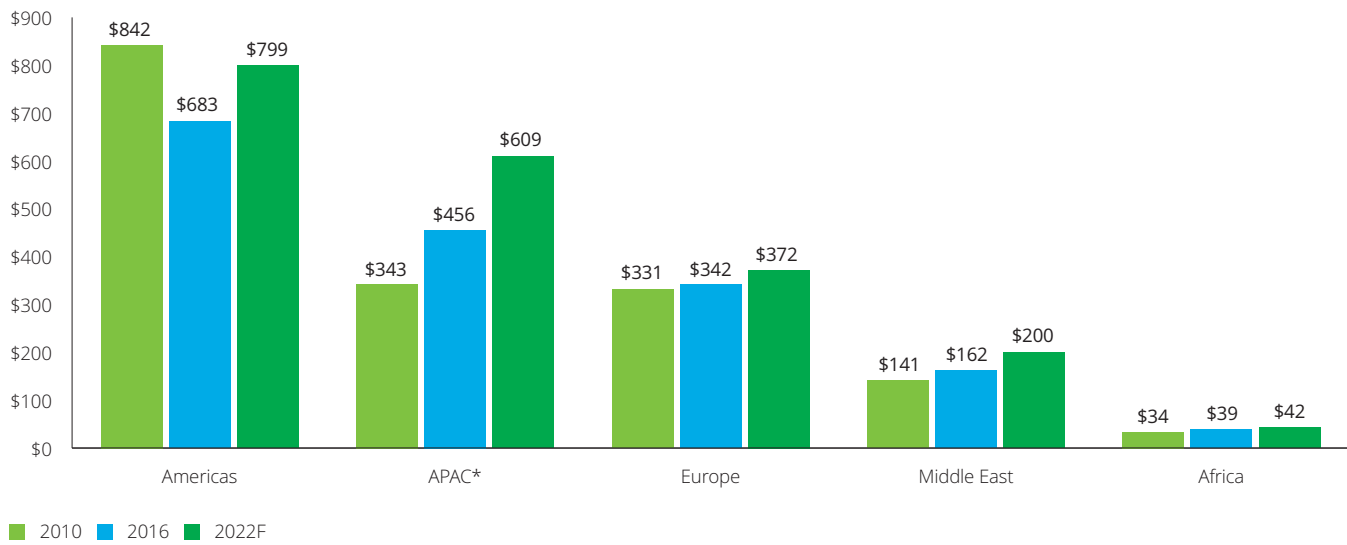
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### Military spend by region

Military expenditure for the Americas has declined 18.9 percent over the 2010 to 2016 period, while Europe’s defense spending grew marginally (up 3.3 percent) over the same period.<sup>71</sup> In contrast, APAC\* and the Middle East experienced robust growth in military expenditure during 2010 to 2016, with the share of military expenditure for APAC\* rising from 20.3 percent in 2010 to 27.1 percent in 2016.<sup>72</sup> The Americas’ contribution to global military spending fell from 49.8 percent in 2010 to 40.6 percent in 2016, whereas Europe’s contribution experienced a negligible increase during the same period.<sup>73</sup> This has led global defense companies historically dependent on the United States and Europe to intensify their focus on growth in markets such as India and the Middle East.

**Figure 10. Military expenditure, by region (US\$ billion)**

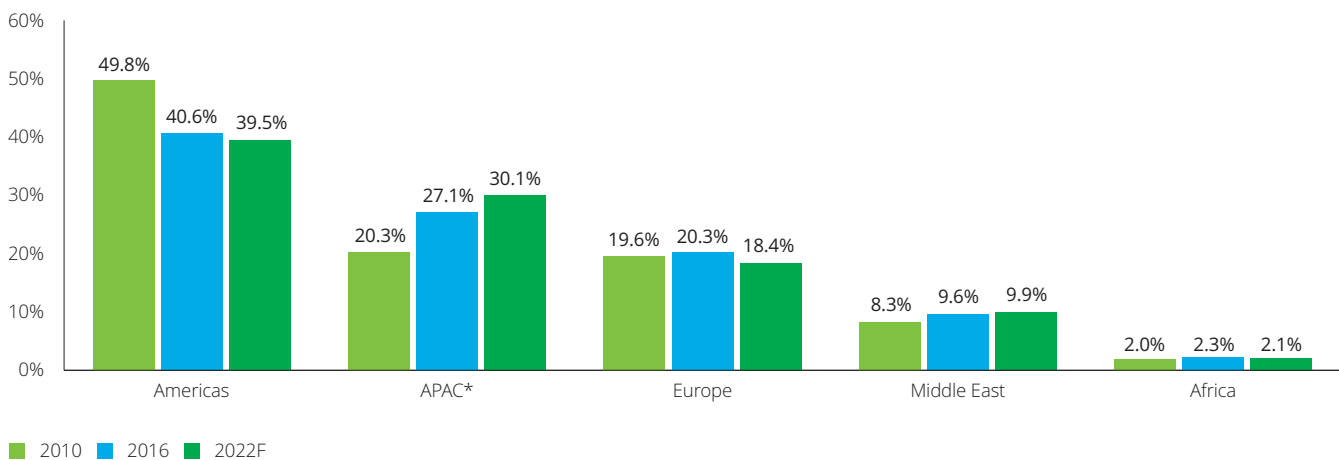


Source: Deloitte analysis based on data from Stockholm International Peace Research Institute (SIPRI)

<https://www.sipri.org/databases/milex> and Deloitte estimates

Note: \*APAC represents Asia & Oceania

**Figure 11. Military expenditure percentage contribution, by region**



Source: Deloitte analysis based on data from Stockholm International Peace Research Institute (SIPRI)

<https://www.sipri.org/databases/milex> and Deloitte estimates

Note: \*APAC represents Asia & Oceania

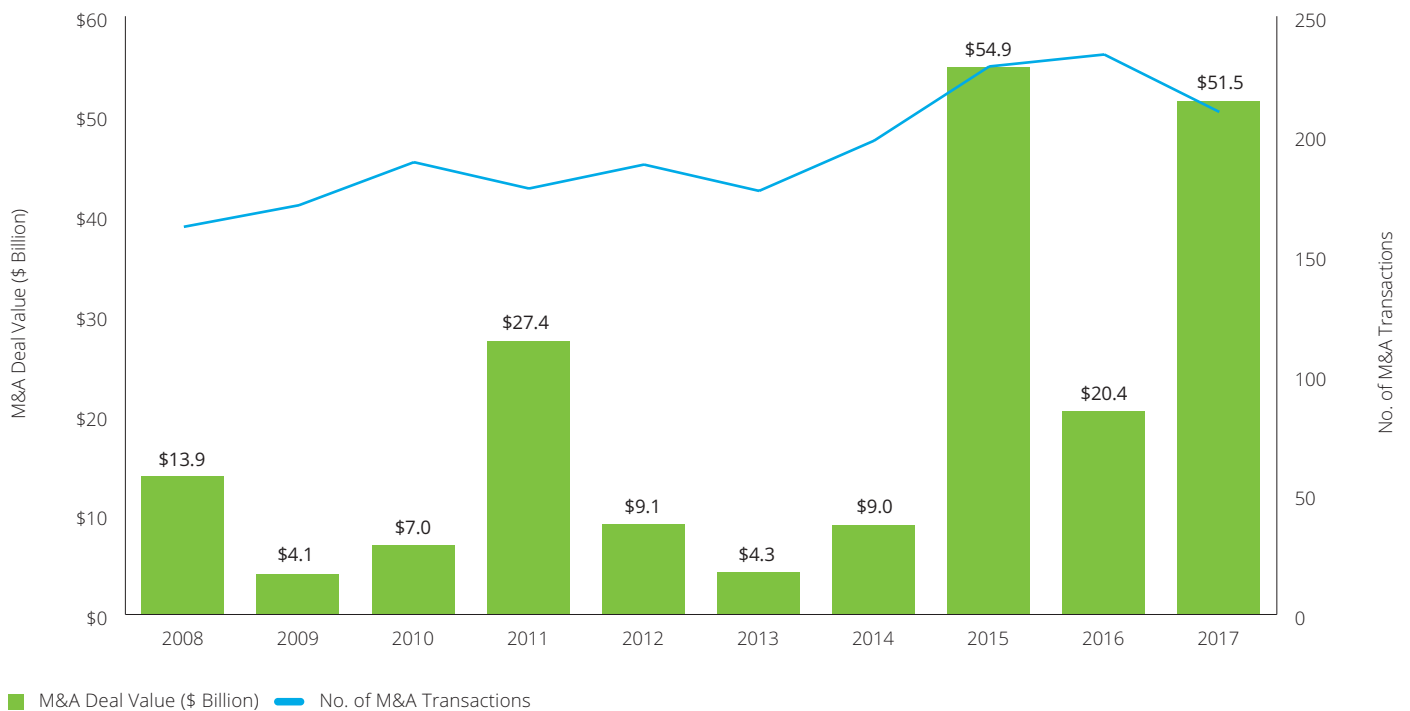


# Outlook for M&A activity in 2018

M&A deal value in the global A&D industry reached US\$51.5 billion in 2017, with the number of transactions down to 210, compared to 234 transactions in 2016.<sup>74</sup> Value of M&A transactions in 2017 neared the record high levels of 2015, primarily led by a mega deal – Rockwell Collins’ US\$30.2 billion acquisition by United Technologies Corp.<sup>75</sup> In 2015, M&A deal value peaked, however, this was heavily weighted by one transaction–Berkshire Hathaway Inc.’s US\$35.8 billion acquisition of Precision Castparts Corp.<sup>76</sup>

Pricing pressures from aircraft OEMs and their expansion of high-margin aftermarket services has pushed suppliers to consolidate for scale and cost effectiveness. For example, aerospace supplier United Technologies Corp. agreed to acquire avionics and interiors maker Rockwell Collins, Inc. for US\$30.2 billion to increase its negotiating power with aircraft manufacturers.<sup>77</sup> Efforts to rebuild missile defense systems, geopolitical tensions, and the US administration’s rising defense budget drove deal-making in the defense sector in the US. Notable deals include Northrop Grumman Corp.’s US\$7.8 billion deal to acquire fellow defense contractor Orbital ATK, Inc.<sup>78</sup> The deal is expected to provide Northrop Grumman with greater access to government contracts and expand its arsenal of missile defense systems and space launch systems.

**Figure 12. Global aerospace and defense industry mergers and acquisition activity (2008 to 2017)**

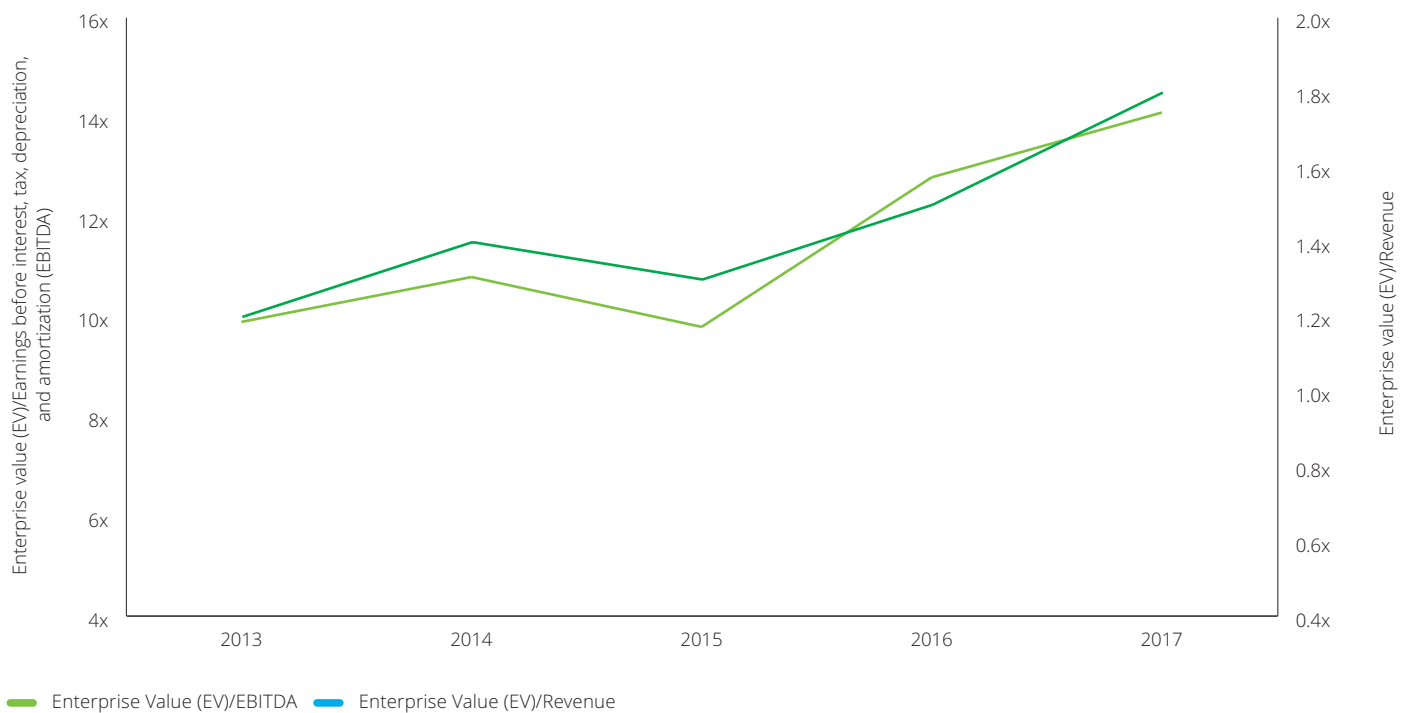


Source: Deloitte analysis of data from Thomson Reuters, accessed in February 2018. The Thomson Reuters Mergers & Acquisitions (M&A) database tracks changes in economic ownership at ultimate parent level in going business concerns. All deals involving a purchase of at least a 5.0% stake, or 3.0% with a value of at least US\$1 million are tracked, subject to criteria. Thomson Reuters gets access to M&A data from publicly available sources such as Reuters Edgar, SEC filings, Dow Jones etc.

In 2018, global M&A activity is expected to remain strong in the aerospace sector, driven by OEMs' continued pressure on suppliers to reduce costs and boost production rates. In addition, the Northrop Grumman and Orbital ATK deal could prompt other defense contractors to broaden their offerings and increase negotiating leverage through acquisitions. Deal activity in the US defense sector could accelerate in 2018, as the DoD's spending bill will likely provide certainty to military planners. Large prime contractors are expected to buy small- to mid-sized companies to gain access to new technologies or certain markets. In Europe, the defense sector is unlikely to see large deals, however, companies may choose to pursue JVs to bolster their market positions. The focus is likely to be on acquisitions related to space, data analytics, cyber security, and advanced technologies.

Valuations of A&D companies have been on the rise, led by continued improvements in financial performance and growth expectations. Specifically, the price earnings (P/E) ratio of the A&D industry is now 30.0 percent higher than it was five years ago.<sup>79</sup> Figure 13 illustrates the increase in enterprise value on both earnings before interest, tax, depreciation, and amortization (EBITDA) and revenue basis.

**Figure 13. Global A&D industry valuations (2013 to 2017)**



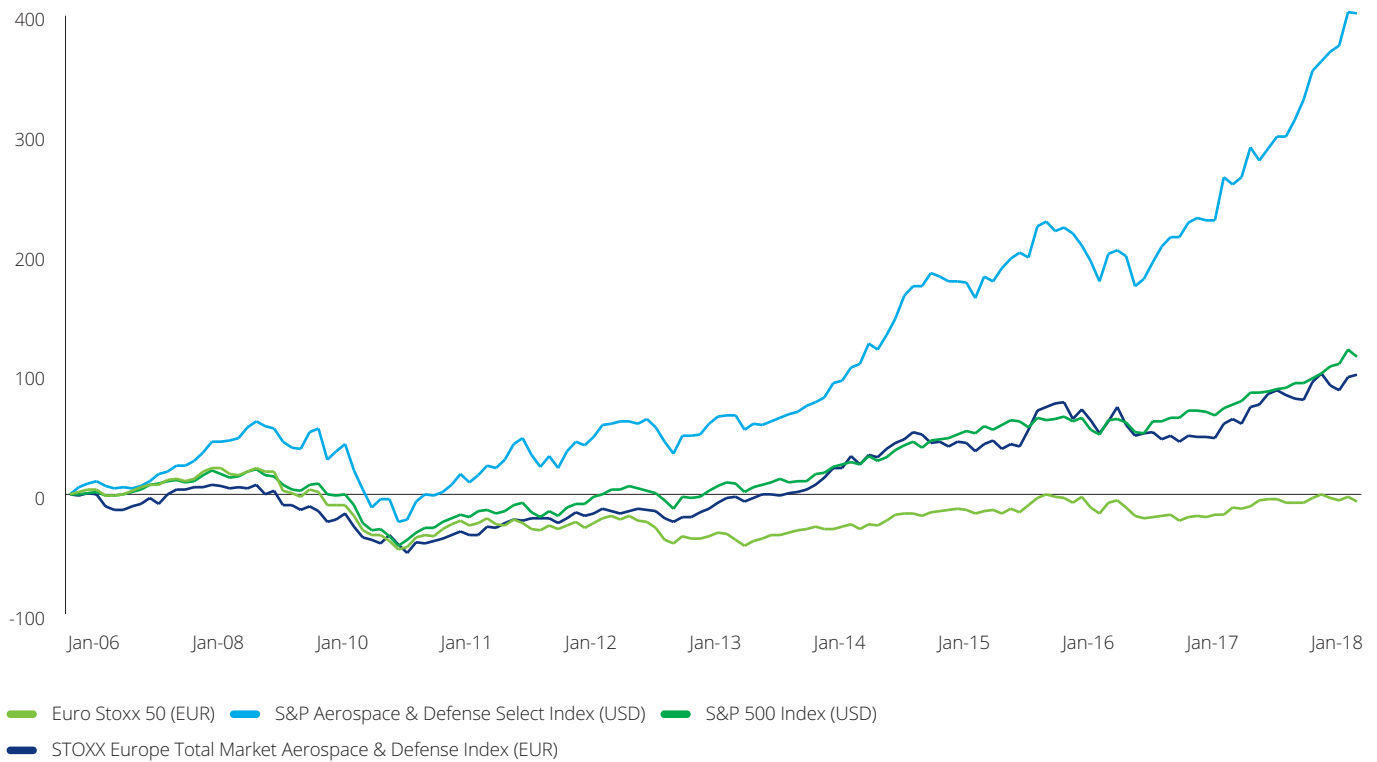
Source: Deloitte analysis of data from Capital IQ, accessed in February 2018

A&D companies are also entering into cross-border JVs, which remain an important vehicle in expanding international access to new markets and technology. Cross-border JVs create a new third entity that combines certain assets of two partners, while maintaining the ownership profile of the original entities. As compared to M&A, JVs are easily achievable because risk is shared between the JV partners and the outlay of investment is less than an outright acquisition. Changes in regulations, access to new technologies, the need for local partners, and a fast-growing A&D industrial base are likely to make India and the Middle East "hot spots" for cross-border JVs in the near-term for both commercial aircraft and defense sectors. China is also expected to be an important destination for JVs in the commercial aircraft and equipment space.

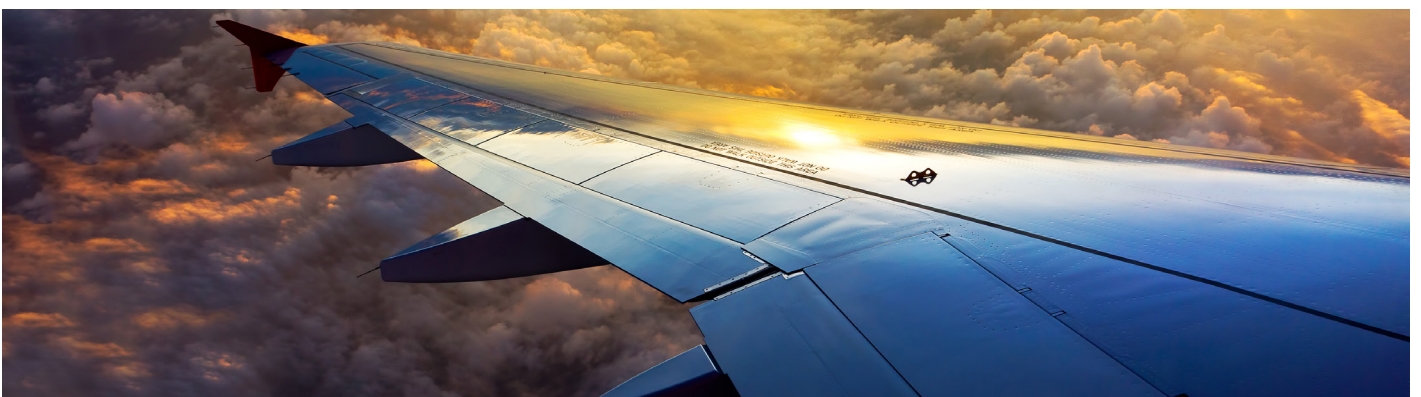
# Global aerospace and defense industry shareholder return performance

The key A&D industry indices (including the US based S&P A&D Select Index and the European STOXX Europe Total Market A&D Index) continued to outperform the broader market indices. Driven primarily by higher profitability, free cash flow, return on invested capital, and future growth expectations, the S&P A&D select index experienced a 402 percent improvement over the past 12 years, compared to a 115 percent improvement for the S&P 500 Index. Additionally, share buyback programs by A&D companies have also contributed to the solid growth in their stock prices in the recent past. Figure 14 illustrates the performance of the industry indices compared to broader market indices.<sup>60</sup>

**Figure 14. Global A&D industry indices' performance (2006 to 2018YTD)**



Source: Deloitte analysis of data from Bloomberg, accessed in February 2018



# 2017 financial performance of the major aerospace and defense companies

The top 20 global A&D companies reported combined revenues of US\$502.3 billion in 2017 (Figure 15), representing a year-over-year increase of 2.1 percent.<sup>81</sup> Operating earnings for the top 20 global A&D companies grew by 14.6 percent to US\$55.7 billion during 2017, with margins increasing to 11.1 percent from 9.9 percent in 2016.<sup>82</sup> The top 20 US based A&D companies experienced a 3.3 percent growth in revenues to US\$368.8 billion in 2017,<sup>83</sup> and a 14.2 percent improvement in operating earnings to US\$48.1 billion.<sup>84</sup>

## Top 20 global aerospace and defense companies

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Boeing (United States)

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Airbus Group (France)

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Lockheed Martin (United States)

---

General Dynamics (United States)

---

United Technologies (United States)

---

GE Aviation (United States)

---

Northrop Grumman (United States)

---

BAE Systems (United Kingdom)

---

Raytheon (United States)

---

Safran (France)

---

Thales Group (France)

---

Leonardo (Italy)

---

Rolls-Royce (United Kingdom)

---

Honeywell Aerospace (United States)

---

L3 Technologies (United States)

---

Textron (United States)

---

Bombardier Aerospace (Canada)

---

Mitsubishi Heavy Industries Aerospace (Japan)

---

Harris Corp. (United States)

---

Huntington Ingalls Industries (United States)

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## Top 20 US aerospace and defense companies

---

Boeing

---

Lockheed Martin

---

General Dynamics

---

United Technologies

---

GE Aviation

---

Northrop Grumman

---

Raytheon

---

Honeywell Aerospace

---

L3 Technologies

---

Textron

---

Harris Corp.

---

Huntington Ingalls Industries

---

Spirit AeroSystems

---

Arconic

---

Rockwell Collins

---

Orbital ATK

---

SAIC

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Triumph Group

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Leidos Holdings

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Transdigm Group

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Source: Deloitte analysis of the quarterly reports and 10-Q statements for the Top 20 Global and US A&D companies as mentioned in 2017 *Global A&D sector financial performance study*, June 2017;

**Figure 15. Top 20 global and US A&D companies' financial performance (2016 and 2017\*)**

| <b>Top 20 global aerospace and defense companies</b> | <b>2016</b> | <b>2017</b> | <b>Percentage change</b> |
|------------------------------------------------------|-------------|-------------|--------------------------|
| Revenues (US\$ billion)                              | \$491.9     | \$502.3     | 2.1%                     |
| Operating earnings (US\$ billion)                    | \$48.6      | \$55.7      | 14.6%                    |
| Operating margin                                     | 9.9%        | 11.1%       | 12.2%                    |

| <b>Top 20 US aerospace and defense</b> | <b>2016</b> | <b>2017</b> | <b>Percentage change</b> |
|----------------------------------------|-------------|-------------|--------------------------|
| Revenues (US\$ billion)                | \$356.7     | \$368.6     | 3.3%                     |
| Operating earnings (US\$ billion)      | \$42.1      | \$48.1      | 14.2%                    |
| Operating margin                       | 11.8%       | 13.0%       | 10.6%                    |

\* For companies that did not report 4Q 2017 results, we used Bloomberg estimates for pure play A&D companies and annualized the 1H/9M results for non-pure play A&D companies

Source: Deloitte analysis of the quarterly reports and 10-Q statements for the Top 20 Global and US A&D companies as mentioned in *2017 Global A&D sector financial performance study*, June 2017; Top 20 Global A&D companies include Boeing, Airbus, Lockheed Martin, General Dynamics, United Technologies, GE Aviation, Northrop Grumman, BAE Systems, Raytheon, Safran, Thales, Leonardo, Rolls-Royce, Honeywell Aerospace, L3 Technologies, Textron, Bombardier Aerospace, Mitsubishi Heavy Industries Aerospace, Harris Corp., Huntington Ingalls Industries; Top 20 US A&D companies include Boeing, Lockheed Martin, General Dynamics, United Technologies, GE Aviation, Northrop Grumman, Raytheon, Honeywell Aerospace, L3 Technologies, Textron, Harris Corp., Huntington Ingalls Industries, Spirit AeroSystems, Arconic, Rockwell Collins, Orbital ATK, SAIC, Triumph Group, Leidos Holdings, Transdigm Group.

As illustrated in Figure 16, aggregate revenues for the top 20 global defense companies reported a 2.3 percent increase to US\$263.3 billion in 2017, compared to US\$257.3 billion during 2016.<sup>85</sup> The top 20 US based defense companies reported a stronger revenue growth of 3.8 percent in 2017, as defense budgets in the US began to see an uptick. Whereas, the commercial aircraft sector reported subdued growth in revenues for both top 20 global (1.4 percent) and US commercial aircraft (1.8 percent) companies during 2017.<sup>87</sup> Despite the subdued top-line performance, operating earnings for the global and US commercial aircraft sector experienced robust growth of 32.5 percent and 22.1 percent, respectively, in 2017. This was primarily led by strong execution at Boeing, which recorded a greater than two-fold increase in commercial aircraft segment operating margin, coupled with an improvement in operating performance at Airbus.

**Figure 16. Top 20 global and US A&D companies – commercial versus defense sector financial performance (2016 and 2017\*)**

| Financial performance                         |                     | 2016                    | 2017    | Percentage change |
|-----------------------------------------------|---------------------|-------------------------|---------|-------------------|
|                                               |                     | Revenues (US\$ billion) |         |                   |
| Top 20 global aerospace and defense companies | Commercial aircraft | \$236.4                 | \$239.6 | 1.4%              |
|                                               | Defense             | \$257.3                 | \$263.3 | 2.3%              |
| Top 20 US aerospace and defense companies     | Commercial aircraft | \$153.8                 | \$156.5 | 1.8%              |
|                                               | Defense             | \$203.4                 | \$211.1 | 3.8%              |
| Operating earnings (US\$ billion)             |                     |                         |         |                   |
| Top 20 global aerospace and defense companies | Commercial aircraft | \$19.5                  | \$25.8  | 32.5%             |
|                                               | Defense             | \$29.3                  | \$30.1  | 2.9%              |
| Top 20 US aerospace and defense companies     | Commercial aircraft | \$17.4                  | \$21.2  | 22.1%             |
|                                               | Defense             | \$25.4                  | \$26.5  | 4.2%              |

\* For Companies that did not report 4Q 2017 results, we used Bloomberg estimates for pure play A&D companies and annualized the 1H/9M results for non-pure play A&D companies

Source: Deloitte analysis of the quarterly reports and 10-Q statements for the Top 20 Global and US A&D companies as mentioned in *2017 Global A&D sector financial performance study*, June 2017; Top 20 Global A&D companies include Boeing, Airbus, Lockheed Martin, General Dynamics, United Technologies, GE Aviation, Northrop Grumman, BAE Systems, Raytheon, Safran, Thales, Leonardo, Rolls-Royce, Honeywell Aerospace, L3 Technologies, Textron, Bombardier Aerospace, Mitsubishi Heavy Industries Aerospace, Harris Corp., Huntington Ingalls Industries; Top 20 US A&D companies include Boeing, Lockheed Martin, General Dynamics, United Technologies, GE Aviation, Northrop Grumman, Raytheon, Honeywell Aerospace, L3 Technologies, Textron, Harris Corp., Huntington Ingalls Industries, Spirit AeroSystems, Arconic, Rockwell Collins, Orbital ATK, SAIC, Triumph Group, Leidos Holdings, Transdigm Group.



# Endnotes

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